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Factors affecting intention to quit among IT professionals in Turkey

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Abstract

Purpose – The purpose of this paper is to explore the effects of stressors (role ambiguity, role conflict, work-overload, work-family conflict), job stress, job satisfaction and organizational commitment on the information technology (IT) professionals' intention to quit their jobs in Turkey.

Design/methodology/approach – A structural equation modeling approach was employed to identify the variables that significantly affect the decision to quit. Using LISREL 8.54, data collected from 204 IT professionals were used to test the proposed research model.

Findings – The results revealed that intention to quit one's job is explained by job satisfaction and organizational commitment. Besides, role ambiguity and job stress exert negative indirect effects on the intention to quit one's job. Additionally, organizational commitment is strongly explained by job satisfaction, and job satisfaction is predicted by role ambiguity and job stress.

Practical implications – The study offers several significant suggestions for the continuity of IT professionals in companies.

Originality/value – There are two contributions of this paper. First, this study provides evidence for the impact of stressors, job stress, job satisfaction and organizational commitment on intention to quit jobs among IT professionals in Turkey. Second, it also provides insight into the importance of stress factors by dividing the stressors into specific stress factors such as work-family conflict, work-overload, role conflict, and role ambiguity.

Keywords Job satisfaction, Turkey

Paper type Research paper

1. Introduction

Most activities of many departments are based on IT; therefore, the continuity of IT infrastructure is vital for many firms. The loss of key IT personnel can severely impact an organization's competitive advantage and ultimately its survival (LeRouge *et al.*, 2006). Additionally, IT professionals have specialized and hard-to-replace skills, which increase turnover expenses (McKnight *et al.*, 2009). The average cost of replacing talented IT workers is twice their annual salaries (Young, 2002). However, retaining IT employees is a challenge to companies. IT employees possess a strong tendency to leave their current company and work for another company (Korunka *et al.*, 2008). Besides, satisfying IT professionals is not an easy task for many companies, as IT professionals find it easy to land new jobs, with the increasing demand from companies for IT professionals (McKnight *et al.*, 2009). However, to identify the

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important factors that lead to IT professionals quitting a job continue to remain a challenging problem both for companies as well as researchers.

This study aims to explore the effects of stressors (role ambiguity, role conflict, work-overload, work-family conflict), job stress, job satisfaction and organizational commitment on the IT professionals' intention to quit their jobs (immediate determinant of quitting a job) in Turkey. Behavioral intention is a measure of the chances that people express a given behavior (Ajzen and Fishbein, 1980). Behavioral intention involves motivational factors that influence a particular behavior. These factors are "indications of how hard people are planning to try and how much effort they are planning to exert in order to perform the behavior" (Ajzen, 1991). If an employee strongly intends to quit his job, he is expected to try more, and thus the likelihood of him quitting the job will be greater (Ajzen and Madden, 1986).

IT professionals were selected as the focus group in this study, as they exhibit characteristics quite different from those in other professions (Armstrong *et al.*, 2007). Beecham *et al.* (2008) conducted a systematic literature review of 92 papers and observed that the need for growth (e.g. challenge, learn new skills) and independence are the most cited characteristics of software engineers in the literature. Besides, IT professionals work in a dynamic environment where continuous updating of skills is required (Lee, 2000). In addition, IT professionals suffer from extensive projects and aggressive timelines (Messersmith, 2007) which could lead to high levels of job stress.

This paper contributes to the existing literature in the following ways: First, the research will provide evidence to the impact of stressors, job stress, job satisfaction and organizational commitment on intention to quit job among IT professionals in Turkey. The findings of the research will enhance the importance of stress factors, organizational commitment and job satisfaction on quitting job among IT professional who work in a developing country, Turkey. Second, this study provides insight into the importance of stress factors by dividing the stressors into specific stress factors such as work-family conflict, work-overload, role conflict, and role ambiguity. The next section discusses the research model and hypotheses. The methodology based on a survey of 204 IT professionals in Turkey is discussed next. The results of the survey are then analyzed. This paper concludes with a discussion on the findings, resulting in a model predicting the IT professionals' intention to quit, its managerial implications, and recommendations for areas of future research.

2. Research model and hypotheses

2.1 Job satisfaction

Job satisfaction is the difference between what an individual's expectations, needs or values about the job are, and what the job actually delivers (Heslop *et al.*, 2002). Job satisfaction is vital for personal well-being and organizational effectiveness (Lim, 2008). Dissatisfaction with a job and/or lack of commitment to the organization may cause individuals to seek alternative positions (Reed *et al.*, 1994). The most commonly cited motivator not to quit job is the job itself (Beecham *et al.*, 2008), whether it is routine, creative or useful. Additionally, the need for challenge and achievements, the components of job satisfaction, plays a significant role in influencing turnover intentions among IT professionals (Lee, 2000).

