# EXAMINING THE RELATIONSHIPS BETWEEN EMPLOYEE PERCEPTIONS OF MANAGEMENT'S COMMITMENT TO SAFETYAND THE SAFE BEHAVIOUR OF EMPLOYEES: A STUDY IN TURKEY

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**Abstract** - Behaviours of employees play an important role in the emergence of work accidents. Employees' safety behaviours are influenced by organizational and cultural factors. However, in occupational safety literature employee perceptions of management's commitment to safety in relation to safety behaviour has rarely been examined. In this study, the relationship between the employee perceptions of management's commitment to safetyand the safety behaviour was examined with structural equation model. The study sample consisted of 619 employees from a company in the manufacturing sector in Turkey. The results suggest that employees 'perceptions of employees' commitment to management positively affect self-reported safety behaviour, such as safety compliance and safety participation. According to results, employee perceptions of management's commitment to safety have an important key role to safety behaviour in workplace.

**Keywords** - Safety Behaviours, Management's Commitment To Safety, Work Accidents

## I. INTRODUCTION

Current statistics on occupational accidents show that the problem remains globally serious. According to the sources of International Labour Organization (ILO), every day, 6,300 people die as a result of occupational accidents or work-related diseases more than 2.3 million deaths per year[11]. Work-related accidents in Turkey also constitute one of the major problem areas of working life. According to the Social Safety Administration data between the years 2007-2017, the number of people who lost their lives due to workplace accidents in Turkey was 14 243. According to official data 360 thousand work- related accidents occurred in Turkey in 2017 and 1633 employees lost their life in these accidents[21]. On the other hand, although there are many causes of occupational accidents, unsafe behaviors of employees play an important role in the occurrence of accidents. Many factors play a direct or indirect role in the accidents. Heinrich's (1931) domino theory of the causes of occupational accidents is one of the most cited accident causality models to date [20]. According to the Domino theory, there are five factors in the sequence of events that cause an accident. According to Heinrich, these dominoes are similar to those of a domino stone: ancestry and social environment, fault of the person, unsafe act, accident and injury [1]. Heinrich stated that the removal of unsafe movements, the third domino stone, was the easiest and most effective way to stop the injury-causing sequence. Heinrich examined the 75,000 work-accident reports and found that 88% of all industrial accidents were mainly due to unsafe actions, 10% were unsafe conditions and the remaining 2% were caused by acts of God [20]. As it is understood, the safety behaviours of employees are one of the most important causes of occupational accidents. According to Neal and Griffin (2002), occupational safety behaviours of employees have two dimensions: safety compliance and safety participation. The concept of safety compliance covers the basic activities that should be done by individuals to ensure safety in the workplace. These behaviours include adhering to standard business procedures and wearing personal protective equipment. The concept safety participation, not directly contribute to the personal safety of an individual, but is used to define the behaviours that help to foster an environment that supports safety. Examples of such behaviour are voluntary participation in occupational safety activities, assisting colleagues in safety-related matters, and attending safety meetings [18]. As understood, safety participation has a more voluntary and voluntary structure, including safety-oriented practices that go beyond the normal role requirements[9]. In addition, research shows that organizational and cultural factors play an important role on unsafe behaviours. The concepts of safety climate and safety culture are the most important issues in recent years. Safety climate refers to perceptions of policies, procedures and practices related to safety in the workplace [18]. Research shows that perceived safety climate affects employee behaviour towards safety [5],[15], [9],[19]. The concept of safety culture first time used in a report by the OECD Nuclear Agency in 1987 after the nuclear accident in 1986 [7],[6]. Safety culture reflects values, perceptions, beliefs and attitudes shared by safety-related employees [8]. Employees' perceptions of safety culture affect safety behaviours. On the other hand, the commitment of management to safety is considered to be an important dimension in the studies related to safety climate and safety

culture[22], [17], [12], [10],[14]. Commitment to safety refers to the attitudes and behaviours of managers regarding occupational safety, such as employee training, employee participation, and employee engagement.

