

Original Article

Adaptation and Validation of the Job Crafting Behaviors of Nurses Scale in Turkish

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Abstract

Background: Job crafting is the behavioral change that the employees initiate of their own accord in order to increase their job skill and motivation and integrate their personal purposes with their jobs.

Aim: The purpose of this study is to adapt the Job Crafting Behaviors of Nurses into Turkish.

Method: This is a methodological and cross-sectional study. The data were collected from two samples between February and June 2015. The first sample consisted of 240 nurses and the second sample consisted of 126 nurses. Data collection tools were an introductory form, the Job Crafting Scale, and the Organizational Identification Scale.

Results: The adapted Turkish version consists of 15 items and 4 factors. Cronbach's alpha coefficients for the factors were 0.95, 0.95, 0.81, and 0.83.

Conclusions: The adapted version of the scale is a valid and reliable tool for measuring the job crafting behaviors of nurses in Turkey.

Keywords: Attitude, Behaviors, Nursing, Organization and administration, Reliability and validity

Introduction

Job crafting is defined as the process whereby employees consciously change and enhance the limits of their jobs and task definitions of their own accord from physical and cognitive aspects in order to increase their job skills and motivation (Wrzesniewski & Dutton, 2001; Berg & Dutton, 2008). Therefore, job crafting is closely related to employees' job satisfaction, motivation, and performance (Grant, 2007; Berg, Wrzesniewski, & Dutton, 2010; Rosso, Dekas, & Wrzesniewski, 2010). This concept includes the individual self-

improvement of employees regarding their job without any administrative intervention. Employees who invest in themselves in job crafting also make considerable contributions to the organizations they work at. This is because these employees not only enhance and enrich the content of their duties but also accelerate achievement of organizational objectives (Tims, Bakker, & Derks, 2012).

The concept of job crafting was proposed by Kulik, Oldham, and Hackman (1987) and examined comprehensively and defined by Wrzesniewski and

Dutton (2001) after years. According to Wrzesniewski and Dutton (2001), employees enhance the frame of the job they are engaged in by using only their own past job experiences and accumulated knowledge, without receiving any administrative assistance. Job crafting may be conducted in three ways. In the first, employees change the duties they are engaged in and the content of these duties. In the second, employees change the social relationship aspect of their jobs concerning their colleagues or the individuals they offer services to. In the third, employees enhance the perceptual aspect of their jobs in order to strengthen their job. For example, cleaning staff working at a hospital may start to consider their job as helping patients rather than merely cleaning (Wrzesniewski & Dutton, 2001). Employees who are responsible and motivated for their performance are another example of job crafting (Parker & Ohly, 2008).

Job crafting is not the redesigning of the job, but enhancing the scope and contents of the job within its own limits (Berg & Dutton, 2008); it is also the individual redefinition of the job and attribution of a new image to the job by the employee (Wrzesniewski & Dutton, 2001). The most significant feature of job crafting is that it is done of the employees' own accord. Change also takes place spontaneously through employees' own accord in proactive behavior, which is generally observed in persons with proactive personality traits (Parker & Collins, 2010). However, the most important feature of job crafting that distinguishes it from other proactive behaviors is that its primary purpose for employees is to increase their own motivation by enhancing the content of their job (Tims, Bakker, & Derks, 2012). This situation drives employees and administrators sometimes to the point of agreement (Hornung et al., 2010) and sometimes to the point of confrontation (Nadin, Waterson, & Parker, 2001) in terms of working conditions and reorganization of the job. Although rare, job crafting may have negative effects for some organizations. For instance, the attitude of a creative employee, who loves to improve himself/herself, towards self-improvement and job improvement may be detrimental to closed organizations that insist on using traditional methods and strategies (Berg, Dutton, & Wrzesniewski, 2013). However, this situation

