

Measuring Organizational Stressors and Individual Reactions

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Abstract

This study is undertaken to create a generic work stress scale (WSS) and a stress reaction scale (SRS) in Turkey. Additionally, the buffering hypothesis of job satisfaction between work related stressors and stress reactions is tested. Factor analysis of the WSS based on 222 participants coming from the different work places in Ankara show that five-factor solution is the most adequate one. The factors are “expected and unexpected work overload”, “negative organisational climate”, “perceived lack of autonomy”, “lack of resources”, and “role ambiguity”. The results of four-factor solution of SRS are “psychosomatic reactions”, “burnout”, “withdrawal”, and “irritability”. The short form of the Minnesota Satisfaction Questionnaire is utilized to measure job satisfaction. Furthermore, to test the buffering hypothesis of job satisfaction, four hierarchical regression analyses are used for each of the factors of stress reaction scale after controlling for the demographic variables. No buffering effect of job satisfaction is found. However, job satisfaction appears to be one of the major predictors of stress reactions at work. The implications of the results for employees are considered.

Keywords: job stress, stress reactions, job satisfaction.

1. Introduction

Stress at work received considerable attention from many researchers due to its consequences for both employees and organizations. Since late 1970s many articles appeared in the psychological, organizational, and medical literature dealing with stress. Especially during 1990s this number increased exponentially (Spielberg & Reheisen, 1994). According to the literature, work stress is a process variable. It is typically caused by many stressors at work such as role characteristics, organizational structure, interpersonal conditions, and physical qualities of work environment (Schuler, 1980). People at work are under stress for many reasons (Coetzee & de Villiers, 2010; Chetty & Ferreira, 2016). Among these factors, we may count the change in organizations, roles, difficulties in the people to deal with (Janssens, 2016; Smollan, 2016). These stressors in turn create some consequences for both individuals and the organizations. Individual consequences may be behavioral, physical, and psychological. Organizational consequences may be changes in quality and/or quality of job performance, increase in withdrawal behaviors, difficulties in industrial relations, and poor quality control (Cooper & Cartwright, 1994; Gilboa et al., 2008; Slate & Vogel, 1997).

Stress has many definitions in the literature. One of the definitions points out that it

results from adaptation to unusual or irregular conditions at work place. In this process, the organism is taxed due to using up of the deposited energy. According to Krinsky, Kieffer, Carone, and Yolles, for an event to be stressful, there are some key ingredients: These are stimuli that are perceived to be stressful, frequency and duration of stressors, and intensity of physical and emotional reactions caused by stressors (cited in Miner, 1992). Therefore, any instrument measuring stress should have anchors addressing to this side of the work stress. Moreover, there is a controversy in the literature as to whether major life events or daily hassles cause stress. It seems that accumulation of daily hassles create more stress than the major events (Ruffin, 1993). This information is very important in creating stress measures. For example, to understand the matter further, there is a necessity to use two different types of anchors in the scales such as frequency and importance.

Although there is increased amount of stress research in the literature, there are not many generic measures of work related stress as pointed out by Barone et al. (1988). Jackson and Schuler (1985) pointed out the necessity of good measures in stress research. So far, except some generic measures of work stress, the studies mostly used either few questions to understand stress or they developed occupation specific stress measures such as the Police Stress Survey by Spielberg et al.; Teacher Stress Survey by Grier (cited in Spielberg & Reheiser, 1994). The two generic measures are the Job Stress Survey (Spielberg & Reheiser, 1994) and the Work Stress Inventory (Barone et al., 1988). Those measures seem to have good psychometric qualities, but they were developed for the western cultures. Therefore, they may measure constructs that do not have the same meaning in non-West countries as it has in the west because, in those countries organisational life may bring different stressors due to different organisational cultures and structural environments. It may be possible that same or similar aspects of work create stress for the Turkish people as they do for the westerners.

This study was undertaken to create a stress scale measuring organizational stressors in terms of frequency and importance in white-collar, service and technical occupations and to look at the relationship between stressors and stress reaction. The satisfaction and distress scales were included in this study because one of the well most known consequences of stress is job dissatisfaction. Studies found negative correlation between experienced job stress and job satisfaction since it is one of the reactions to person-environment misfit. Distress is also related to stressors experienced at work. Individuals generally show adapted behaviors toward stressors and these adapted behaviors express themselves in terms of some behavioral, psychological, physiological reactions (Cuskey & Vaux, 1997; Kushniri, Melamed & Ribak, 1997).

It was hypothesized that the work stress scale's composite index will consist of several subscales related to organizational stressors. Frequency and importance scales will show different factorial structures because characteristics of the work place may not result in same degree of emotions in the individuals. Furthermore, it was expected that the relationship between job stressors and distress will be positive one; the job stress survey subscales will show negative correlation with the job satisfaction since stress is a negative construct whereas satisfaction is related to positive emotions.