Manager's commitment to safety, affects employee behaviour[16]. Studies have shown that management's commitment to safety and work-related injuries [13], safety behaviour [3],[17]organizational risk perception [23]and risk of injury [14] shows that there is a significant impact on safety outputs.The results of employee perceptions of management's commitment to safety, as seen in a lot of research have examined different aspects. However, a study conducted in this regard could not be detected in Turkey. The aim of this study is to examine the effect of employee perceptions of management's commitment to safety to safety on the safe behaviour of employees.

In the light of the information obtained from previous studies in the literature, the following hypotheses will be tested in this study:

Hypothesis 1. The employee perception of management's commitment to safety positively affects safety participation.

Hypothesis 2. The employee perception of management's commitment to safety positively affects safety compliance.

## II. METHODOLOGY

### 2.1 Participants and Procedure

The sample of the study consists of 619 employees from a company in the manufacturing sector in Turkey. The questionnaires distributed to the participants with closed envelopes were filled by the participants themselves and collected back on the same day. 95.8% of the participants were male and 4.2% were female. In addition, 56.1% of the participants were married and 43.9%were single. Study participants ranged in age from 18 to 55, the average age was 29.38 ± 7.61 (mean ± standard deviation) and daily average working time was 5.83 ± 5.58.

### 2.2 Measures

In this study, semi-structured questionnaire was used to collect data. The prepared questionnaire consists of two parts. In the first part of the questionnaire, demographic information (age, gender, marital status, etc.) of the participants are included. In the second part of the survey, the scales consisted of the measures used to measure employee perceptions of management's commitment to safetyand the safety behaviour of employees. All items were measured on a 5-point rating scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Management' Commitment Scale: A scale consisting of 8 items developed by Muniz et al. (2007 has been used to measure the manager's commitment to safety(Cronbach's Alpha=90). A sample item includes ''Managers consider training of employees is essential for achieving a safe workplace."

Safety Behaviour Scale: To measure of safety behaviour of the employees, Safety Behaviour Scale developed by Neal and Griffin (2002) was used. The questionnaire consisted of six statements such as "I use all the necessary safety equipment to do my job" or "I voluntarily carry out tasks or activities that help to improve workplace safety" to give subjective self-assessments of the employees' safety performance in the workplace. The scale consists of two sub-dimensions: Safety Compliance (3 item-Cronbach's Alpha=85) and Safety Participation (3 item-Cronbach's Alpha=81).

## III. RESULTS

The scales used in the study were not previously adapted to Turkish. Therefore, validity and reliability analyses were performed for the scales used in the study. The validity of the scales used in the study was evaluated in terms of construct validity. Exploratory factor analysis and confirmatory factor analysis studies were performed to determine the factor structures of the scales used in the study.In the study to determine the reliability of the scale, Cronbach Alpha reliability coefficient is calculated.

### 3.1. Exploratory Factor Analysis Results

Principal component analysis was used as factor derivation technique to examine the factor structure of the management commitment scale. As a result of the analysis, a measurement tool consisting of 8 items and a single dimension was obtained which explained 59.79% of the total variance. Table 1 shows the factor loads and the variance rates they explained. Factor loads obtained as a result of analysis ranged between 0.73-0.88.

| | Factor loading |
|---|---|
| Managers consider that employees' participation, commitment and involvement is fundamental to health and safety activities in order to reduce the work accident rate. | .82 |
| Managers consider training of employees is essential for achieving a safe workplace. | .80 |
| Managers consider internal communication is essential to understand and implement safety policy. | .78 |
| Managers consider that it is fundamental to monitor activities in order to maintain and | .77 |

| | |
|---|---|
| improve safety activities. | |
| Firm managers take responsibility for health and safety as well as quality and productivity. | .77 |
| Managers actively and visibly lead in safety matters. | .75 |
| Managers regularly visit workplace to check work conditions or to communicate with employees.. | .73 |
| Managers encourage meetings with employees and directors to discuss safety matters. | .73 |

