

## Validity and Reliability of the Turkish Version of the Job Satisfaction Survey (JSS)

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**Abstract:** The purpose of this study was the adaptation of job satisfaction survey (JSS) which is developed by Spector [7] to Turkish language and testing validity and reliability of its. The original survey was in English and consists of nine factors including 36 items. Firstly, survey was translated into Turkish and in order to assess the face validity of the translated items, the survey was sent four experts who are studying in the fields of measurement and evaluation and it was improved based on their feedbacks. This Turkish version of study was applied 380 white collar staff. Principal Components Analysis (PCA) was conducted to examine the construct validity of the scale and as a result of the factor analyses. The factor structure of the Turkish version was found to be similar to original survey. Test-retest and Cronbach alpha reliability coefficient were calculated to determine reliability of the tool and the all sub-dimensions. These findings revealed that Turkish version of the (JSS) are a valid and reliable instrument that can be used to measure job satisfaction.

**Key words:** Job satisfaction, Reliability, Validity, Adaptation, Turkish, Attitude

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### INTRODUCTION

The term job satisfaction, which could be considered as individuals' attitudes towards their jobs, has been examined not only by organizational scientists as human behavior influence organizations, but also psychologists and social psychologists because they occur in society and affect communities.

In some studies, job satisfaction is called "meeting important needs at workplace". In some others, it is considered to be the difference between personal expectations from the job and human perceptions about what they really get. At the same time, job satisfaction could be defined as the extent to which jobs provide people with things that bring them comfort. From another point of view, job satisfaction is emotional reactions to jobs. It is generally considered to be corresponding to what attitudes towards jobs mean. It appears to be a function of the difference between people's experiences at work and what they desire to get [1].

Job satisfaction is related to negative and positive feelings and attitudes towards jobs and depends on many factors about jobs. Individual qualities might also influence job satisfaction. High motivation and wishes/expectations from jobs can also change attitudes towards jobs. For some workers, job satisfaction is constant and stable. It is independent from job qualities.

Status, wages, working conditions and changes in goals slightly affect those people's job satisfaction level. Personal tendencies to happiness (satisfaction) or unhappiness (dissatisfaction) merely change conditions [2].

Theories of motivation influence systematic examination of job satisfaction. It is observed that Maslow's Hierarchy of Needs, Herzberg's Two Factor Theory and Adams' Equity Theory, the most common theories in the literature, are still of importance and frequently used in job satisfaction studies [3].

Brief [4] defines job satisfaction as a positive feeling of pleasure caused by assessment of jobs and experience, stating that Lock's (1976) definition was the basis in job satisfaction theories developed until 1990s. Schultz and Schultz [2] define job satisfaction as psychological tendencies towards jobs which include a lot of feelings and attitudes. According to Spector [5], job satisfaction expresses worker's feelings about their jobs.

Job satisfaction levels of workers result socially and economically for both workers and organizations. Research has shown correlations between job satisfaction levels of workers and their performances, absenteeism, job changing intentions and mental and physical health [6].

There are two aspects of job satisfaction, according to theories of job satisfaction, models and all the other research. The first is atmosphere and job-related factors.

This dimension includes individual treatments, task qualities and relationships with coworkers and awards. The second covers individual personality and previous experiences. The variables under two categories interact with each other and influence job satisfaction [5]. Spector [5] called these variables under two categories environmental and individual factors and classified them as the following: "Wage", "Promotion prospects", "Control", "Supervision and Coworkers", "Communication", "Social Appearance of the Organization and Working Conditions".

Although there has been much job satisfaction research in Turkey, it is seen that studies are limited in number, when compared to those conducted abroad. The scales that have long been used abroad were rather developed to determine physical conditions of workplace. Items in those scales are sometimes inefficient to show the effect of these conditions on worker's feelings. Therefore, it is agreed that the translating JSS, a scale developed by Spector [5], into Turkish will contribute to the field, as it is considered enough to measure the effects of work and physical conditions at workplace on worker's feelings.

In the literature, it is stated that various scales to measure job satisfaction are used in studies and there is no certain method, technique or model to measure job satisfaction. That's why researchers may decide the most eligible method, taking the study sample into account [8].