changes, especially in organizations that need to easily adapt to improvements and be open to changes, such as healthcare institutions. Changes that are implemented in order to balance the job environment and available resources with the expectations and needs of employees within the scope of job crafting in such open-system organizations have positive results not only for the employee but also for the organization (Tims & Bakker, 2010). Job crafting strengthens the significance of a job and results in positive job identification (Wrzesniewski & Dutton, 2001) while increasing employees' job satisfaction and reinforcing commitment to the institution by strengthening the harmony between employees and their job (Kristof-Brown, Zimmerman, & Johnson, 2005). Job crafting, which is observed at a higher level particularly among those who are self-confident, have the capacity of self-control, question, and examine, is considerably effective in increasing individual and organizational performance (Lyons, 2008). Therefore, administrators should focus on creating resources and environments conducive to job crafting. For instance, the communication established by nurses with patients apart from their tasks increases their motivation and job satisfaction (Berg, Dutton, & Wrzesniewski, 2013).

Nurses who establish one-to-one 24-hour communication with patients and their families and carry out many professional roles simultaneously are also job crafters/nurse crafters by enhancing the frame of their job. When the profession of nursing is evaluated as a whole, it can be asserted that it is among the leading professions that apply job crafting in the widest sense. Therefore, a valid measurement tool is required to evaluate the job crafting behaviors of nurses. The purpose of this study is to adapt the English version of the Job Crafting Scale to nursing in Turkey.

Method

Study Design

This is a methodological and cross-sectional study.

Setting and Sample

The data were collected between February and June 2015. There were two samples in this study. The first sample consisted of 240 nurses who were working in four hospitals (a public hospital, a

public university hospital, a private hospital, and a private university hospital) in Istanbul. The first sample was used to define whether the original structure is similar to the adapted version via confirmatory and explanatory factor analysis. The participants were mostly female (94.6%), holding a bachelor's degree (62.1%), and working in inpatient units (79.1%) as staff nurses (85.4%). The participants' ages ranged between 19 and 52 years (mean = 31.95 ± 7.55); their duration of experience in the hospital ranged between 1 and 33 years (mean = 8.11 ± 7.92), and their experience in the profession ranged between 1 and 33 years (mean = 10.29 ± 8.14).

The second sample consisted of 126 nurses who were working in a public university hospital in Istanbul. The second sample was used to confirm the fit of the adapted structure via confirmatory factor analysis. The participants were mostly female (96.0%), holding a bachelor's degree (62.7%), and working in inpatient units (83.3%) as staff nurses (80.2%). The participants' ages ranged between 24 and 52 years (mean = 34.73 ± 7.48); their duration of experience in the hospital ranged between 1 and 33 years (mean = 11.13 ± 8.57), and their experience in the profession ranged between 1 and 33 years (mean = 12.79 ± 8.50).

Ethical Considerations

Permission was received from the researcher who developed the original scale by e-mail. The study protocol was approved by the ethics committee of a university hospital (approval no. A-07/06.01.2015). Then, permission was received from the administrative and nursing service management of the hospitals where the data were collected. The participants were informed about the study and gave informed consent.

Limitations of the Study

Among reliability analyses, the test-retest showing the scale's invariance against time was not conducted.

Measures/Instruments

Data were collected via three tools. The first was an introductory form with seven questions about sociodemographic characteristics of the participants (age, gender, education levels, etc.)

The second was the Job Crafting Scale, which was developed by Tims, Bakker, and Derks (2012). The authors initially designed a 42-item scale with 3 subscales, on the basis of a literature review. However, as a result of analyses, a total of 21 items were omitted and the remaining 21 items were divided into 4 factors. These factors were "increasing structural job resources" (5 items), "decreasing hindering job demands" (6 items), "increasing social job resources" (5 items), and "increasing challenging job demands" (5 items). Internal consistency coefficients of the subscales ranged between 0.75 and 0.82 (Tims, Bakker, & Derks, 2012).