Several studies also found that job satisfaction is one of the most important factors for turnover intention among IT professionals (McKnight *et al.*, 2009; Rutner *et al.*,

2008; Korunka *et al.*, 2008; Joseph *et al.*, 2007). McKnight *et al.* (2009) found that turnover intention among IT professionals is defined by job satisfaction and workplace characteristics such as trust in senior management, information sharing, structural fairness, and job security. Of these, job satisfaction has the highest impact on behavioral intention to quit job. Rutner *et al.* (2008) found that fairness of rewards, job satisfaction, and perceived work load predict the turnover intention among IT professionals. Korunka *et al.* (2008) conducted a study to explore the factors affecting turnover intention among Austrian and American IT workers. They found that both job satisfaction and emotional exhaustion are significant factors for turnover intention. From among these, job satisfaction exerts the strongest effect. Joseph *et al.* (2007) conducted a meta-analysis of 33 studies related with turnover intentions of IT professionals, and identified job satisfaction, job-related factors (job performance, role conflict), perceived organizational factors (pay, promotion), gender differences, education and perceived job characteristics as the important factors for turnover intention. Therefore, we hypothesize:

H1. Job satisfaction will negatively influence intention to quit among IT professionals.

Additionally, it is natural to expect satisfied professionals to express more commitment to their organizations. Igbaria and Greenhaus (1992) found that job satisfaction both directly and indirectly affects organizational commitment through career satisfaction among MIS employees. Therefore, we hypothesize:

H2. Job satisfaction will positively influence organizational commitment among IT professionals.

2.2 Organizational Commitment

Organizational commitment reflects "the feelings of employees about shared norms and employees' willingness to exert effort on behalf of the organization" (Thatcher *et al.*, 2002). The concept of organizational commitment gained increasing attention with a negative relationship between absenteeism, employee turnover and organizational commitment (Kuruuzum *et al.*, 2009). Especially, this negative relationship between organizational commitment and turnover is found to be stronger in higher status occupations (e.g., professionals) than lower-status occupations (e.g., blue-color employees) (Cohen and Hudecek, 1993). Thus, job satisfaction and organizational commitment significantly affect an employee's intention to remain in his organization (Igbaria *et al.*, 1994). In addition, the major impact in explaining the behavioral intention to quit job arose from these two factors (Firth *et al.*, 2004). Also, it is a natural expectation that committed employees will exhibit less motivation to change their jobs, as they desire to remain in their company (Thatcher *et al.*, 2002).

Several studies also found organizational commitment to be one of the main factors among IT professionals for intention to quit (Pare and Tremblay, 2007; Ahuja *et al.*, 2007; Thatcher *et al.*, 2002). Pare and Tremblay (2007) explored the important effects of affective and continuance commitment on turnover intentions; Ahuja *et al.* (2007) found that organizational commitment is the strongest predictor of turnover intention; Thatcher *et al.* (2002) indicated that turnover intention is affected by organizational

commitment, perceived job alternatives and gender among IT professionals. Therefore, we hypothesize:

H3. Organizational commitment will negatively influence intention to quit among IT professionals.

2.3 Job stress

IT professionals experience rising levels of work-related stress (Love and Irani, 2007). Job stress is the experience of job-related stress. It may result from work exhaustion and job-related anxiety (Firth *et al.*, 2004). Work exhaustion may be defined as the "depletion of emotional and mental resources in meeting job demands". It is an especially widespread problem among software developers (Allen *et al.*, 2008). McKnight *et al.* (2009) found that work-place characteristics (trust in senior management, information sharing, structural fairness, job security) and job characteristics (feedback, autonomy, skill variety, job significance, task ID) have negative effects on work exhaustion among IT professionals. When an employee experiences stress from his/her job, this negative feeling often results in dissatisfaction among the employees. Ultimately, IT professionals may choose to quit their jobs. Also, Firth *et al.* (2004) found that job stress affects job satisfaction negatively. Job-related anxiety is another work stress factor. An employee may feel unsure and worried or have a sense of regret after having or not having done something. These feelings could then precipitate job-related anxiety (Fünfgeld and Wang, 2009), which could affect job satisfaction negatively. Therefore, we hypothesize:

H4. Job stress will negatively influence job satisfaction among IT professionals.

2.4 Stressors

"Stressors" is the term applied to the "range of factors that lead to job-related stress" (Firth *et al.*, 2004). Firth *et al.* (2004) distinguished stressors into four categories: role ambiguity, role conflict, work-overload and work-family conflict. In this study, it is expected that IT professionals who experience high level of stressors (role ambiguity, role conflict, work-overload and work-family conflict) tend not to be committed to their organization, to have a high degree of job stress, and to be less satisfied. Several studies also confirmed that unfavorable job characteristics may exert an impact on job stress and burnout (Bakker *et al.*, 2005).

Role ambiguity is "a sense of uncertainty about what is expected, how to achieve expectations or the consequence of job performance" (Rutner *et al.*, 2008). Inadequate information of job functions, vague expectations of peers and superiors, and uncertainty of performance evaluation may lead to role ambiguity (Teh *et al.*, 2008). Role conflict occurs when "an actor perceives two parties placing divergent expectations on him or her" (O'Brien *et al.*, 2009) or when an individual receives incompatible or conflicting requests (Anton, 2009). Due to insufficient information to perform the job adequately and unclear expectations of peers, MIS employees may be less satisfied with their job and less committed to their organization (Igbaria and Greenhaus, 1992).