Although there are studies about psychometrical features of JSS abroad (e.g: [9], [10], [11]), validity and reliability studies of the scale have not been conducted yet in our country. The main purpose of the present study is to determine psychometrical features of JSS in Turkish sample. Results of validity and reliability studies of a tool to assess various factors of job satisfaction are of importance for further theoretical and practical studies.

## MATERIALS AND METHODS

During the adaptation process, a method based on a model described by Bristlin *et al.* [12] was used, which consisted of five steps: forward translation, assessment of forward translation, backward translation, assessment of backward translation and local meeting with professionals.

**Participants:** The sample of the study was 380 white collar staff who were worked in a company in financial sector and % 54,2 of whole was male, % 45,8 of was female.

**Instrument:** JSS is a 36 item, nine subscales to assess employee attitudes about the job and aspects of the job [5]. Each subscale is assessed with four items and a total score is computed from all items. A summated rating scale format is used, with six choices per item ranging from "strongly disagree" to "strongly agree". Items are written in both directions, so about half must be reverse scored. The nine subscales are Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards (performance based rewards), Operating Procedures (required rules and procedures), Coworkers, Nature of Work and Communication (Table 1). Although the JSS was originally developed for use in human service organizations, it is applicable to all organizations. The norms provided on this website include a wide range of organization types in both private and public sectors.

The Job Satisfaction Survey has some of its items written in each direction--positive and negative. Scores on each of nine subscales, based on 4 items each, can range from 4 to 24; while scores for total job satisfaction, based on the sum of all 36 items, can range from 36 to 216. Each item is scored from 1 to 6 if the original response choices are used. High scores on the scale represent job satisfaction, so the scores on the negatively worded items must be reversed before summing with the positively worded into subscales or total scores. A score of 6 representing strongest agreement with a negatively worded item is considered equivalent to a score of 1 representing strongest disagreement on a positively worded item, allowing them to be combined meaningfully.

**Data Analysis:** Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) was applied to determine whether the adapted forms of JSS had valid factor structure. In this study EFA was performed to examine the factor structure of the scale according to the data obtained from the Turkish participants and CFA was applied to confirm the original scale structure in Turkish culture. As reliability analysis, internal consistency, item-total correlations and test-retest coefficients were examined. Data were analyzed using SPSS 11.5 and LISREL 8.54.

**Forward Translation and Assessment Forward Translation:** The initial translation of the JSS from English to Turkish was performed independently by four bilingual translators whose mother tongue was Turkish. The first translator was a researcher of this study and the other translators were psychologist (PhD level) who was familiar job satisfaction and concept of the study.

Assessment of forward translations was performed by a group which a researcher of psychology and a researcher of psychometry. These people were asked to review each item of all translations independently and choose the best one in terms of clarity, common language and cultural adequacy.

**Backward Translation and Assessment of Backward Translation:** The agreed Turkish translation was then retranslated to English by a researcher of psychology. Translator identified any corrections in grammar, word usage or didactical markings necessary in the Turkish translation given.

Assessment of backward translations was reviewed by a group of six people who attended several social research project done before in Ankara University. This process focused on the conceptual equivalence with the original version of JSS. Six expressions were modified and prefinal version of Turkish JSS was approved.

The prefinal version of Turkish JSS was reviewed by a panel which consisted of the researcher, two researcher of psychology, a researcher of psychometry and three human resources manager from a private sector company.

A pilot study with Turkish prefinal version of JSS was presented by 20 subjects (10 male, 10 female) with various education and occupational profiles. Each subject was given a brief introduction and request to complete Turkish prefinal version of JSS independently. Subsequently, each subject was interviewed about clarity and understandability of the Turkish form. Some expressions were modified after the pilot study so that expressions were understood by as many subject as possible.

**RESULTS**

In this section, findings on exploratory factor analysis and confirmatory factor analysis of the Turkish version of JSS were presented in the first place and then results of re-test and internal consistency coefficients were presented.

**Statistical Analysis of Validity:** Exploratory Factor Analysis (EFA). To determine the dimensions of the JSS, factor analysis was carried out in four stages. These stages are; the analysis of data in terms of their compatibility with factor analysis, obtaining factors, factor rotation and naming factors [13].