The third was the Organizational Identification Scale, which was developed by Mael and Ashford (1992) and adapted into Turkish by Tak and Aydemir (2004). Responses ranged from 1 (strongly disagree) to 5 (strongly agree), creating a mean score ranging from 1 to 5. Cronbach's alpha coefficient for the Turkish version was reported to be 0.88.

Data Collection

There is no universal agreement on how to adapt an instrument for use in another cultural setting (Gjersing, Caplehorn, & Clausen, 2010). It is advisable to perform similar but different studies to test reliability and validity in different cultures. In the present study, these steps were followed:

Step 1: Translating, backtranslating and synthesizing of the scale items. Presentation of the items for expert opinion

Step 2: Examining the suitability of the scale's 4-factor and 21-item structure for Turkish nurses via confirmatory factor analyses (sample 1).

Step 3: Examining the correlations between items and the total scale as the original factor structure is not valid for Turkish nurses (sample 1).

Step 4: Exploring the scale's factor structure in a sample of Turkish nurses following the elimination of items that have weak correlations with the total scale (sample 1).

Step 5: Confirming the newly obtained factor structure (sample 2).

Step 6: Determining the internal consistency of the structure adapted for Turkish nurses (sample 1).

Step 7: Examining the criterion validity of the Turkish version of the Job Crafting Scale through its correlations with the Organizational Identification Scale.

Data Analysis

Data were analyzed through IBM SPSS Statistics 21 and LISREL 8.51. The following were used for analysis: descriptive statistics (frequency, percentage, mean, standard deviation), Pearson's product-moment correlation analysis, and psychometric testing (content validity ratio, item-total correlation, Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity, exploratory factor analysis and confirmatory factor analysis, and internal consistency coefficient). A p level of ≤ 0.05 was considered statistically significant.

Results

Step 1: Language and Content Validation

The method recommended by the World Health Organization for the adaptation of tools developed in different languages was employed in order to test the language validity of the Job Crafting Scale (WHO, 2008). The original English version was translated into Turkish by four professional linguists. After the necessary revisions were made by the researchers, the scale was back-translated into English by two academicians.

Lawshe's technique was used to assess content validity (Lawshe, 1975). The prepared Turkish form was evaluated by twelve experts outside the research team who were working in the field of nursing and had experience in scale development or adaptation research (Gjersing, Caplehorn, & Clausen, 2010). Lastly, a pilot study was conducted on a sample of 17 individuals who were not part of the study samples. On the basis of these participants' suggestions concerning items of the scale, the scale was revised and then subjected to the validity and reliability analyses.

Step 2: Confirmatory Factor Analysis

Confirmatory factor analysis was conducted on data from 240 nurses in order to evaluate the fit of the original structure of the Job Crafting Scale,

which consisted of 4 subscales and 21 items. In this analysis, the lowest factor loadings were found to be 0.65 for the first subscale, 0.54 for the second subscale, 0.58 for the third subscale, and 0.77 for the fourth subscale. However, fit indexes were as follows: $\chi^2 = 1568.81$, $df = 183$, $RMSEA = 0.178$, $GFI = 0.62$, $CFI = 0.66$, and $IFI = 0.66$. Revisions made in line with the modification suggestions did not result in sufficient improvement in the fit indexes.

Step 3: Item-Total Correlation Analysis

When it was determined that the fit indexes did not confirm the original scale structure, items that had weak correlations with the overall scale were eliminated. The item-total correlation values of all items except for one were found to be above 0.40 in the analysis conducted for this purpose. Item 10, whose item-total correlation coefficient was 0.307, was omitted. In the second item analysis, none of the remaining 20 items had a factor loading below 0.40. The analyses were continued with these 20 items.

Step 4: Exploratory Factor Analysis

The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity were used to assess whether the sample was adequate and the factor correlation matrix was suitable for factor analysis. The values were as follows: $KMO = 0.889$, $\chi^2 = 3863.898$, $df = 190$, and $p < 0.001$.