Work-life conflict, which is the general interference of work life in the employees' personal life, may be another significant stressor among IT professionals. Work-life conflict may come from the intrusion of work into family time, leisure activities or a

general inability to leave the work behind, when physically moving away from work. Although work-life conflict may be a problem in every occupational area (Messersmith, 2007), work-family conflict may be a more frequently encountered problem in the IT sector, due to the long working hours, unrealistic deadlines for extensive projects, and heavy workloads. In addition, IT workers are expected to be on call 24 hours a day, seven days a week (Moore, 2000). Work-overload, which is one of the stressors, is the result of heavy workloads and tight deadlines of the IT employees' work (Allen *et al.*, 2008).

Several studies found that stressors may affect job stress positively, and job satisfaction and organizational commitment negatively, among IT professionals (Messersmith, 2007; Ahuja *et al.*, 2007; Joseph *et al.*, 2007; Love and Irani, 2007; Rutner *et al.*, 2008; King *et al.*, 2005; Reid *et al.*, 2009). Messersmith (2007) found that IT professionals are usually confronted with many challenges, such as longer work hours, unrealistic deadlines for extensive projects, role overload, role ambiguity and work-overload, and these factors lead to stress. In addition, increasing demands from system users, advances in technology, and the burgeoning use of technology to enhance the efficiency and effectiveness of organizational activities may lead to job stress among IT professionals (Love and Irani, 2007). Ahuja *et al.* (2007) found that work-family conflict is a key source of stress among IT professionals. They also explored the significant effects of work-family conflict, perceived work-overload, fairness of rewards, and job autonomy on organizational commitment and work exhaustion among IT professionals. King *et al.* (2005) indicated that role conflict explains job satisfaction together with socialization factors among IT employees. Reid *et al.* (2009) found that role ambiguity, perceived organizational support, leader-member exchange and task variety are important factors that account for most of the variance in the affective organizational commitment and job satisfaction of IT employees. Therefore, we hypothesize:

H5. (a-d) Stressors (role ambiguity (a), role conflict (b), work-overload (c), work-family conflict (d) will positively influence job stress among IT professionals.

H6. (a-d) Stressors (role ambiguity (a), role conflict (b), work-overload (c), work-family conflict(d)) will negatively influence job satisfaction among IT professionals.

H7. (a-d) Stressors (role ambiguity (a), role conflict (b), work-overload (c), work-family conflict (d) will negatively influence organizational commitment among IT professionals.

In view of the concepts mentioned above, this study aims to explore factors affecting intention to quit job among IT professionals in Turkey. The research model tested in this study is shown in Figure 1. It is an integrated model that consists of the links that have been used and tested by different researchers in different countries.

3. Methodology

The survey method is used in this study. Employees working in IT-related jobs were the target population. A questionnaire was formulated based on an extensive review of the literature related with IT, stress factors, satisfaction, and employee turnover (Firth

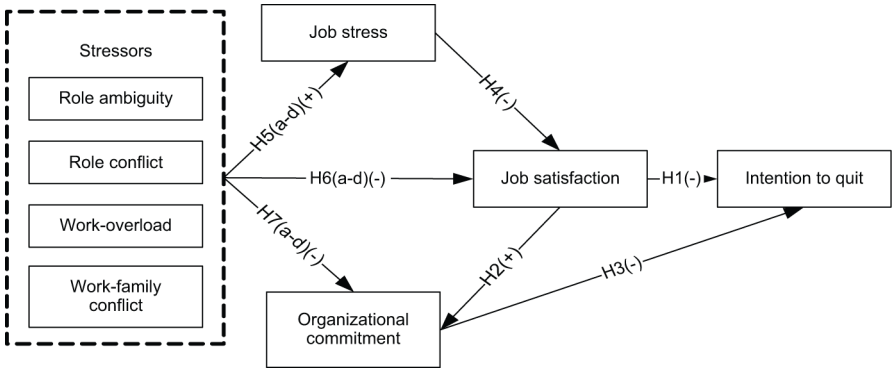

Figure 1.
Research model

et al., 2004; LeRouge *et al.*, 2006). The final questionnaire consists of two main parts. The first dealt with demographic questions designed to solicit information about the respondents. Table I presents a summary of the demographic profiles of the respondents. Participants were contacted via an e-mail which included a link to a web-based survey. Follow-up requests to complete the online survey were emailed two weeks later with the intention of increasing response rate (Kittleson, 1997).

In total, 586 potential participants' e-mail addresses were included in the original e-mail sample provided by Turkish Informatics Industry Association (TUBISAD) and a total of 204 surveys were completed by IT professionals between October 2007 and May 2008 (35 percent response rate). A comparison of the means of the variables found no significant difference between early and late respondents. Of the respondents, 31.4 percent were female; the average age of the respondents was 27.59. Most of the respondents possessed at least an undergraduate degree. The respondents had an average of 57.98 months of full-time professional IT experience and an average of 32.52 months of work experience in the current company. However, only 12.3 percent of the respondents were in management positions.