In order to test whether the data of (JSS) lends itself for factor analysis, first the Bartlett's test of Sphericity and Kaiser-Meyer-Olkin (KMO) sample sufficiency tests

Table 1: JSS- Job Satisfaction Survey Subscales and Descriptions

Subscales	Descriptions
Pay	Pay and remuneration
Promotion	Promotion opportunities
Supervision	Immediate supervisor
Fringe Benefits	Monetary and nonmonetary fringe benefits
Contingent Rewards	Appreciation, recognition and rewards for good work
Operating Procedures	Operating policies and procedures
Coworkers	People you work with
Nature of Work	Job tasks themselves
Communication	Communication within the organization

Table 2: JSS rotated factor loadings, eigenvalues and common variance

Item No.	Factor loading with Varimax rotation								
	1	2	3	4	5	6	7	8	9
1	0.717								
10	0.699								
19	0.445								
28	0.442								
2		0.734							
11		0.584							
20		0.525							
33		0.423							
3			0.789						
12			0.616						
21			0.571						
30			0.430						
4				0.741					
13				0.683					
22				0.620					
29				0.513					
5					0.680				
14					0.587				
23					0.572				
32					0.503				
6						0.732			
15						0.679			
24						0.655			
31						0.597			
7							0.701		
16							0.664		
25							0.568		
34							0.552		
8								0.757	
17								0.645	
27								0.564	
35								0.419	
9									0.700
18									0.635
26									0.631
36									0.611
Eigenvalue	11.01	3.70	2.51	2.12	1.81	1.63	1.45	1.36	1.25
Variance (%)	28.62	8.13	6.02	4.55	3.86	3.55	3.12	3.01	2.89
Cronbach-Alpha coefficient (N=380)	0.63	0.69	0.74	0.65	0.71	0.76	0.77	0.82	0.88

were conducted. The result of Bartlett's test of Sphericity was found significant ( $\chi^2= 1750.03$   $p=.05$ ). The significant of this value supported the assumption that there is high correlation among items in the correlation matrix, thus, the data was accepted convenient for factor analysis.

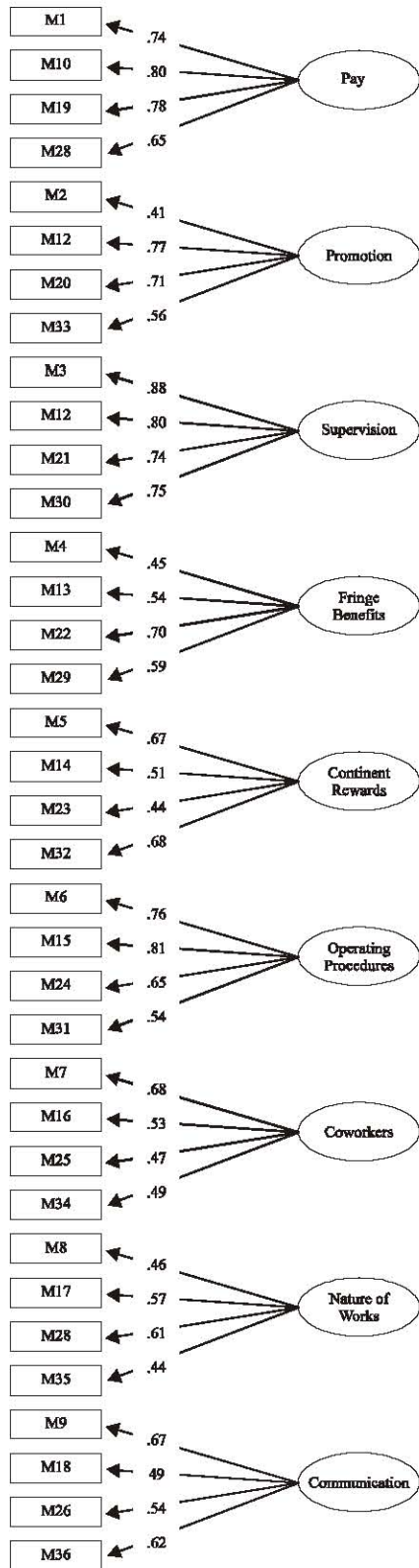


Fig. 1: Structural model of the Turkish JSS

In addition, the KMO test was found to be 0,91 as the KMO value was above 0,60 [14], the data gathered was found to be appropriate for factor analysis. All the tests carried out referred to the results that the data was appropriate for factor analysis.