**Table 1. The Exploratory Factor Analysis of Employee Perceptions of Management's Commitment to Safety**
**KMO: 0.915; p: 0.000 (Bartlett's Test)**

The results of the exploratory factor analysis for the safety behaviour scale are shown in Table 2.
As a result of the analysis, a measurement instrument consisting of two dimensions was obtained which explained 75.70% of the total variance. Table 1 provides information on the factor loads and the variance rates explained. As a result of the analysis, the factor loads obtained for the safety compliance dimension ranged from 0.72 to 0.89. Factor loads obtained for the safety participation variable are between 0.75 and 0.86 (Table 2).

| Safety Behaviour Dimensions | Factor loading | |
|---|---|---|
| | Compliance | Participation |
| I use all the necessary safety equipment to do my job. | .89 | |
| I use the correct safety procedures for carrying out my job | .89 | |
| I ensure the highest levels of safety when I carry out my job | .72 | |
| I promote the safety program within the organization | | .86 |
| I put in extra effort to improve the safety of the workplace | | .81 |
| I voluntarily carry out tasks or activities that help to improve workplace safety | | .75 |

**Table 2. The Exploratory Factor Analysis of Safety Behaviour**
**KMO: 0.809; p: 0.000 (Bartlett's Test)**

### 3.2. Confirmatory Factor Analysis

In the second stage of the study, confirmatory factor analysis (CFA) was used to test the conformity of the factors determined by exploratory factor analysis to the determined factor structures.
To analyse the latent construct of management commitment to safety behaviour, a CFA was conducted on the eight survey items concerning safety compliance and safety participations. These two factors generated the initial framework for our CFA. Using a maximum likelihood procedure, CFA models were examined with model fit statistics including root mean square error of approximation (RMSEA) and comparative fit index (CFI)[2]. The CFA procedure is not used to 'prove' that we have established the correct factor model, but rather to test that no other factor structure better represents the data.[4].
Measurement models for confirmatory factor analysis (CFA) are shown in Figure 1 and Figure 2.