The second section required the respondents to indicate their agreement level to the items in the research model. Items related with stressors, job satisfaction and organizational commitment were measured using a five-point Likert scale, with 1

Gender (%)		
Female: 31.4	Male: 68.6	
Age		
Max: 52	Min: 19	Average: 27.59
Education level (%)		
High school: 6.4	Vocational school: 5.9	Two-year degree: 4.4
Undergraduate: 56.9	MSc: 23.5	PhD: 2.9
Full-time professional IT experience (months)		
Max: 325	Min: 1	Average: 57.98
Work experience in the current company (months)		
Max: 325	Min: 1	Average: 32.52
Position (%)		
As a manager: 12.3		Not as a manager: 87.7

Table I.
Demographic profiles of respondents

representing "strongly disagree" and 5 representing "strongly agree". The items related with job stress were measured on a six-point Likert scale, with 0 representing "never" and 5 representing "almost every day". Participants indicated the degree to which they experienced each of the items of job stress. Intention to quit was measured by two questions on a five-point scale (How often do you think about leaving the job? 1: rarely or never – 5: very often. How likely are you to look for a new job recently? 1: very unlikely – 5: very likely).

After the initial development of the questionnaire, it was sent to ten employees to ensure easy comprehension. Based on the information provided by these respondents, the instrument was "fine-tuned" and finalized.

4. Results

Since the measures were obtained from self-reports, we conducted the Harman's one-factor test (Harman, 1967; Podsakoff and Organ, 1986) to detect the presence of common method variance. Podsakoff *et al.* (2003) note that common method variance is indicated if a single factor emerges from the factor analysis or if one general factor accounts for a majority of the variance. The results of the unrotated factor analysis indicated that we had eight factors, the same number as included in our model. All the eight factors had eigenvalues greater than 1. The first factor accounted for 32.1 percent of the variance, and the remaining seven factors accounted for 36.9 percent of the variance. Since we obtained eight factors and the combined variance of the seven factors was greater than that of the first factor, it is likely that relationships exist between the variables in the model which are due to more than a common method factor.

In the analysis stage, our study followed a two-step approach recommended by Anderson and Gerbing (1988). This approach allows re-specifying the measurement model to achieve a uni-dimensional construct measurement (Anderson and Gerbing, 1988). The model was tested using LISREL 8.54 (Jöreskog and Sörbom, 2003) with SIMPLIS project.

4.1 Measurement model

The model was tested for reliability and validity of the constructs using confirmatory factor analysis. The measurement model included 36 items, describing eight constructs: intention to quit (IQ), job satisfaction (SAT), organizational commitment (OC), job stress (JS), role ambiguity (RA), role conflict (RC), work-overload (WO), work-family conflict (WFC). A few construct revisions were made after the initial analysis of the measurement model. These decisions were made based on χ^2 differences for the competing models, as far as theory and content allowed for changes (Anderson and Gerbing, 1988). In addition, Streiner and Norman (2003) stated that any item reduction needs to take into account the threat to content validity posed by potentially failing to measure an essential content domain. This research included only preliminary item reduction based on scale reliability. Although scale reliability statistics often used as a basis for excluding items (Bernard, 2000), Helfrich *et al.* (2009) believe that item reduction is best done as a function of criterion validation, i.e. that items are retained as a function of how much variance they account for in some theoretically meaningful outcome, and content validity, i.e. consideration of the theoretical domains the instrument is purported to measure. Based on these criteria, after re-specifying the constructs, 23 items were retained. In particular, we believe that

the only item retained for work load does provide a meaningful outcome. The items marked with asterisks in Table II are retained for further analysis.

The fit statistics show that the model provided a reasonably good fit to the data. Table III shows untrimmed model values and model fit indices. As shown, χ^2, degrees of freedom, root mean square of approximation (RMSEA), goodness of fit measure (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), and comparative fit index (CFI) values were selected with the recommendations of Hair *et al.* (1998). They stated, "The researcher should report one incremental and one absolute index in addition to the χ^2 value and associated degrees of freedom, and at least one of these indices should be badness-of-fit indices". The overall model χ^2 is 261.463 with 203 degrees of freedom. The p value associated with this value is 0.0035. This shows that the observed covariance matrix does not match the estimated covariance matrix. Since the χ^2 statistic is sensitive to sample size, this was considered an acceptable condition (Bentler, 1990; Hair *et al.*, 1998). Thus, it is suggested that other fit indices should be used. The absolute fit indices (RMSEA = 0.035, GFI = 0.90, AGFI = 0.87), incremental fit indices (NFI = 0.97, CFI = 0.99), and χ^2 to degrees of freedom ratio at 1.29 are within accepted levels (Hair *et al.*, 1998; Chau, 1997; Chau and Hu, 2001) suggest that the model provided a reasonably good fit to the data. In addition, the improved model has better fit indices especially in terms of RMSEA, GFI and AGFI than the untrimmed model.

The convergent- and discriminant validity of the constructs were also tested with confirmatory factor analysis. Convergent validity is the degree to which two or more items measure the same concept (Bagozzi and Philips, 1982). The convergent validity of measurement items by *t*-values, factor loadings, composite reliability were examined, and the average variance extracted (AVE). The results are shown in Tables IV and V and Figure 2. All the *t*-values of the items were significantly greater than the critical value of 1.96 at the 0.95 confidence level (Bagozzi *et al.*, 1991). Factor loadings of all items in each construct exceed the acceptable limit value of 0.5, and all the items except SAT7, OC5, JS2, JS8 and RC2 have recommended loading which is greater than 0.7 (Hair *et al.*, 1998). Average variance extracted estimates exceed the recommended value of 0.50 (Fornell and Larcker, 1981). Composite reliability measures the internal consistency of the measurement model (Chen *et al.*, 2004) and all the constructs have high composite reliabilities ($\rho > 0.70$). In addition, the value of Cronbach alpha for each construct is more than 0.70, indicating an acceptable level of reliability. Hence, all these statistics reveal that the convergent validity requirement is satisfied.