The second purpose of this study is to test the buffering effect of job satisfaction between job related stressors and stress reactions. The studies relating stress to satisfaction took job satisfaction as an end state variable. It was always thought that job related stressors have some consequences for the individuals in terms of job dissatisfaction (Şahin & Durak-Batıgün, 1997; Udo, Guimaraes & Igbaria, 1997). They never considered its buffering effect between stressors and stress reactions. If satisfaction is a positive state, it may act as a buffer between stressors and stress reactions by offsetting the negative effect of work related stress. If it has a buffering effect, we expect that job satisfaction should moderate the relationship between the job-related stressors and various stress reactions.

2. Method

2.1 *Participants*

The participants consisted 222 full-time employees from various work places, all located in Ankara, the capital of Turkey. Both public and private sector employees coming from different occupations and levels participated in this study. Table 1 shows the demographic characteristics of the participants.

2.2 *Instruments and procedures*

The instrument used in this study consisted of four parts. The first part is the short form of the Minnesota Satisfaction Questionnaire by Weiss, Dawiss, England and Lofquist (1977). The MSQ consists of 20 5-point Likert type questions concerning the various aspects of job (1=very dissatisfied, 5=very satisfied). The scale translated into Turkish by the author and two senior psychology students who have good command of English. The translations were, then, compared and disagreements were reduced. The instrument was administered to three employees of the university for the clarity of language. This scale has good psychometric qualities and easy to fill out (Bilgiç, 1998; Ivanchevich, 1978, 1980; Ivanchevich & Smith, 1985).

The second part of the study consists of 50 items with two types of anchors: frequency and importance of the stressors for the individuals. The items were written to this scale from the dairies of 17 people working in different occupations and sectors. They were instructed to observe their work every day for a week and record any incidence that may be troublesome for them. In order to obtain more detailed information about the daily stressors, the following questions were asked:

- (1) Which events created stress at work?
- (2) How did they react to these stressful events?
- (3) How others would react to the same events?

Not all of the participants at this stage answered the questions in this order for every working day during a week. Some of them preferred to keep dairies and recorded every incidence that occurred on the job. Moreover, some had written a one-two page reports at the end of the observation week. The dairies were transcribed into short statements and put five-point frequency and importance scales.

The third part consists of a 44-item scale related to the one's reactions to the stressful events. This scale can be labeled as Stress Reactions Scale. The items in this part were taken from the second and third questions above. The instruction asked the subjects the degree to the following conditions bothered them within last 15 days. The scale is a five-point scale, one as being "the condition never bothered" and five as being "it bothered me very much".

The last part of the instrument obtained the relevant demographic and personal information. The final version of the scale was administered to two working people for clarity. As a result, some items were removed whereas some were added to the final instrument.

A group of junior and senior psychology students administered the questionnaire to the working people after the permission. The majority of the participants completed the instrument individually at their work places in the presence of the students. However, in some instances, the subjects filled out the questionnaires on the second or third day of the administration and the students collected the questionnaires from the offices. In no case, the subjects held the instrument more than five days. Of 350,221 were returned and used for the analysis.

3. Results

3.1 *Factorial structures and reliabilities of the instruments*

All of the scales used above factor analysed according to the principal component factoring with varimax rotation. Items loading above .30 were included. If any item loaded above .30 on more than one factor, the item was included under the factor in which it had a higher loading. The “SPSS factor analysis” subprogram has been utilized for the factor analyses of the scales. In all analysis, Keiser-Mier-Olkin test for the sampling adequacy was above satisfactory (i.e. above 0.80) and Bartlett’s test for sphericity was significant.

Factor analysis of the MSQ yielded a two-factor solution. They explained 44% of the total variance. All but one item of the scale reached the criterion of .30 loading. The first factor consists of items related to “work itself” or “intrinsic aspects of work”; and the second factor is related to the “extrinsic aspects of work”. The internal consistency reliabilities of the two factors were above .80. The MSQ short form was taken as a whole and twenty items were summed due to its strong uni-dimensional structure.

The factor analysis results of the composite stress which is the cross products of both frequency and importance scales showed that the five-factor solution is the most meaningful one. All items satisfied the criterion for including a variable under a factor. If a factor contained more than three-four items that define an underlined construct, the factor naming was done according to this predominant theme even if some items do not represent that theme. Five factors explained 42.8 % of the total variance in the correlation matrix. The first factor consisted of 10 variables related to “work overload – regular and unexpected”. Nine variables that express “negative organizational climate and feelings with the administration” were included into the second factor. The third factor consisted of 11 variables; they are all related to “lack of autonomy”. The fifth factor included 14 variables related to “lack of resources for adequate performance”. The last factor was related to “role of ambiguity”. The reliabilities of the subscales were above 0.80. The separate factor analyses of frequency and importance scales showed different factorial structures than the composite cross product scale as consistent with the related hypothesis.