Exploratory factor analysis conducted with principal component analysis and varimax rotation showed that the 20 items were divided into 4 factors, which had eigenvalues above 1 and explained 71.781% of the total variance. Percentages of total variance explained were 46.058% for the first factor, 10.867% for the second factor, 9.585% for the third factor, and 5.270% for the fourth factor (Table 1).

Items 4, 5, 12, and 18 were omitted from the scale during the factor analysis as they simultaneously had high loadings onto multiple factors. Subsequently, the analyses were continued with 16 items.

Table 1. Results of Reliability and Structural Analyses (Steps 4 And 6)

Factor no.	Factor name	Items	% of explained variance (Step 4)	Cronbach's alpha (Step 6)
F1	Increasing social job resources and job demands	13, 14, 15, 16, 17, 19, 20, 21	46.058	.946
F2	Increasing structural job resources	1, 2, 3	10.867	.946
F3	Decreasing hindering relationships	8, 9	9.585	.805
F4	Decreasing hindering job demands	6, 7	5.270	.834
JCS ^a Total			71.871	.931

^aJCS = Job Crafting Scale**Table 2. Construct Validity of the JCS: Goodness of Fit Indices (Step 5)**

Model	χ^2/df	RMSEA	GFI	CFI	IFI
JCS ^a (four-factor model)	3.36	.099	.87	.92	.92

^aJCS = Job Crafting Scale, df = degrees of freedom, RMSEA = Root mean square error of approximation, GFI = Goodness of fit index, CFI = Comparative fit index, IFI = incremental fit index**Table 3. Criterion Validity of the JCS: Correlation With the OIS (Step 7)**

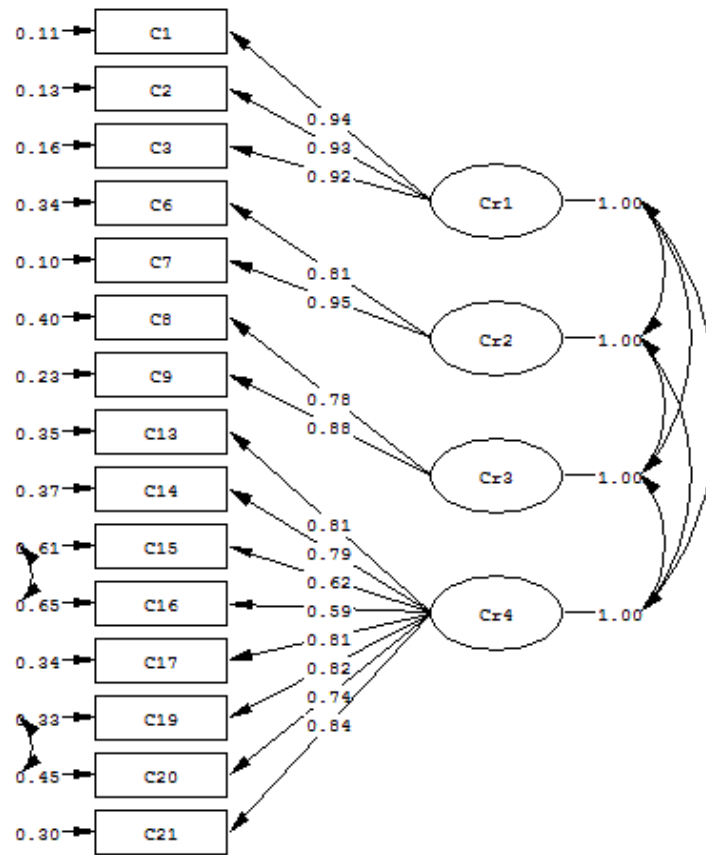
	Min	Max	Mean	SD	r/P
JCS ^a	2.07	7.00	3.93	.702	$r = .517$
OIS ^b	1.00	5.00	3.45	1.06	$P < .001$

^aJCS = Job Crafting Scale, ^bOIS = Organizational Identification Scale, SD = standard deviation, Min = minimum, Max = maximum