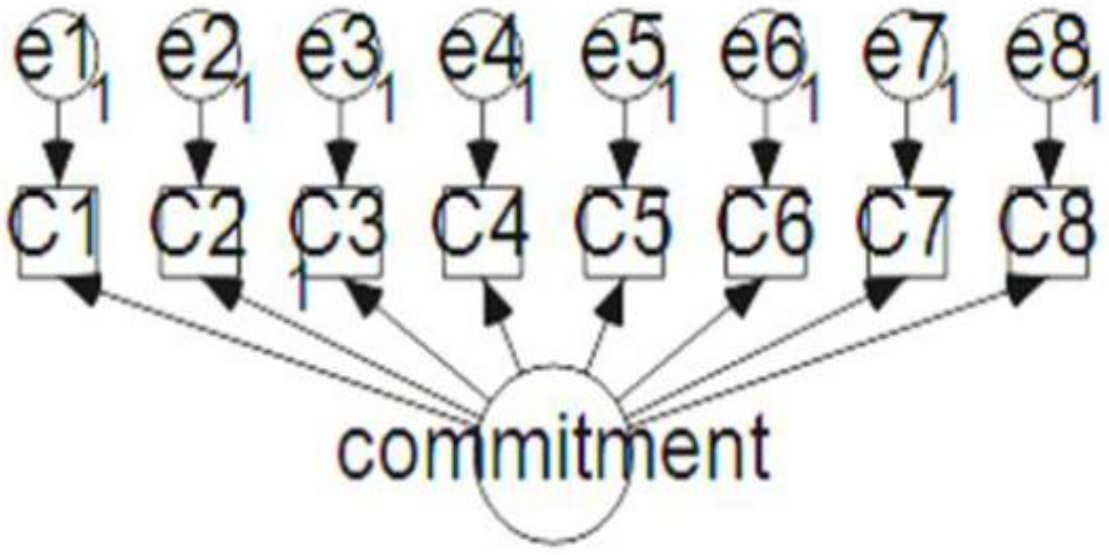



**Figure 1. Measurement Model for Employee perceptions of management's commitment to safety Scale**

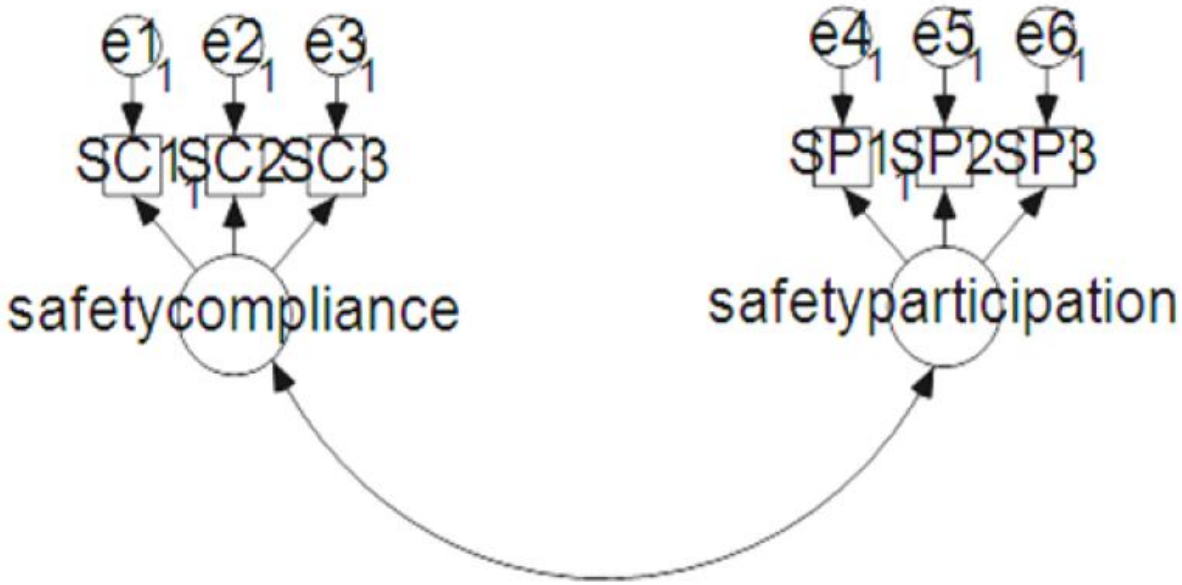



**Figure 2. Measurement Modelfor Safety Behaviour Scale**

The fit indices of the model are shown in Table 3.

| Goodness of Fit | Good Fit | Acceptable fit | Employee perceptions of management's commitment to safety | Compliance - Participation |
|---|---|---|---|---|
| $X^2$/df | ≤ 3 | ≤4-5 | 1.307 | 3.022 |
| GFI | ≥0.90 | 0.89-0.85 | 0.929 | 0.965 |
| CFI | ≥0.97 | ≥0.95, ≥0.90 | 0.928 | 0.96 |
| RMSEA | ≤0.05 | 0.06-0.08 | 0.07 | 0.021 |
| NFI | ≥0.95 | 0.94-0.90 | 0.921 | 0.957 |

**Table 3. Confirmatory factor analysis results of the scales**

According to these values, it is observed that all compliance measures in the goodness of fit indexes are within the acceptable compliance limits (Table 3).

### 3.3. Structural Model

Hypotheses were investigated using structural equation modelling (SEM) procedures. An SEM was employed to examine the relationship of the latent Management commitment factor to both safety compliance and safety participants research model tested is shown in Figure 3.

