The Effect of Emotional Intelligence on Work-Family Conflict Among Employees in Manufacturing Environment Using Structural Equation Modeling

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Abstract. This paper examines the relation between emotional intelligence and work-family conflict in manufacturing environment. A questionnaire survey was carried out to explore this relation at carpet factories in Kashan, Iran. A 28-item questionnaire which consist of emotional intelligence and work-family conflict parts was carried out to investigate the relation between these variables. Some basic socio-demographic questions were included too. Questionnaires were distributed among 375 employees working at different carpet factories in Kashan and 190 questionnaires were analyzed.It was found that emotional intelligence and work-family conflict and some of their dimensions are significantly

related to each other and the behavioral model of these relations was fitted.

Keywords: Emotional intelligence, work-family conflict and manufacturing environment

1.   Introduction

Emotional intelligence and work-family conflict are of particular importance to manufacturing organizations. Since employees give an important function within factories and factories are the major pillars of an important manufacturing system, the behavior of employees in manufacturing environments remain a critical research issue. This research focuses on the investigation of the relation between emotional intelligence and work-family conflict as well as the behavioral model of relations between emotional intelligence dimensions and work-family conflict aspects.

The concept of emotional intelligence as a type of social intelligence first introduced by Salovy and Mayer (1990) . They defined emotional intelligence as the ability of an individual to perceive accurately, appraise, and express emotion; the ability to access and generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. According to Turner (2004) the emotional intelligence is the softer component of total intelligence and that it helps both personal and professional lives. Thus emotional intelligence is necessary for employees who perceive and control their own emotions and those of customers in the course of performing their emotional labor (Mayer and Salovy, 1997). Emotional intelligence is conceptualized as composed of four distinct dimensions (Wong and Low, 2002).

(1) Self-emotional appraisal (SEA),the ability of individual to understand their emotions and naturally to express these emotions.

(2) Others' emotional appraisal (OEA), the ability of individuals to perceive and understand the emotions for others that are around

(3) Regulation of emotion (ROE), the ability of individuals to regulate their emotions when they face psychological distress

(4) Use of emotion (UOE), the ability of people to make use of their emotions by directing them towards personal performance and constructive activities.

The second variable of the study, work-family conflict, is a form of inter-role conflict between the competing demands of family and work roles (Greenhaus and Beutell,1985). Three types of conflict; time, strain and behavior based conflict; were proposed specifically. Each conflict occurs bi-directionally from family-to-work and work-to-family. This study considers just time and strain conflicts bi-directionally. Studies have shown that people with low work-family conflict have greater organizational commitment (Thompson; Beauvais and Lyness, 1998), and increased job satisfaction (Kossek and Ozeki, 1998).These research issues are very important in modern organizations because of their effects on personal lives of employees and on organizational success (Kossek and Ozeki, 1998; Organ and Ryan, 1995). Today with the various use of telecommunication technologies and information and the using of flexible working patterns, family and work life has become increasingly interrelated (e.g., Valcour and Hunter, 2005). In this study we want to show employees with high in emotional intelligence have lower conflict between their work and family.

The main hypotheses of the study are the following:

Hypothesis 1. Factory employee's emotional intelligence associates negatively and significantly with their work-family conflict.

Hypothesis 2. Factory employees' emotional intelligence dimensions are related to their aspects of work-family conflict.

In this study, structural equation modeling (SEM) was used to investigate the effect of emotional intelligence on work-family conflict. SEM is a family of statistical techniques that integrates and incorporates factor analysis and path analysis. SEM can do a large number of exogenous and endogenous variables, as well as latent variables as linear combination of observed variables specifically. It has been vastly used in number of disciplines, including healthcare, information, management, banking, marketing, logistics and psychology.

2.   Method

2.1   Study Setting

There are many big carpet factories in Kashan, Iran. Since some of them have more employee staff than the others, some of them werechosen as the place for the questionnaire survey. The employees were informed about the objective of the research and their participation was voluntary. All the employees were invited to participate voluntarily to do so. The data was gathered in August 2012.

