A PROPOSED MODEL OF SAFETY CLIMATE: CONTRIBUTING FACTORS AND CONSEQUENCES

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

HARİKA YÜCEBİLGİÇ

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
DEPARTMENT OF PSYCHOLOGY

JUNE 2007

Approval of the Graduate School of Social Sciences

_____
Prof. Dr. Sencer Ayata
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

_____
Prof. Dr. Nebi Sümer
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

_____
Assoc. Prof. Dr. H. Canan Sümer
Supervisor

Examining Committee Members

Assoc. Prof. Dr. Reyhan Bilgiç	(METU, PSY)	_____
Assoc. Prof. Dr. H. Canan Sümer	(METU, PSY)	_____
Assoc. Prof. Dr. Tayyar D. Şen	(METU, IE)	_____

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Last name, Name : YÜCEBİLGİÇ, HARİKA

Signature :

ABSTRACT

A PROPOSED MODEL OF SAFETY CLIMATE:
CONTRIBUTING FACTORS AND CONSEQUENCES

Yücebilgiç, Harika
M.S., Department of Psychology
Supervisor: Assoc. Prof. Dr. H. Canan Sümer

June, 2007, 111 pages

The aim of the present study was to propose a model on safety climate by investigating the relationship between safety climate perceptions of employees and their safety-related behaviors in the workplace. Additionally, effects of fatalism views and risk taking/sensation seeking tendencies on safe behaviors were analyzed. The possible moderating effects of these variables on safety climate-safe behavior relationship were also investigated.

A total of 185 blue-collar employees working in a manufacturing firm participated in the study. Participants filled out the questionnaires including scales of safety climate, cultural values (fatalism, individualism, hierarchy, and egaliterianism) and dimensions (collectivism, power distance, and uncertainty avoidance), and risk taking/sensation seeking. The outcome variables included self-report compliance with safety rules and percentage of safety equipment used.

Safety climate perceptions predicted compliance with the safety rules. Also, sensation seeking tendencies were found to predict use of protective

equipments. The hypothesized relationships concerning fatalism views and moderations were not confirmed in the present study. Furthermore, safety climate perceptions tended to be more positive as collectivism, power distance, and uncertainty avoidance of the employees increased. Sensation seeking tendencies were higher for employees who reported less equipment use. Employees who reported to have had an accident had higher risk taking scores than employees who reported not to have had an accident involvement.

The results are discussed with the implications and contributions of the study. Limitations of the study are presented along with some suggestions for future research.

Keywords: Safety climate, safety-related behavior, fatalism, risk taking and sensation seeking tendencies.

ÖZ

GÜVENLİK İKLİMİ İLE İLGİLİ BİR MODEL ÖNERİSİ:
ETKİLEYEN FAKTÖRLER ve SONUÇLAR

Yücebilgiç, Harika
Yüksek Lisans, Psikoloji Bölümü
Tez Yöneticisi: Doç. Dr. H. Canan Sümer

Haziran, 2007, 111 sayfa

Bu çalışmanın amacı, bir işyerindeki çalışanların güvenlik iklimi algıları ile emniyet/güvenlik kurallarına uygun davranışları arasındaki ilişkiyi inceleyerek güvenlik iklimi ile ilgili bir model önermekti. Buna ek olarak, kadercilik görüşleri ve risk alma/duyum arama eğilimlerinin emniyetli davranışlar üzerindeki etkisini incelemekti. Bu değişkenlerin güvenlik iklimi-emniyetli davranışlar ilişkisi üzerindeki olası etkileri de ayrıca araştırılmıştır.

Üretim sektöründe faaliyet gösteren bir fabrikada çalışan 185 mavi yakalı çalışandan, güvenlik iklimi algıları, kültürel değerler (kadercilik, bireycilik, hiyerarşi ve eşitçilik), kültürel boyutlar (toplulukçuluk, güç aralığı ve belirsizlikten kaçınma) ve risk alma eğilimlerini ölçen anketleri doldurmaları istenmiştir. Ayrıca çalışanlardan işlerini yaparken güvenlik kuralarına ne kadar uyduklarını ve kullanmaları gereken donanımlardan hangilerini kullandıklarını değerlendirmeleri istenmiştir.