Table 4. Subscales and Items of the Adapted Turkish Version of the JCS^a

Increasing social job resources and job demands	
13	I ask whether my supervisor is satisfied with my work
14	I look to my supervisor for inspiration
15	I ask others for feedback on my job performance
16	I ask colleagues for advice
17	When an interesting project comes along, I offer myself proactively as project co-worker
19	When there is not much to do at work, I see it as a chance to start new projects
20	I regularly take on extra tasks even though I do not receive extra salary for them
21	I try to make my work more challenging by examining the underlying relationships between aspects of my job
Increasing structural job resources	
1	I try to develop my capabilities
2	I try to develop myself professionally
3	I try to learn new things at work
Decreasing hindering relationships	
8	I manage my work so that I try to minimize contact with people whose problems affect me emotionally
9	I organize my work so as to minimize contact with people whose expectations are unrealistic
Decreasing hindering job demands	
6	I make sure that my work is mentally less intense
7	I try to ensure that my work is emotionally less intense

^aJCS = Job Crafting Scale



Chi-Square=274.36, df=82, P-value=0.00000, RMSEA=0.099

Figure 1. The Results of Confirmatory Factor Analysis (Step 5)

Step 5: Confirmatory Factor Analysis

Confirmatory factor analysis was applied once again using data from the second sample of 126 nurses in order to evaluate the fit of the newly obtained structure of the scale. When modification suggestions were examined, Item 11 was found to be also strongly correlated with 3 factors other than its own factor, and this item was also omitted from the scale. Additionally, error covariance was assigned between Items 15 and 16 and between Items 19 and 20 (Figure 1).

Factor loadings on the subscales were examined upon performing of all these modifications; they were ≥ 0.92 for the first factor, ≥ 0.81 for the second factor, ≥ 0.78 for the third factor, and ≥ 0.61 for the

fourth factor (Figure 1). Fit indexes were as follows: $\chi^2 = 274.36$, $df = 82$, $RMSEA = 0.099$, $GFI = 0.87$, $CFI = 0.92$, and $IFI = 0.92$ (Table 2).

Step 6: Internal Consistency Assessment

After the elimination of a total of 6 items from the 21-item scale, in the analysis conducted to determine the internal consistency of the 15-item scale, Cronbach’s alpha was 0.932 for the total scale and ranged between 0.805 and 0.946 for the subscales (Table 1).

Step 7: Criterion Validity

The correlation of the newly developed Turkish version and the Organizational Identification Scale was calculated. A simple scatter plot was created to

check linear relationships, and then, Pearson's analysis showed a significant correlation between the two scales ($r = 0.517$; $p < 0.001$; Table 3).

Discussion

Step 1: Language and Content Validation

The method recommended by WHO (2008) for the adaptation of tools developed in different languages was employed to reduce differences due to psycholinguistic characteristics between cultures. The scale items were translated from English into Turkish through collaboration between researchers and four professional linguists. The Turkish translation was back-translated into English by one South African academician who has full command of both Turkish and English and lives in Turkey, and two Turkish academicians who live abroad. These steps ensured similarity in meaning between items in the scale's original version and in its Turkish translation. Afterwards, content validity was examined in order to assess whether the scale's items covered the concept that needed to be measured (Polit & Beck, 2012). The Turkish version was evaluated by twelve experts in the content validity analysis performed using Lawshe's technique (Lawshe, 1975; Veneziano & Hooper, 1997). The content validity criterion was determined to be 0.56 according to Lawshe's technique (Lawshe, 1975; Veneziano & Hooper, 1997; Harrington, 2009) since opinions were received from twelve experts. No item was omitted in this step as none had values below 0.56.

Step 2: Confirmatory Factor Analyses

Confirmatory factor analysis is used for four major purposes, and one of them is "testing measurement invariance (e.g. across groups or populations)" (Simsek, 2007). Confirmatory factor analyses were conducted in this study in order to test the construct determined in the original study.