2.2   The Questionnaire Survey

A total of 375 questionnaires were submitted to collect data, and 197 questionnaires were returned. 7 questionnaires were incomplete and were excluded from analysis and 190 questionnaires were fully completed and were included.

Following Brislin (1976)'s guidelines, by two different bilingual researchers structured questionnaire consisting of two separate surveys was back and forward translated. Back and forward translated questionnaire by related experts were recommended without adaptions or changes. The response format was a 5-point Likert-type scale ranging from "strongly disagree" to "strongly agree".

"Emotional intelligence questionnaire" developed by Wong and Law (2002) was used to assess emotional intelligence. To measure the different dimensions of emotional intelligence: OEA; SEA; UOE; ROE, the 16-item emotional intelligence questionnaire was classified into 4 of 4 questions. Stephens and Sommer (1996) developed a work-family conflict scale to measure three types of conflict, time; strain and behavior-based conflict were proposed specifically. Each conflict occurs bi-directionally from family to work and work to family. But in this study we omitted questions related to behavior-based conflict and measured just two types of conflict: time and strain.

2.3   Data Analysis

Data analysis was done by using Amos 18, and the statistical program package SPSS. P-Value equal or lower than 0.05 were considered signif-

icant statistically. Exploratory factor analysis was carried out on all 16 items of the emotional intelligence. Both principle axis factoring (PAF) and principle component analysis (PCA) pointed out four factors, dimensions of emotional intelligence, each indicator loading significantly to its hypothesized construct. Second, a confirmatory factor analysis (CFA) was carried out on the dimensions of emotional intelligence, a single factor (EI) was concluded with significant loadings of all indicators. Exploratory factor analysis on all 12 items of work-family conflict pointed out four factors, time-based work-family conflict (T.WFC); strain-based work-family conflict (S.WFC); time-based family-work conflict (T.FWC); strain-based family-work conflict (S.FWC), consistently with hypothesized items. Each indicator item loadings were significant. Furthermore, factor analysis on the aspects of work-family conflict indicated a single factor, work-family conflict with significant loadings.

In terms of cronbach's? and composite reliabilities, reliability analysis was conducted for all the study variables. Cronbach's? coefficient went beyond 0.7 for all cases. The results of the reliability analysis for emotional intelligence and its dimensions, work-family conflict and its aspects are given in table 1.

Table 1: Correlation matrix and reliability result for study variables.

variables	OEA	UOE	SEA	ROE	T.WFC	T.FWC	S.FWC	S.WFC	EI	WFC
OEA	1									
UOE	$.246^{**}$	1								
SEA	$.462^{**}$	$.566^{**}$	1							
ROE	$.135^{*}$	$.362^{**}$	$.419^{**}$	1						
T.WFC	-.022	$-.209^{**}$	$-.167^{**}$	.060	1					
T.FWC	$-.356^{**}$	$-.190^{**}$	$-.178^{**}$	-.055	$.249^{**}$	1				
S.FWC	$-.192^{**}$	$-.160^{**}$	$-.158^{**}$	-.085	$.253^{**}$	$.616^{**}$	1			
S.WFC	.024	$-.221^{**}$	$-.153^{*}$	-.076	$.318^{**}$	$.222^{**}$	$.455^{**}$	1		
EI	$.630^{**}$	$.765^{**}$	$.864^{**}$	$.632^{**}$	$-.130^{*}$	$-.268^{**}$	$-.206^{**}$	$-.154^{*}$	1	
WFC	$-.194^{**}$	$-.262^{**}$	$-.220^{**}$	-.075	$.500^{**}$	$.732^{**}$	$.849^{**}$	$.745^{**}$	$-.264^{**}$	1
Cronbach's α	0.702	0.769	0.801	0.708	0.892	0.891	0.890	0.892	0.787	0.813

**. Correlation is significant at the 0.01 level (2tailed).

* . Correlation is significant at the 0.05 level (2tailed).