Güvenlik iklimi algıları çalışanların güvenlik kurallarına ne kadar uyduklarını yordamıştır. Ayrıca, duyum arama eğilimleri kullanılan donanımları yordamıştır. Kadercilik görüşleri ile ilgili diğer hipotezler desteklenememiştir. Ayrıca, toplulukçuluk, güç aralığı ve belirsizlikten kaçınma değerleri arttıkça, güvenlik iklimi algılarının da olumlulaştığı bulunmuştur. Duyum arama eğilimleri yüksek olan çalışanların, işlerini yaparken kullanmaları gereken koruyucu donanımların daha azını kullandıkları ve kazaya karışmış çalışanların karışmayanlara göre risk alma eğilimlerinin daha yüksek olduğu bulunmuştur.

Elde edilen verilerin kuramsal ve uygulamaya yönelik doğurguları ele alınmıştır. Çalışmanın güçlü yönleri ve sınırlılıkları ele alınmış, ileriki çalışmalar için bazı önerilerde bulunulmuştur.

Anahtar Kelimeler: İşyeri güvenlik iklimi, emniyetli davranışlar, kadercilik, risk alma/duyum arama eğilimleri

Anneme, babama ve kardeşime,
tüm destekleri için.

ve Umut'a.

ACKNOWLEDGEMENTS

Firstly, I would like to express my deep gratitude to my supervisor Assoc. Prof. Dr. H. Canan Sümer for her guidance, advice, criticism, encouragements, and insight during my research. I also feel proud to be able to work with her throughout my graduate study.

I would like to express special thanks to Assoc. Prof. Dr. Reyhan Bilgiç for providing invaluable insight through courses and for her contributions and comments in my thesis presentation. I also would like to thank Assoc. Prof. Dr. Tayyar Şen for his valuable comments in my thesis presentation.

I would like to thank my friend, Özge Tayfur, for both her support in the translation process and help. I would like to express my thanks to Şenel Hüsnü for her technical assistance. I also want to thank my coworker, Pınar Işık and my manager, Erdal Usluer for their concern, understanding, and support.

I would also like to express my special appreciation to a very special person, Umut Deniz, who supported me during past year with an endless patience, and for believing in me.

Lastly, I would like to express my deepest gratitude to my family, for their patience and support.

TABLE OF CONTENTS

PLAGIARISM……iii

ABSTRACT……iv

ÖZ……...vi

DEDICATION……..viii

ACKNOWLEDGEMENTS……ix

TABLE OF CONTENTS…….....x

LIST OF TABLES……xiii

LIST OF FIGURES……..xiv

CHAPTER

1 INTRODUCTION.....1

1.1 OVERVIEW.....1

1.2 CONCEPT OF SAFETY CULTURE/CLIMATE.....3

1.3 STUDIES ON SAFETY CLIMATE AND ACCIDENT INVOLVEMENT.....6

1.3.1 Dimensions of Safety Climate.....7

1.3.2 Studies Concerning Outcome Measures.....13

1.3.3 Models on Safety Climate.....16

2 POTENTIAL CONTRIBUTORS TO SAFETY CLIMATE.....22

2.1 CULTURALLY INFLUENCED VARIABLES.....22

2.2 RISK TAKING AND SENSATION SEEKING TENDENCIES.....28

2.3 PRESENT STUDY.....30

2.3.1 Hypotheses.....33

3 METHOD.....35

3.1 SAMPLE.....35

3.2 MEASURES.....36

3.2.1 Section I: Safety Climate Questionnaire.....36

3.2.2 Section II: Cultural Value and Dimensions.....37

3.2.3 Section III: Hofstede's Cultural Dimensions *37*
3.2.4 Section IV: Risk Taking and Sensation Seeking Scale *38*
3.2.5 Section V: Outcome Measures *38*
3.2.6 Section VI: Demographics *39*
3.3 PROCEDURE 39
3.3.1 Questionnaire Administration *40*
3.3.2 Level of Analysis *41*
3.4 ANALYSES 41