To determine the factor structure of JSS, exploratory factor analysis and widely used technique of principal component analysis were used. As a result of the analysis conducted with this technique, factors with the value of eigenvalue [13] the nine factor structure of the JSS was carried out. The explained variance of the nine factors was respectively 28.62%, 8.13%, 6.02%, 4.55%, 3.86%, 3.55%, 3.12%, 3.01% and 2.89%.. The total variance for the scale is 63,75%. The factor analysis results are given in Table 2 with eigenvalues and common variances.

Confirmatory Factor Analysis (CFA). CFA is a frequently used technique to find out and reveal covariance and variance resources of the observed measured. CFA aims at discovering factor(s) based on correlations between variables [15]. It pursues a goal to confirm an already determined or designed structure.

In this study, confirmatory factor analysis of the Turkish version of JSS was conducted with 380 personnel randomly chosen from the participants with the reason that CFA was sensitive to the sample size. Therefore, it is desirable that chi-square ( $\chi^2$ ), firstly assessed fit index, should not be significant in terms of acceptability of the model. However, it is almost always significant in large samples. Tanaka, Panter, Winborne and Huba [16] suggested that for normally distributed data, n=100 generally at minimum level and n=200 were considered as preferable limits.

The results of CFA indicated that the model was well fit and Chi-Square value ( $\chi^2=745.29$ , N=380, df=446, p<.000,  $\chi^2/df= 1.67$ ) which was calculated for the adaptation of the model was found to be significant. In the literature, when  $\chi^2/df$  rate calculated by CFA is lower than 3, it means that the factorial model being tested is in accordance with the real data [17]. The goodness of fit index values of model were RMSEA=.043, RMR=.014, standardized RMR=.048, GFI=.91, CFI=.97, NFI=.97, IFI=.93 and RFI=.92. According to these values, it can be said that the structural model of JSS which consists of nine factors was well fit to the Turkish culture (Fig. 1).

**Statistical Analysis of Reliability:** Cronbach alpha coefficient for each dimension of the scale ranged from 0.63 to 0.88 on the JSS. Overall, the reliability estimate for the total scale is 0.78 for the thirty-six items of the adapted scale.

Table 3: JSS reliability scores

Subscale	$\bar{x}$	Sd	Factor Values	Corrected Item total correlation coefficient	Cronbach alpha coefficient	Test re-test coefficient (N=50)
Pay	11.9	2.6	0.63	0.52	0.63	0.87
Promotion	12.5	1.7	0.61	0.51	0.69	0.81
Supervision	17.3	2.1	0.56	0.66	0.74	0.84
Fringe Benefits	13.3	1.4	0.66	0.60	0.65	0.73
Contingent Rewards	11.2	1.5	0.47	0.55	0.71	0.79
Operating Procedures	15.7	2.3	0.43	0.46	0.76	0.74
Coworkers	18.1	3.2	0.53	0.44	0.77	0.72
Nature of Work	12.9	2.6	0.62	0.57	0.82	0.77
Communication	18.4	1.5	0.44	0.55	0.88	0.70
Total	157.2	10.1	1.00	1.00	0.78	0.83

Table 4: Means and standart deviations of JSS

Subscale	America Sample (N=7244) Spector (2007)		Turkish Sample (N=380) Turkish Version	
	$\bar{x}$	Sd	$\bar{x}$	Sd
Pay	12,3	2,1	11.9	2.6
Promotion	13,6	1,5	12.5	1.7
Supervision	18,6	1,8	17.3	2.1
Fringe Benefits	14,9	2,3	13.3	1.4
Contingent Rewards	13,8	1,6	11.2	1.5
Operating Procedures	15,4	1,4	15.7	2.3
Coworkers	17,7	1,5	18.1	3.2
Nature of Work	18,5	1,5	12.9	2.6
Communication	14,6	1,7	18.4	1.5
Total	139,1	9,6	157.2	10.1