EI=emotional intelligence;
WFC=work-family conflict;
OCB=organizational citizenship behavior;
SEA=self-emotional appraisal;
OEA=others' emotional appraisal;
UOE=use of emotion;
ROE=regulation of emotion;
T.WFC=time-based work-family conflict;
S.WFC=strain-based work-family conflict;
T.FWC=time-based family-work conflict;
S.FWC=strain-based family-work conflict.

3.   Results

3.1   A Profile of the Employees

The participants were all male with age ranging from 20 to 40 years old. About 90% of them were Diploma graduate and had been working at these factories between 1 to 15 years. About 80% of the employees were married.

3.2   Correlation Analysis

The correlation coefficient for the study variables are given in table 1. A look on the dimensions of emotional intelligence showed that, not all the dimensions have significant correlation with work-family conflict. There was evidence in table 1 that all the dimensions of emotional intelligence have negative correlation with work-family conflict. There is insignificant correlation between the pair, ROE-WFC. A closer look revealed that emotional intelligence is correlated with work-family conflict negatively significant.

3.3   Behavioral Model of the Relation of Emotional Intelligence Dimensions with the Aspects of Work-Family Conflict

To assess the extent to which the dimensions of emotional intelligence

affects the aspects of work-family conflict as well as the behavioral model of these relations, according to the findings; study hypotheses and the literature, the structural model was constructed. Direct paths from each dimension of emotional intelligence to each aspects of work-family conflict were tested simultaneously. All the direct path coefficients from the dimensions of emotional intelligence to the aspects of work-family conflict were significant in proposed directions, except for the paths between pairs, ROE-S.WFC; ROE-S.FWC; ROE-T.FWC and SEA-T.WFC. After eliminating the insignificant paths, the fit of the model was assessed. According to fit indices, the model exhibit a good fit to data (fig. 1). As a result, all the dimensions of emotional intelligence have significant relation with the aspects of work-family conflict except the pairs, ROE-S.WFC; ROE-S.FWC; ROE-T.FWC and SEA-T.WFC.

So, second hypothesis of the study was confirmed except for the pairs, ROE-S.WFC; ROE-S.FWC; ROE-T.FWC and SEA-T.WFC.
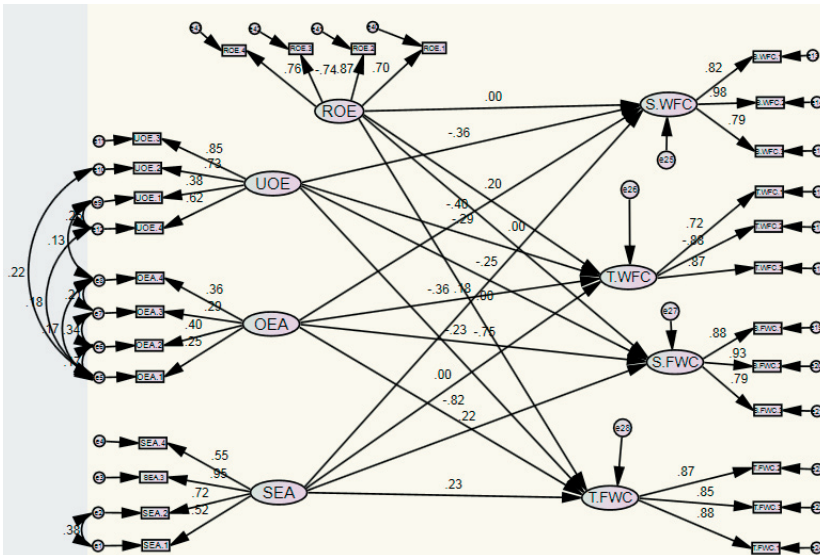

Fig. 1. Structural Model . Note: $\chi^2 = 593.735$, p = 0; χ^2/d. f. = 1.702; RMSEA = 0.063; CFI = 0.884; IFI = 0.902. the insignificant paths were omitted and were not included in the calculation of indices. SEA=self-emotional appraisal; OEA=others' emotional appraisal; UOE=use of emotion; ROE=regulation of emotion; T.WFC=time-based work-family conflict; S.WFC=strain-based work-family conflict; T.FWC=time-based family-work conflict; S.FWC=strain-based family-work conflict.