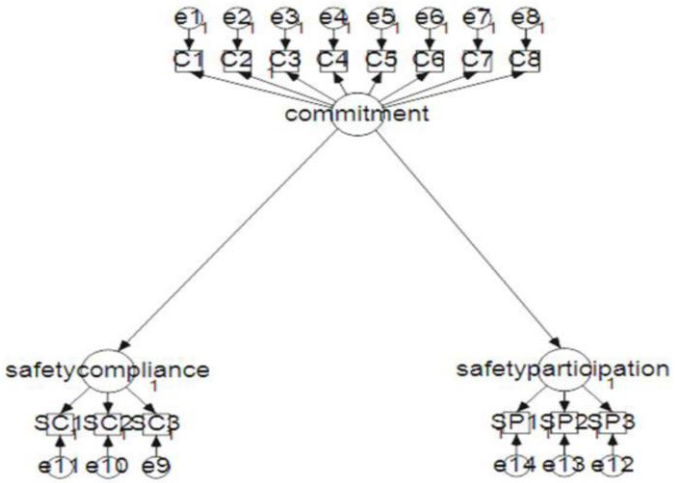



**Figure 3. Structural equation model regarding the employee perceptions of management's commitment to safety compliance,and safetyparticipations.**

The results of the structural equation model applied to determine the relationships between employee perceptions of management's commitment to safety and the safety behaviours of the employees are given in Table 4 and Table 5.

| Goodness of Fit | Good Fit | Acceptable fit | Structural model |
|---|---|---|---|
| $X^2$/df | ≤ 3 | ≤4-5 | 4.497 |
| GFI | ≥0.90 | 0.89-0.85 | 0.909 |
| CFI | ≥0.97 | ≥0.95, ≥0.90 | 0.908 |
| RMSEA | ≤0.05 | 0.06-0.08 | 0.06 |
| NFI | ≥0.95 | 0.94-0.90 | 0.901 |

**Table 4. Model adaptive values**

When the overall compliance criteria of the model are examined, it is seen that all indicators are within acceptable limits (Table 4).
The regression coefficients are given in Table 5 after considering the compliance criteria for the validity of the model

| Hypothesis | Estimates | Std. Estimates (β) | Std. Error | t | $R^2$ | p | Results |
|---|---|---|---|---|---|---|---|
| Commitment x Compliance | 0.302 | 0.36 | 0.039 | 7.80 | 0.203 | 0.001 | Acceptance |
| Commitment x Participation | 0.401 | 0.45 | 0.045 | 8.90 | 0.129 | 0.000 | Acceptance |

**Table 5. Research model hypothesis results**

When the standardized coefficients of the structural model were examined in Table 5, a significant positive correlation was found between the employee perceptions of management's commitment to safetyand safety compliance [β = .36, t = 7.80 and p <.001].
Likewise, a significant positive relationship was found between the commitment of managers and safety participation [β = .45, t = 8.90 and p <.001].In accordance with this model, managers' commitment was significantly related to safety compliance and safety participation.

## IV. DISCUSSION

Today, work accidents are one of the important problems of working life. Work safety related behaviours play an important role in the emergence of occupational accidents. The safety behaviours of employees are influenced by many organizational and cultural factors.In this study, the relationship between employee perceptions of management's commitment to safety and safety behaviour was examined using structural equation modelling.

According to the results of the research, the employee perception of management's commitment to safety towards safety has a positive effect on the employees' safety participation and safety compliance behaviours. In previous studies in the literature, it has been determined that the employee perceptions of management's commitment to safetyhas an effect on the outputs related to work safety[23], [13], [3], [17], [3].

## V. CONCLUSION

Work-related accidents are one of the major problems of working life in Turkey. The promotion of safe behaviour is important in the prevention of occupational accidents in Turkey. These results indicate that an employee perception of management's commitment to safety plays an important role in behaviour of employees. Therefore, business managers should be aware that their attitudes and behaviours affect the behaviour of employees. The managers who have positive attitudes about work safety and who have positive behaviours encourage their employees for safety behaviour.

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