4 ANALYSIS 43

4.1 EXPLORATORY FACTOR ANALYSES 43
4.1.1 The Safety Climate Questionnaire *44*
4.1.2 Cultural Bias Questionnaire *47*
4.1.3 Dorfman and Howell's Cultural Scales (1988) *48*
4.1.4 Risk Taking and Sensation Seeking Scale *48*
4.2 DESCRIPTIVE STATISTICS 50
4.3 HYPOTHESES TESTING 54
4.3.1 Hypotheses concerning safety climate perceptions and safety -related behavior *54*
4.3.2 Hypotheses concerning fatalism views *58*
4.3.3 Hypotheses concerning risk taking and sensation seeking tendencies *61*
4.4 ADDITIONAL ANALYSES 64

5 DISCUSSION 66

5.1 OVERVİEW 66
5.2 DESCRIPTIVE FINDINGS AND ADDITIONAL ANALYSES 66
5.3 RESULTS OF HYPOTHESİS TESTİNG 69
5.3.1 Hypotheses concerning safety climate perceptions and safety-related behavior *69*
5.3.2 Hypotheses concerning risk taking and sensation seeking tendencies *71*

5.3.3 Hypotheses concerning fatalism views *72*
5.4 IMPLICATIONS OF THE FINDINGS 74
5.5 CONTRIBUTIONS OF THE STUDY 76
5.6 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH 77

6 REFERENCES 79

7 APPENDICES 86

A. SAMPLE CHARACTERISTICS……..…86
B. QUESTONNAIRE ASMINISTRATION FORM…….98
C. SAFETY CLIMATE SCALE……91
D. CULTURAL BIAS QUESTIONNAIRE……..95
E. CULTURAL SCALES……..98
F. RISK TAKING/SENSATION SEEKING SCALE…….101
G. OUTCOME MEASURE…….104
H. DEMOGRAPHICS…….109

LIST OF TABLES

Table 4.1 Factors/subscales of Zohar Safety Climate Scale (1980) found in the present study 45

Table 4.2 Item loadings and explained variance of Dorfman and Howell's Cultural Scales (1988) 49

Table 4.3 Means, Standard Deviations, Reliabilities, and Correlations of the Variables 52

Table 4.4 Predicting Self-Reported Frequency of Compliance with Safety-Related Rules from Safety Climate Score: Summary of the Hierarchical Regression Analysis 55

Table 4.5 Predicting Self-Reported Use of Protective Equipment From Safety Climate Score: Summary of the Hierarchical Regression Analysis 56

Table 4.6 Predicting Self-Reported Frequency of Compliance with Safety-Related Rules From Safety Climate Subscales: Summary of the Regression Analysis 57

Table 4.7 Predicting Self-Reported Use of Protective Equipment From Safety Climate Subscales: Summary of the Regression Analysis 57

Table 4.8 Predicting Self-Reported Frequency Of Compliance With Safety-Related Rules From Fatalism Views: Summary of the Regression Analysis 59

Table 4.9 Predicting Self-Reported Use Of Protective Equipment From Fatalism Views: Summary of the Hierarchical Regression Analysis 59

Table 4.10 The Relationship between Safety Climate and Frequency of Compliance with Safety-Related Rules, Fatalism Views Being the Moderator: Summary of the Moderated Regression Analysis 60

Table 4.11 The Relationship between Safety Climate and Use of Protective Equipment, Fatalism Views Being the Moderator: Summary of the Moderated Regression Analysis 61