The factor analysis results for the 44 item stress reactions showed that four-factor solution is the best one. All the variables met the criterion to be included under a factor. They explained 53.9% of the total variance and reliabilities were above 0.80. The first factor consisted of 13 variables related to psychosomatic reactions whereas the second factor was related to “burnout symptoms” with 11 variables. The third factor of this scale included variables that are indicating “withdrawal”. The last factor indicated “irritability”. The third and fourth factors consisted of 12 and eight variables.

3.2 *Testing the role of the job satisfaction as a moderator between work-related stressors and stress reactions*

To test the buffering hypothesis, different regression analyses were performed for each sub-scale of the Stress Reaction Scale. Table 2 shows the inter-correlations among the factors of the job stress scale, composite job satisfaction, and the personal variables. The correlations among the variables were in the expected direction. Furthermore, the Pearson product-moment correlation showed that several demographic variables were correlated with stress symptoms. Therefore, they were controlled by the hierarchical regression analysis.

Four hierarchical regression analyses were performed to test the buffering hypothesis of job satisfaction between stressors and stress reactions. Each subscale of stress reaction scale was taken as a dependent variable. In each analysis, personal variable(s) used as a control if they (it) correlated significantly with the dependent variable. The results showed that for all the dependent variables – psychosomatic symptoms, burnout, withdrawal and irritability – none of the interaction

terms were significant. There was significant main effect of satisfaction and factor 2 of the stressors (negative organizational climate) when the dependent variable was psychosomatic reactions. This means that, job dissatisfaction and negative organizational climate (one of the stressors) leads to psychosomatic reactions among the workers. When the dependent variable was “burnout”, job satisfaction main effect was significant. Again, we may say that low job satisfaction is leading to burnout for many employees. For the dependent variable “withdrawal”, factor 3 (lack of perceived control) was significant. No other main effects were significant. The last dependent variable “irritability” was predicted best from the job satisfaction. The other main effects were not significant. As a summary, we may say that job satisfaction is the major predictor of all kind of stress reactions as measured by the scale used for this study. Table 3 shows the results of the regression analysis for each dependent variable.

4. Discussion

This study was performed to show that that a generic measure developed from the workers of a different culture and stress reactions scale taken from real reactions of the people can work well in studying work-related stress. Secondly, it was intended to test the buffering hypothesis of job satisfaction. The analysis of the Job Stress Scale showed that stress factors are related to the ones found in the literature. For example, the first factor was “work overload”. It is well-established fact that it is related to stress. But what is not usually mentioned in the literature is “unexpected work overload” as one of the correlates of work related stress. The second stress factor was “negative organizational climate” which was not really mentioned in the previous studies. This study disclosed such factor. “Lack of perceived” control as one of the correlates of stress was also mentioned in the previous studies (Perry et al., 1997). This study, too, found it to be one of the factors related to stress experienced at work. The other factors found were “lack of resources” and “role ambiguity” which were also found as causes of stress by the previous researchers. The Factor structure of the second instrument, the Stress Reaction Scale was consistent with the variables related to the stress reactions found in the previous studies (i.e. Iverson, Olekalns & Erwin, 1998).

In the previous studies, the job satisfaction was usually considered to be an end state variable (for example, see Udo, Guimaraes & Igbaria, 1997). Except few studies (Aasland et. al., 1997; Ulleberg & Torbjorn, 1997), it was never thought of as being a basic determinant of the stress reactions at work. This study also disclosed the fact that, job satisfaction is one of the predictors of stress reactions along with work related stressors. It was also found that not all the work related stressors were related to all kinds of stress reactions. Only, a handful of work related stressors are predicting some kind of stress reactions. For example, “negative organizational climate” is one of the predictors of “psychosomatic” reactions. None of the studies in the past pointed out the fact that some aspects of work related stress would predict some stress reactions not all of them were predicted from only one or more kind of work related stressors.

As for the buffering hypothesis, there was no evidence found in this study for the buffering effect of job satisfaction between work stressors and stress reactions. This is may be due to the fact that when one increases the number of steps in the hierarchical regression analysis, more variance is necessarily used up and therefore, no variance leftover for the interaction terms put into the equation at the end.

As a conclusion, we may say that, job satisfaction is very important for the well-being of the working people. Furthermore, “lack of autonomy” and “negative organisational climate” are related to stress reactions among the work related stressors. To improve the mental health of the workers, we need to improve the social psychology of work places so the employees feel good about their work.

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Table 1. Demographic characteristics of the sample

	Mean	Median	Mode	SD	Min	Max
Age	30.51	28	24	9.14	17	59
Income	7.2 M*	5.0 M	3.5M	6.1M	1.0M	50.0M
Tenure	7.90	6	1	7.37	1	35
Sex	Male	Female				
N=	123	97				
%=	55.4	43.7				
Education	Primary school	High school	Some university		University	Graduate and more
N=	26	53	36		99	5
%	11.9	23.9	16.3		44.6	2.4

* Median income is approximately 300\$ per month.