Finally, discriminant validity was assessed using the Fornell and Larcker (1981) method. This test suggests that discriminant validity exists if the shared variances between a pair of variables are all less than the AVEs for those variables. The highest shared variance, as shown in Table VI, is 0.56, between organizational commitment and job satisfaction, while the minimum AVE is 0.57. This demonstrates adequate discriminant validity for all the constructs.

4.2 Structural model

The structural model shows the relationships between constructs and specifies the constructs that are related to each other (Hair *et al.*, 1998). The fit indices, as shown in Table VII, are within accepted levels. The ratio χ^2 to degrees of freedom at 1.36,

Constructs (number of items)	Reference/scale		Items
Stressors			
Role ambiguity (3)	Firth *et al.*, 2004	RA1*	My job responsibilities are clear to me (R)
	Five-point Likert scale 1: strongly disagree … 5: strongly agree	RA2*	My job objectives are well-defined (R)
		RA3*	It is clear to me what others expect of me at my job (R)
Role conflict (3)		RC1	At my job, I cannot satisfy everybody at the same time
		RC2*	To satisfy some people at my job, I have to upset others
		RC3*	At my job, I have to do things which should be done differently
Work-overload (3)		WO1	I am given enough time to do what is expected of me at my job (R)
		WO2*	It seems that I have more work at my job than I can handle
		WO3	My job requires that I work very hard
Work-family conflict (3)		WFC1*	My job schedule interferes with my family life
		WFC2	My job makes me too tired to enjoy my family life
		WFC3*	My job does not give me enough time for family activities
Job stress (8)	Firth *et al.*, 2004 Six-point Likert scale 0: never … 5: almost every day	JS1*	I feel emotionally drained by my job
		JS2*	I feel burned-out by my job
		JS3*	I feel frustrated at my job
		JS4*	I feel tense at my job
		JS5*	I lose my appetite because of my job-related problems
		JS6	Job-related problems keep me awake at night
		JS7	Job-related problems make my stomach upset
		JS8*	Job-related problems make my heart beat faster than usual
Organizational commitment (5)	Firth *et al.*, 2004	OC1	I will work harder than I have to in order to help the company to be successful
	Five-point Likert scale 1: strongly disagree … 5: strongly agree	OC2*	I am proud to work for this company
		OC3	I feel very little loyalty to this company (R)
		OC4*	I talk about this company to my friends as a great company to work for
		OC5*	I really care about the fate of this company

Table II.
Constructs, corresponding source and the items

(*continued*)

Constructs (number of items)	Reference/scale		Items
Job satisfaction (9)	LeRouge *et al.*, 2006	SAT1	I would describe my work as fascinating
	Five-point Likert scale	SAT2	I would describe my work as routine (R)
	1: strongly disagree … 5: strongly agree	SAT3*	I would describe my work as satisfying
		SAT4*	I would describe my work as good
		SAT5	I would describe my work as creative
		SAT6*	I would describe my work as giving a sense of accomplishment
		SAT7*	I would describe my work as useful
		SAT8	I would describe my work as frustrating (R)
		SAT9	I would describe my work as challenging (R)
Intention to quit (2)	Firth *et al.*, 2004	IQ1*	How often do you think of leaving your present job?
		IQ2*	How likely are you to look for a new job within the next year?

Notes: (R) = Reverse scored; *Items retained for structural model analysis

Table II.

Fit index	Recommended value	Untrimmed (original) model values		Observed values	
χ^2/df (χ^2, df)	≤3	2.09	(1209,566)	1.29	(261, 203)
RMSEA	≤0.08	0.072		0.035	
GFI	≥0.90	0.75		0.90	
AGFI	≥0.80	0.71		0.87	
CFI	≥0.95	0.95		0.99	
NFI	≥0.90	0.91		0.97	

Notes: χ^2 = Chi square; df = degree of freedom; RMSEA = root mean square error of approximation; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; CFI = comparative fit index; NFI = normed fit index

Table III.
Fit statistics of the confirmatory factor analysis (Measurement model)

RMSEA at 0.04, GFI at 0.90, AGFI at 0.86, CFI at 0.99, NFI at 0.96 are all within the recommended values (Bentler, 1990; Hair *et al.*, 1998; Chau and Hu, 2001). This suggests that the model provided a reasonably good fit to the data.

Figure 3 shows the standardized path coefficients with their respective significance levels and explanatory power of the model for each construct. The model explained substantial variance in intention to quit job ($R^2 = 0.576$), job satisfaction ($R^2 = 0.408$), job stress ($R^2 = 0.491$), and organizational commitment ($R^2 = 0.622$).