In the analysis, model compatibility is decided according to various fit indexes. There are numerous such indexes, and there is no absolute consensus concerning which among them should be reported (Kline, 1994). Chi-square/degree of freedom, RMSEA, GFI, CFI and IFI were reported in this study as they are the most commonly used fit indexes. Despite some flexibilities in the fit indexes, generally desired values are as follows (Kline, 1994):

χ^2 /sd: lower than 2 is normal; lower than 5 is acceptable.

RMSEA: lower than 0.05 is normal; lower than 0.08 is acceptable.

GFI: higher than 0.95 is normal; higher than 0.90 is acceptable.

CFI and IFI: higher than 0.95 is normal; higher than 0.90 is acceptable.

The results of this study showed that the scale's original structure did not have acceptable fit.

Step 3: Item-Total Correlation Analysis

Item analysis is conducted to determine the strength and consistency of the correlation between items. As low item-total correlations also reduce the scale's reliability, the correlation between variables should not be negative or low (Akgul, 2005; Ayre & Scally, 2014; Buyukozturk, 2011). A correlation coefficient below 0.30 indicates that the item is inadequate, whereas a value above 0.40 indicates items with good distinguishing features (Buyukozturk, 2011). Therefore, one item with an item-total correlation of 0.307 was omitted from the scale.

Step 4: Exploratory Factor Analysis

After the original structure was not confirmed in the CFA analyses, the 20 items remaining after item analysis were considered a single item pool and subjected to exploratory factor analysis to explore the factor structure for the Turkish sample.

Various analyses are performed to evaluate whether the sample has an adequate size before factor analysis is conducted. In this study, the Kaiser-Meyer-Olkin (KMO) sampling adequacy test was used. Polit and Beck (2012) report that if the KMO test result is above 0.50, factor analysis can be applied, a KMO value between 0.70 and 0.80 indicates moderate sampling adequacy, a value between 0.80 and 0.90 indicates good sampling adequacy, and a value above 0.90 indicates perfect sampling adequacy. Significant results of Bartlett's test, another test of sampling adequacy, also reveal that the correlation matrix of the scale's items is adequate for conducting factor analysis (Polit & Beck, 2012). In this study, the KMO value, which was found to be 0.889, indicated that the sample was adequate for the factor analysis, and the significant Bartlett's test

results showed that the items have an adequate correlation matrix.

Principal component analysis, which is the most commonly used form of exploratory factor analysis and has been reported to be relatively easy to interpret, was preferred in this study. Additionally, rotation is conducted in order to clarify independence and interpretation during the factor analysis. Varimax rotation, which is among the most commonly used vertical rotation techniques, was used in this study (Ayre & Scally, 2014).

The higher the total variance explained by factors as a result of the analysis, the stronger the scale's factor structure. While at least 30% of the total variance should be explained in single-factor analyses, this rate should be higher in multiple-factor structures (Ayre & Scally, 2014). The four factors obtained in this scale explained the majority of the total variance; therefore, the factor structure can be considered suitable.

Three basic criteria are taken into consideration in the factor analysis. The first is that items should have high loadings for the factor they belong to. Although the literature has not defined limits for the factor loadings explaining the correlations of items with factors, Akgul (2005) reports that the lowest acceptable factor loading is 0.30, factor loadings between 0.30 and 0.59 are moderate, and those of 0.60 and above are high. Since the factor loadings of all items were above 0.30 in this study, no item was eliminated through factor analysis. However, the second criterion is that the items have a high loading for a single factor but low loadings for other factors; the exploring of structures that are independent of each other can come into question if this criterion is met. It is controversial how much difference can be ignored, and loadings are expected to be as high as possible. The difference between two high loadings should be at least 0.10 (Buyukozturk, 2011). Since items 4, 5, 12, and 18 had high factor loadings simultaneously for multiple factors during the factor analysis in this study, they were omitted from the scale and the analyses were continued with the remaining 16 items.