Table 4.12 Predicting Self-Reported Frequency of Compliance with

Safety-Related Rules from Risk Taking/Sensation Seeking Tendencies: Summary of the Regression Analysis 62
Table 4.13 Predicting Use of Protective Equipment from Risk Taking and Sensation Seeking Tendencies: Summary of the Hierarchical Regression Analysis 62
Table 4.14 The Relationship between Safety Climate and Frequency of Compliance with Safety-Related Rules, Risk Taking/Sensation Seeking Scores Being the Moderator: Summary of the Moderated Regression Analysis 64
Table 4.15 The Relationship between Safety Climate and Use of Protective Equipment, Risk Taking/Sensation Seeking Being the Moderator: Summary of the Moderated Regression Analysis 64

LIST OF FIGURES

Figure 1.1 Hypothesized relationships among constructs of the model by Neal et al. (2000)..... 18
Figure 1.2 Research model by Mohammed. 19
Figure 1.3 Multilevel model by Zohar. 21
Figure 2.1 The proposed model of safety climate: Fatalism and risk taking tendencies as critical factors. 32

CHAPTER I

1 INTRODUCTION

1.1 Overview

Workplace accidents have severe consequences for both employees and employers. They pose serious threats to the lives of employees and they could be very costly to the organizations. Hence, investigation of underlying mechanisms in accident involvement and identifying a general framework for explanation of unsafe work behavior are important to formulate preventive actions. Recent studies show that unsafe acts cannot be attributed to mere employee neglect or technical failures, demonstrating the importance of "human factor" involved in accidents (Gravan & O'Brein, 2001).

Driven from the concept of organizational culture, the term "safety culture" was employed to reflect a subcomponent of corporate culture, which alludes to individual, job and organizational features that affect and influence safety and health in the workplace (Cooper, 2000; 2002). Safety culture/climate was shown to affect safety performance in several distinct studies (e.g., Clarke, 2006c; Cooper & Phillips, 2004; Gravan & O'brein, 2001; Huang, Smith, & Chen, 2006; Mohammed, 2002; Neal & Griffin, 2006). Given that safety performance is predicted by safety climate, it is important to identify the factors that influence safety climate perceptions of employees in an organization. In the present study, drawing from the existing safety culture and climate studies, a model of safety is proposed, which takes into account the effects of culture-based individual differences factors and dispositional factors on safety climate perceptions and safety-related behavior.

What seems to be missing in the existing models of safety culture and climate is the influence of broad cultural values on safety behaviors. Although organizational culture and national culture are argued to be different from each other, national culture has effects on how organizations function (Hofstede, 2001). Therefore in the proposed study, the effects of cultural values, especially fatalism views, are integrated into safety perceptions. In addition to cultural influences as macro-level factors, a critical dispositional attribute, risk taking tendencies, is investigated separately.

Risk perceptions have been shown to be important in safety climate (Harvey, Erdos, Bolam, Cox, Kennedy, & Gregory, 2002). The outcomes associated with safety performance are related to risky behavior and risk perception of employees. In addition, risk taking and sensation seeking tendencies were found to predict unsafe driving behavior (Dahlen & White 2006; Sümer, 2003). Drawing from here, risk taking tendencies as a dispositional variable is integrated in a safety climate model.

The sources of influence in the proposed model are cultural determined values, especially fatalism, and risk taking-sensation seeking tendencies of employees. Risk taking tendency, measured by the Risk Taking and Sensation Seeking Scale of Arnett (1994) [adapted by Sümer and Özkan (2002)], is hypothesized to have an effect on safety-related behaviors and to be a moderator of the safety climate perceptions-safety behavior link. Similarly, cultural values are hypothesized to have a direct effect on safety-related behaviors. The moderating role of cultural values on the above mentioned relationship is also investigated. Safety-related behaviors in the present study contain self-reports of compliance to rules of safety, along with the frequency of using protective equipments.