The results showed that job satisfaction and organizational commitment were found to be significant predictors of intention to quit. The relative strengths of their

Construct	Item	Mean	SD	Factor loadings (λ_i)	*t*-statistics
Intention to quit (IQ)	IQ1	2.13	1.075	0.958	17.344
	IQ2	2.28	1.077	0.873	15.031
Job satisfaction (SAT)	SAT3	3.63	0.982	0.835	14.130
	SAT4	3.86	0.917	0.874	15.144
	SAT6	3.90	0.839	0.755	12.186
	SAT7	4.10	0.765	0.674	10.452
Organizational commitment (OC)	OC2	3.77	0.958	0.817	13.209
	OC4	3.53	1.138	0.772	12.220
	OC5	3.91	0.963	0.691	10.544
Job stress (JS)	JS1	1.56	1.435	0.813	13.713
	JS2	1.80	1.384	0.687	10.805
	JS3	1.63	1.385	0.867	15.169
	JS4	2.11	1.451	0.811	13.655
	JS5	0.92	1.335	0.702	11.126
	JS8	0.43	1.007	0.632	9.695
Role ambiguity (RA)	RA1	2.33	1.030	0.929	16.940
	RA2	2.32	1.027	0.879	15.504
	RA3	2.26	1.030	0.822	14.001
Role conflict (RC)	RC2	2.20	1.233	0.677	9.593
	RC3	2.59	1.177	0.842	11.899
Work-overload (WO)	WO2	2.74	1.143	1.000	–
Work-family conflict (WFC)	WFC1	2.88	1.178	0.903	15.123
	WFC3	2.72	1.182	0.877	14.525

Table IV.
Confirmatory factor analysis

	Composite reliability	Average variance extracted (AVE)	Cronbach alpha
Intention to quit	0.91	0.84	0.91
Job satisfaction	0.87	0.62	0.80
Organizational commitment	0.81	0.58	0.81
Job stress	0.89	0.57	0.90
Role ambiguity	0.91	0.77	0.91
Role conflict	0.73	0.58	0.73
Work-overload	1.00	1.00	–
Work-family conflict	0.88	0.79	0.89

Table V.
Confirmatory factor analysis

explanatory power were different. Organizational commitment was a much stronger predictor of intention to quit job as compared with job satisfaction. In addition, job stress is predicted by role ambiguity, role conflict, and work-family conflict. Besides, organizational commitment is only predicted by job satisfaction and job satisfaction is predicted by role ambiguity and job stress.

Table VIII shows the direct effect, indirect effect, and total effect of each construct on intention to quit job. As shown, although no direct relationship between role ambiguity-, job stress- and intention to quit is defined, job stress and role ambiguity have significant effects on intention to quit in total.

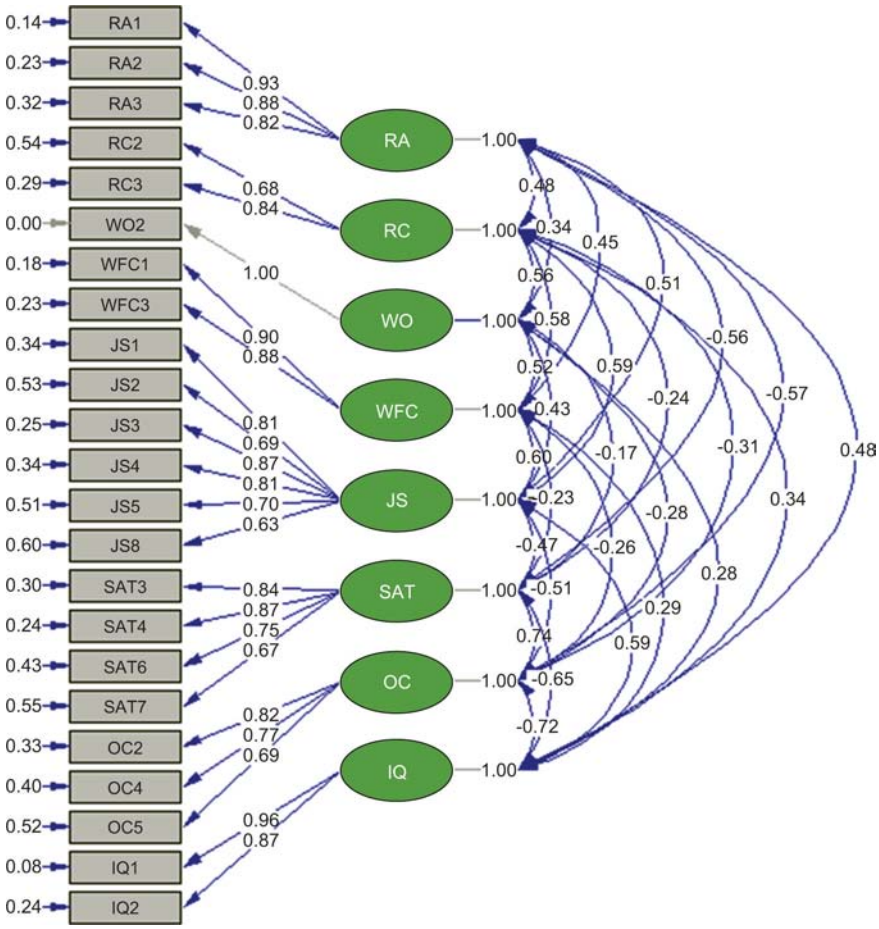

Figure 2.
Measurement model (completely standardized solution)