4.   Discussion

According to the literature review, this study is the first study that considers emotional intelligence and work-family simultaneously in manufacturing environment. In the literature there are few studies analyzing the relation between emotional intelligence-work-family conflict (e.g., Laura Biggart, 2010; Nancy J. Yanchus, 2010). The current study found a positive relationship between emotional intelligence and work family conflict of the employees.

The first hypothesis of the study was about the existence of significant relationship between emotional intelligence and work-family conflict. As the result of the analysis, emotional intelligence has significant negative relationship with work-family conflict. This finding is also supported by Laura Biggart (2010) in management literature. Employees who are high in emotional intelligence are less likely to have work-family conflict. This study is a contribution to the literature on emotional intelligence and work-family conflict.

The second hypothesis of the current study was the relationship between the dimensions of emotional intelligence and the aspects of work-family conflict. As a result of the analysis, all the direct path coefficients from the dimensions of emotional intelligence to the aspects of work-family conflict were significant in proposed directions, except for the paths between pairs, ROE-S.WFC; ROE-S.FWC; ROE-T.FWC and SEA-T.WFC.

Overall, this research about Iranian employees states that there is an effect of emotional intelligence on work-family conflict. Although this study is not a cross-cultural one and the surveys and concepts used in this research are western based ones, the results are along with other studies such as Laura Biggart (2010); Hayo Sun's study (2010); Nancy J. Yanchus (2010).due to cultural impact, each culture may response to the survey questions differently. Factory employees because of their job characteristics, demand similar requirements among cultures and this can explain why the results of this research are along with the results of other researches.

Emotional intelligence can play an important role in the behaviors of

factory employees, so it is very important for employees and improving the emotional intelligence of factory employees is a challenge. As emotional intelligence is an important requirement for employees, courses related to improve emotional intelligence such as communication and self-management, psychology, ethics and sociology have to be added to the employees training programs and in the recruitment process to select potentially effective job applicants, measure of emotional intelligence must be considered (Palmer, 2003). As emotional intelligence can be taught or learned, therefore development programs and employee training have to design for factory employees subsequently. Because of this, program about stress management, conflict management, anger management and time management can help employees to improve their emotional intelligence.

4.1   Study Limitation

One of the limitations of the study is that emotional intelligence and work-family conflict were measured by self-report questionnaires. With self-report measures, response distortion and social desirability biases due to defense tendencies were a concern (Sy et al., 2006).
The study focuses on emotional intelligence and work-family conflict. It is a limitation that all other factors affecting these variables were omitted. Also because of the nature of the job, cultural effects were thought not to impact the results dramatically. Therefore, if there are any possible outcomes of cultural impacts, were neglected.
By the fact that all the respondents belong to carpet factories in Kashan and the results cannot be generalized to all factories, the generalizability of the findings is limited potentially. employees with stress and heavy burden of job necessities have no time to complete the questionnaires sincerely.
Generally speaking, the limitation of this study mentioned above, constrain its generalizability to other organizations. Because of this, a future study has to be repeated in different factories.

5.   Conclusion

Emotional intelligence and work-family conflict were found to have significant relationship with each other. When the dimensions of emotional intelligence and the aspects of work-family conflict were taken in to account, all the direct path coefficients from the dimensions of emotional intelligence to the aspects of work-family conflict were significant in proposed directions, except for the paths between pairs, ROE-S.WFC; ROE-S.FWC; ROE-T.FWC and SEA-T.WFC. This study fills an important gap both in factory employees literature and management, although to make a generalization, further research is needed.

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