Step 5: Confirmatory Factor Analysis

Confirmatory factor analysis was applied again in the second sample of 126 nurses in order to evaluate the fit of the newly obtained structure of

the scale. In this step, no item was eliminated, since the factor loadings of items were far above 0.40, which was previously specified as the threshold value. However, the fact that an item is simultaneously strongly correlated with all factors disrupts the independent structure of factors; one item (item 11) with such characteristics was therefore omitted.

Error covariance between items was assigned in line with modification suggestions. However, increasing error covariance signifies that the model is increasingly losing its confirmative features. Therefore, defining more than two or three covariances may lead to doubt concerning how good the model is. However, this does not negate the established model's validity. What is important here is that the theoretical rationales of the assigned covariances are very explicitly ascribed (Kline, 1994). Two covariance assignments were conducted between the items that significantly affected the model's structure and theoretically had similar meanings in this study. These items were "I ask others for feedback on my job performance" and "I ask colleagues for advice," which were in the same subscale (Factor 1), and "when there is not much to do at work, I see it as a chance to start new projects" and "I regularly take on extra tasks even though I do not receive extra salary from them," which were also in Factor 1. The first two items were similar to each other in terms of receiving feedback and advice from others, whereas the second two items showed similarity in terms of making positive job-related attempts without expecting anything in return even when other options exist.

After the revisions made during CFA, the model showed a good fit in terms of CFI and IFI, acceptable fit in terms of χ^2/df and RMSEA, and almost acceptable fit in terms of GFI.

Step 6: Internal Consistency Assessment

Cronbach's alpha, which is commonly used, especially in Likert-type scales, was calculated in order to determine the internal consistency of the measurements obtained from the scale. The alpha coefficient, which shows the internal consistency of measurements, indicates that the scale is non-reliable if it is lower than 0.40; indicates that the scale has a low reliability if it ranges between 0.40 and 0.59; indicates that the scale is reliable if it

ranges between 0.60 and 0.79; and indicates that the scale has a high reliability if it ranges between 0.80 and 1.00 (Buyukozturk, 2011; Polit & Beck, 2012). The alpha coefficients for the total scale and its subscales can therefore be considered to have high reliability.

Step 7: Criterion Validity

Criterion validity is determining by administering a scale that is developed in two forms and with equivalent qualities to the same group incessantly at the same time, or intermittently at two different times, and then testing the relationship between the sets of scores through Pearson's correlation analysis (Polit & Beck, 2012). Akgul (2005) indicates that a linear correlation must exist between the variables in order to calculate the Pearson correlation coefficient. He also recommends that it is not appropriate to conduct this analysis in case of non-linear correlations, and suggests that a scatter plot should be created in order to examine the presence of a linear correlation between variables. In this study, the scatter plot of scores from the Job Crafting Scale and Organizational Identification Scale confirmed the presence of a positive linear correlation. Akgul (2005) reports that correlation coefficients between 0.50 and 0.69 are moderate, between 0.70 and 0.89 are strong, and between 0.90 and 1.00 are very strong. In the present study, the correlation between the two scales was moderately strong and positive, and statistically very significant.

The adapted items and subscales of the Job Crafting Scale are shown in Table 4.

Conclusions

The original structure of the Job Crafting Scale, which was developed by Tims, Bakker and Derks (2012) and consists of 21 items and 4 factors, did not have acceptable compatibility for nursing. The present study developed a version with 15 items and 4 factors that was found to be valid and reliable for nursing samples.

The scale's content seems to be adequate for measuring the job crafting behaviors of nurses. However, considering that the structures of scales are affected by cultural differences, the present instrument's validity and reliability should be tested before it is applied in other cultures. This adapted scale can be used in Turkish hospitals to

assess the job crafting levels of clinical nurses. Because it is important to measure job crafting which creates a positive effect from organizational aspect by increasing nurses' job satisfaction, performance and commitment to their institutions.

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