	Mean	Standard deviation	IQ	SAT	OC	JS	RA	RC	WO	WFC
IQ	2.21	1.03	*0.84*							
SAT	3.87	0.74	0.42	*0.62*						
OC	3.74	0.86	0.52	0.56	*0.58*					
JS	1.41	1.07	0.35	0.22	0.26	*0.57*				
RA	2.30	0.95	0.23	0.31	0.32	0.26	*0.77*			
RC	2.39	1.07	0.11	0.06	0.10	0.35	0.23	*0.58*		
WO	2.74	1.14	0.08	0.03	0.08	0.19	0.12	0.32	*1.00*	
WFC	2.80	1.12	0.08	0.05	0.07	0.36	0.21	0.34	0.27	*0.79*

Note: AVEs are shown on the diagonal in italics

Table VI.
AVEs and shared variances

Fit index	Recommended value	Observed value	
χ^2/df (χ^2, df)	≤3	1.36	(284, 209)
RMSEA	≤0.08	0.04	
GFI	≥0.90	0.90	
AGFI	≥0.80	0.86	
CFI	≥0.95	0.99	
NFI	≥0.90	0.96	

Table VII.
Fit indices for structural model

Notes: χ^2 = Chi square; df v. degree of freedom; RMSEA = root mean square error of approximation; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; CFI = comparative fit index; NFI = normed fit index

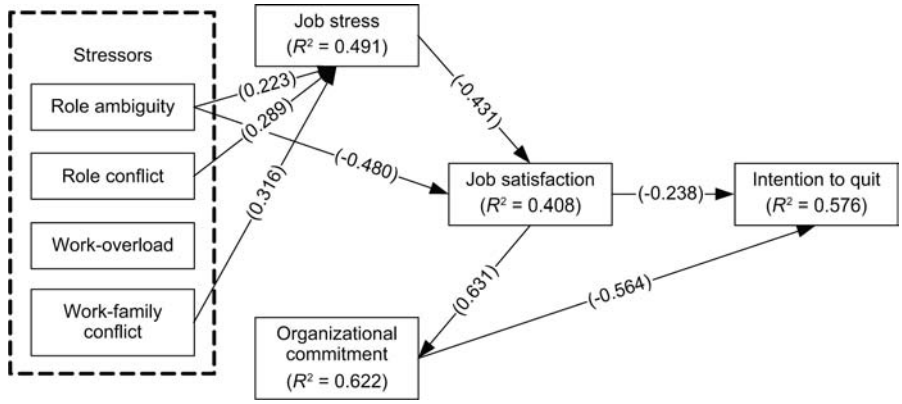

Figure 3.
Research model analysis results

Dependent variable	Independent variables	Direct effects	Indirect effects	Total effects
Intention to quit	Job stress	–	0.256*	0.256*
	Job satisfaction	−0.238*	−0.356*	−0.594*
	Organizational commitment	−0.564*	–	−0.564*
	Role ambiguity	–	0.435*	0.435*
	Role conflict	–	0.036	0.036
	Work-overload	–	0.054	0.054
	Work-family conflict	–	−0.026	−0.026

Table VIII.
Direct, indirect and total effects on intention to quit job

Note: *$p < 0.05$

5. Conclusion and discussion

This study has examined the impact of job stress, stressors (role ambiguity, role conflict, work-overload, work-family conflict), organizational commitment and job satisfaction on intention to quit job among IT professionals in Turkey. A total of 204 questionnaires were collected between October 2007 and May 2008. In the proposed research model, 16 hypotheses were defined and LISREL 8.54 was used to test the

model. Both measurement model and structural model fitted well to the data in which all the model fit indices fell within acceptable limits. In addition, convergent- and discriminant validities of the measurement model were also verified.

Intention to quit job is explained by organizational commitment and job satisfaction. Of the two, organizational commitment has the higher direct impact on intention to quit job. Similar to our finding, Ahuja *et al.* (2007) discovered that organizational commitment has the highest effect on turnover intention among IT professionals. The dynamic characteristics of the IT environment influence the IT personnel towards seeking new opportunities to achieve several advantages such as salary, promotion or opportunity to work in a more prestigious company. However, it is unusual to encounter such a situation if he/she is committed to his/her organization emotionally. Therefore, if companies want high commitment from their employees, they should put employees' organizational commitment as a priority in their set of commitments (Baruch, 1998).

In addition to job satisfaction and organizational commitment, job stress and role ambiguity exert an indirect effect on intention to quit job through job satisfaction and organizational commitment. It appears that IT professionals decide whether to quit job or not based on their satisfaction level, commitment to their organization, stress level, and whether they have sufficient information to perform their job. Similar to our findings, several studies also confirmed the effects of role ambiguity and job stress on intention to quit job (Moore, 2000; Maudgalya *et al.*, 2006). Moore (2000) found that those technology professionals experiencing higher level of work exhaustion have a higher intent to leave their job. Maudgalya *et al.* (2006) concluded that work-place stresses among IT professionals could lead to burnout.