Table 5: Internal consistency coefficients of JSS

Subscale	America Sample Spector (2007)		Turkish Sample Turkish Version	
	N	Cronbach Alpha	N	CronbachAlpha
Pay	2870	0.75	380	0.63
Promotion	2870	0.73	380	0.69
Supervision	2870	0.82	380	0.74
Fringe Benefits	2870	0.73	380	0.65
Contingent Rewards	2870	0.76	380	0.71
Operating Procedures	2870	0.62	380	0.76
Coworkers	2870	0.60	380	0.77
Nature of Work	2870	0.78	380	0.82
Communication	2870	0.71	380	0.88
Total	2870	0.91	380	0.78

The results of test-retest reliability coefficients 0.63, 0.69, 0.74, 0.65, 0.71, 0.76, 0.77, 0.82 and 0.88 respectively. The corrected item-total correlations of JSS ranged from 0.44 to 0.66. Table 3 shows the alpha coefficients,

test-retest coefficients and item total correlations coefficients for each subscale of this study.

The reliability estimates were comparable with the previous studies (e.g.[18]). In fact, the estimate scores of the Turkish version of the JSS were higher than the original study. Table 4 and Table 5 show the same findings of the original JSS.

In a study by Spector [18], which was conducted in America with a private sector sample (N=7244), it was seen that the highest mean ( $\bar{x}$ =18.6) from the scale was in the dimension of Supervision, whereas the highest mean was in the dimension of Communication ( $\bar{x}$ =18.4) for the Turkish sample (N=380). Similarly, the lowest mean was recorded in the dimension of Wage ( $\bar{x}$ =12.3) in the American sample, while it was the lowest in the dimension of performance-based wage ( $\bar{x}$ =11.2) in the Turkish sample. It was observed that the general job satisfaction mean in the Turkish sample ( $\bar{x}$ =157.2) calculated by JSS–job satisfaction scale was higher than that of the American sample ( $\bar{x}$ =139.1) (Table 4).

It was seen that in the American sample (N=2870) Cronbach alpha coefficient calculated in the internal consistency analysis ranged from .60 to .91 and from .63 to .88 in the Turkish sample (N=380). It was also observed that the estimated Cronbach alpha coefficients in the American sample had a wider range in the dimensions, when compared to the Turkish sample (Table 5).

## DISCUSSION AND CONCLUSION

The findings about the validity of JSS-Job Satisfaction Scale show that the items in the dimensions reflected a one-way factor and the total variance of the scale explained 63.29%. The correlation coefficients of the dimensions in the scale with the total scale scores are at

a psychometrically proper level. Generally, the findings of the study are consistent with those of Spector [7] and Spector [18] studies.

It can be said that during the validity study of the scale, a fine structure almost identical with the original was obtained in the exploratory factor analysis in the Turkish sample. The items, as in the original, were covered by similar factors. Kline [17] states that various results or models could be obtained during the confirmatory factor analysis, though the results of exploratory factor analysis in studies without a sound theoretical basis are very good. Therefore, the factors obtained from the exploratory factor analysis were also tested by a confirmatory factor analysis. Given the limits of fit index of confirmatory factor analysis, it was seen that the model had a goodness of fitness level and the factor structure of the Turkish version of the scale was consistent with that of the original.

Internal consistency values show the scale items are consistent with one another and validity in terms of internal consistency is high as in the American sample. At the same time, it was recorded that the reliability coefficients of the test-retest performed at four-week intervals were pretty high.

As a result, it might be suggested the Turkish form of JSS, developed by Spector [7] could be used in job satisfaction related studies. However, when we consider that the present study was conducted with a group of 380 people from service sector, it is deemed that the psychometrical values of the scale in future studies with various samples need revising, which will enrich the available scale information and increase the contribution of the scale to industrial/organizational psychology.

In addition, within the framework of the findings obtained from the validity and reliability studies of JSS in the research, some suggestions could be made for future researchers; they might examine correlation between JSS and other measuring tools developed for measurement of job satisfaction or adapted into the Turkish culture. Besides, examining the contribution of certain demographic variables correlated with job satisfaction (e.g.[3,19-24]) and determining the norms of the scale for different samples will contribute to industrial/organizational psychology.

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