Table 2. Intercorrelations among the variables

Variables	1	2	3	4
1. Job Satisfaction	1.000			
2. Work Overload	-.429**	1.000		
3. Negative Climate	-.519**	.538**	1.000	
4. Lack of Autonomy	-.337**	.620**	.578**	1.000
5. Lack of Resources	-.289**	.579**	.566**	.708**
6. Role Ambiguity	-.309**	.589**	.623**	.575**
7. Psychosomatic	-.299**	.338**	.089	.203*
8. Burnout	-.278**	.218*	.134	.215**
9. Withdrawal	-.364**	.490**	.348**	.402**
10. Irritability	-.329**	.404**	.236**	.341**

Table 2. (Continued)

Variables	5	6	7	8
6. Role Ambiguity	.531**	1.000	.156	.156
7. Psychosomatic	.254	.156	1.00	.776**
8. Burnout	.206*	.156	.766**	1.000
9. Withdrawal	.210	.298*	.700**	.787**
10. Irritability	.296**	.338**	.741**	.721**
	10			
9. Withdrawal	.672**			

* $p < .05$ (2-tail).

** $p < .01$ (2-tail).

Table 3. Regression analysis results for different dependent variables

Variable	F Change	Beta	SE	Δt	R ²
Dependent Variable= irritability reactions					
Step 1				.015	3.449*
Income	-.124	.065	-1.857		
Step 2				.154	6.634***
Work overload (WO)	.159	.083	1.908		
Negative Organizational Climate (NOC)	-.129	.082	-1.570		
Lack of Autonomy (LA)	.100	.090	1.118		
Lack of Resources (LR)	.042	.084	.506		
Role Ambiguity (RA)	.154	.080	1.917		
Job satisfaction (JS)	-.173	.070	-2.462**		
Step 3				.021	1.371
WO X JS	-.100	.141	-.709		
LA X JS	.245	.137	1.782		
LR X JS	.117	.141	.831		
RA X JS	-.209	.136	-1.539		
Table 3. (Continued)					
Variable	F Change	Beta	SE	Δt	R ²
Dependent Variable= burnout					
Step 1				.035	8.050**
Education	-.188	.066	-2.837*		
Step 2				.068	2.721*
Work overload (WO)	-.008	.087	-.088		
Negative Organizational Climate (NOC)	-.049	.087	-.558		
Lack of Autonomy (LA)	.065	.093	.700		
Lack of Resources (LR)	.092	.086	1.603		
Role Ambiguity (RA)	.089	.085	1.046		
Job satisfaction (JS)	-.162	.076	-2.135*		
Step 3				.016	.928
WO X JS	-.036	.145	-.250		
LA X JS	.245	.137	1.782		
LR X JS	.270	.143	1.887		
RA X JS	-.083	.147	-.563		

Table 3. (Continued)

Variable	F Change	Beta	SE	Δt	R ²
Dependent Variable=withdrawal					
Step 1				.067	15.843***
Sex	.259	.065	3.980***		
Step 2				.087	3.683***
Work overload (WO)	.150	.084	1.785		
Negative Organizational Climate (NOC)	-.033	.084	-.386		
Lack of Autonomy (LA)	.203	.091	2.244*		
Lack of Resources (LR)	-.133	.084	-1.583		
Role Ambiguity (RA)	-.003	.081	-.035		
Job satisfaction (JS)	-.125	.071	-1.768		

Table 3. (Continued)

Variable	F Change	Beta	SE	Δt	R ²
Step 3				.016	.990
WO X JS	-.007	.141	-.050		
LA X JS	-.064	.139	-.462		
LR X JS	.265	.143	1.857		
RA X JS	-.049	.138	-.353		
Dependent Variable=somatic					
Step 1				.054	4.141**
Income	-.057	.073	-.777		
Education	-.174	.072	-2.430*		
Sex	.120	.069	1.750		

Table 3. (Continued)

Variable	F Change	Beta	SE	Δt	R ²
Step 2				.099	4.145**
Work overload (WO)	.145	.085	1.696		
Negative Organizational Climate (NOC)	-.190	.087	-2.176*		
Lack of Autonomy (LA)	.056	.092	.607		
Lack of Resources (LR)	.126	.085	1.476		
Role Ambiguity (RA)	.022	.083	.286		
Job satisfaction (JS)	-.193	.074	-2.597**		
Step 3				.016	1.016
WO X JS	-.120	.145	-.823		
LA X JS	.208	.140	1.491		
LR X JS	.120	.144	.831		
RA X JS	-.171	.139	-1.230		

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.001$.