Another result of this study is that organizational commitment is strongly explained by job satisfaction. Employees who feel satisfied with their work are also committed to their organizations, although it continues to be debated whether job satisfaction is a predictor of organizational commitment or vice versa. In our study, the effect of job satisfaction on organizational commitment is found to be very strong. This reveals that satisfied IT employees feel committed to their organizations. The strong relationship between job satisfaction and organizational commitment is also verified with earlier studies (Thatcher *et al.*, 2002; Luna-Arocas and Camps, 2008). Thatcher *et al.* (2002) found that job satisfaction and task significance had positive effects on organizational commitment among technology workers. Among them job satisfaction is the strongest predictor. Luna-Arocas and Camps (2008) explored the mediating effect of employee commitment between job satisfaction and turnover intentions. Their study revealed a strong positive relationship between job satisfaction and employee commitment.

Our results also show that job satisfaction is predicted by role ambiguity and job stress, while the effects of role conflict, work-overload and work-family conflict on job satisfaction are found to be quite insignificant. Similar to findings in earlier research, role ambiguity is the main predictor of job satisfaction. Rutner *et al.* (2008) observed that role ambiguity has the strongest significant effect on job satisfaction, together with work exhaustion among IT employees of a Fortune 100 company. Joseph *et al.* (2007) found that job-related factors (role ambiguity, role conflict, boundary spanning activities, job performance), pay, age, and gender are the determinants of job

satisfaction among IT professionals, and of these role ambiguity and role conflict exert the highest negative effects.

The other result of this study is that job stress is predicted by role ambiguity, role conflict and work-family conflict. Of these, work-family conflict has the greatest impact. This finding coincides with the findings of Innstrand *et al.* (2008) who observed work-family conflict is the strongest predictor of job stress among eight different occupational groups such as lawyers, employees within information technology, physicians etc. Cook (2009) also found a similar result in which work-family policies, which are designed to decrease work-family conflict, have significant effects on intention to turnover, job satisfaction and job burnout. However, the effects of work-overload on job stress are found to be rather insignificant in our study. This shows that while IT professionals are quite accustomed to hard work, they resent any disturbance to their family life caused by work. A balance between work-overload and work-family could be significant to decrease job stress level. The rather insignificant effect of work-overload on job stress contradicts with the findings of Ahuja *et al.* (2007) and Moore (2000). Ahuja *et al.* (2007) found that perceived work-overload is the strongest predictor of work exhaustion among IT road worriers. This difference may be explained by the source of data, which in our study includes all types of IT workers, while Ahuja *et al.*, 's sample includes only IT road worriers. Since IT road workers live far away from their family, work-overload together with work-family conflict may lead to a high level of work exhaustion among IT road worriers. Moore (2000) found that perceived work-overload was the strongest predictor of work exhaustion among technology workers and exhausted workers intend to leave their organizations more than others. This may be explained by the scope of job stress, which includes work exhaustion and job anxiety in our study, while in Moore's study, job stress includes only work exhaustion.

5.1. Managerial implications

Stress factors are found to be vitally important for intention to quit job. Companies may offer opportunities to decrease the stress level among IT professionals. Flexible working hours may decrease the time-constrained stress factors. Besides, IT professionals generally have less time to spare for their families, therefore virtual work may be offered to IT employees. In addition, child-care centers may be critical to decrease family-related stress for IT professionals who have children. Role ambiguity is another important factor for quitting job. The clarity of job responsibilities and job objectives should be defined prior to the beginning of the job by the managers. The definition of job responsibilities and job objectives may also be important for the high performance of the workers. Since Knight *et al.* (2007) explored the negative significant effect of role ambiguity on job performance.

Organizational commitment is another important factor found to influence the decision to quit job. Organizational commitment feeling can be induced by several means. At first, employees who accomplished their projects successfully may be appreciated with a small celebration. Second, companies may plan social activities among employees or even IT professionals may participate in such activities along with their families. By doing this, employees may perceive themselves to be of worth and also as an important part of their company and thus develop a higher degree of

commitment to their organizations. Besides, a greater level of satisfaction with their job may be developed.

5.2 Future studies

Although the findings of this study contribute to a better understanding of the factors affecting turnover intention among IT professionals, several limitations need to be appreciated. First, the model variables explained 57.6 percent of intention to quit job, 40.8 percent of job satisfaction and 62.2 percent of organizational commitment. Thus, a considerable percentage of the variables remain unexplained, warranting the need for further research, incorporating additional variables, such as fairness of rewards, managerial support, and perceived job alternatives.

Second, role ambiguity is found to be an important factor influencing the decision to quit job and job stress. However, which of the factors in reality affect role ambiguity among IT professionals needs to be researched as a further study.

Third, work-family conflict may also be related to job performance. Several studies explored the important effect of work-family conflict on job performance: Witt and Carlson (2006) found that high family-to-work conflict was more strongly related to lower job performance, Beauregard and Henry (2009) explored that work-life practices enhance organizational performance by means of reduced work-life conflict. Thereby, the effect of work-family conflict on job performance and the effect of job performance on job satisfaction as well as on turnover intention may be investigated as a further study. Since job performance is found to be an important factor for turnover decisions (Zimmerman and Darnold, 2009).

Fourth, this study can be extended to different industries, thus facilitating a comparison among different industries.

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