In the following sections, the above mentioned relationships are explained in detail. First, different conceptualizations of the terms “safety culture” and “safety climate” are examined. Second, the studies done on safety climate are overviewed with a special focus on dimensionality of the concept. Third, studies concerning the relationship of safety climate with different outcomes are

presented. Finally the models proposed by different researchers are explained at the end of this chapter.

1.2 Concept of Safety Culture/Climate

The traditional approaches to the accident causation focused on the technical aspects and design of jobs. But the finding that more variability of accidents in high technology contexts are explained in terms of human factors show that there is more to accident involvement than only technological aspects of work design (Dahlen & White, 2006; Mars, 1996; Mullen, 2004; Zohar, 2003). Consistent with that finding, the literature on accidents and safety recently shifted its focus from technical aspects to factors that may affect what is called the "human factor" involved (Gravan & O'Brien, 2001). The recent work on accidents tend to focus more on the mechanisms by which employees behave safely, the variables that are related to safe and unsafe behavior of employees, the organizational variables that may affect the occurrence of accidents, worksite characteristics and personal characteristics of employees. This shift in focus has been an impetus for new research areas such as safety climate and culture, which were suggested by some authors to emerge from organizational climate and culture concepts (Glendon & Litherland, 2001). Although theoretical development of these concepts is related to previous organizational culture and climate studies, it is after great disasters that these organizational factors were considered as important contributors to accidents.

The appearance of the concept of "safety culture" dates back to Chernobyl nuclear disaster, where a "poor safety culture" was identified as one of the contributors to the disaster (Cooper, 2000; Glendon & Stanton, 2000; Yule, 2003; Wiegmann, Zhang, von Thaden, Sharma, & Gibbons, 2004). Several definitions and conceptualizations of the construct have been proposed since the first appearance of the term and the definitions differed according to the industry. Yet, as stated by Wiegmann et al. (2004), some commonalities exist across these definitions. These commonalities include the following: safety culture is defined

at the group level, referring to the shared values among members; the definition is concerned with formal safety issues, closely related to the management and supervisory systems; it emphasizes the contribution of the members, and it has an impact on members' behavior at work; it is usually reflected in the contingency between reward systems and safety performance in an organizations willingness to develop and learn from errors, incidents, and accidents; and it is relatively enduring, stable and resistant to change. Safety culture was suggested to be a sub-component of corporate culture (Cooper, 2000).

A neighboring concept to safety culture is "safety climate." Safety climate is one of the different climates an organization creates (Zohar, 1980). Because the development of these terms was originated from organizational culture research, the relationship between safety culture and safety climate concepts was compared to that between organizational culture and organizational climate (Guldenmund, 2000). Based on the previous research starting with Zohar (1980), Guldenmund reviewed the literature on safety climate and safety culture, and he stated that, the distinction between culture and climate had to be resolved before defining safety culture and safety climate.

As being subfacets of organizational culture and climate, these concepts share similar characteristics with organizational culture and climate. It was suggested that perceptions of employees about safety issues were more associated with climate, whereas attitudes were suggested to be a part of culture. In addition to this, safety culture is viewed broader than safety climate, including attitudes, values, and behaviors. Also, safety climate is suggested to be a temporary state of an organization, subject to change depending on the features of the specific operational or economic circumstances, whereas safety culture is viewed as a more enduring characteristic (Wiegmann et al., 2004).

In addition to the theoretical aspects, the mechanisms by which organizational and safety culture/climate are related were investigated and it was proposed that safety culture mediated the relationship between organizational culture and safety performance, and it was being affected by organizational culture (Neal & Griffin, 2000).

Although the definitions provided in the cited references differ for safety culture and climate, an unclear relationship was suggested to exist between them. According to Yule (2003), they are not reflective of a unitary concept; rather they are complementary, independent concepts, operating at different levels. Yet, many studies use these terms interchangeably (Guldenmund, 2000; Parker, Lawrie & Hudson, 2006). To sum up, Zohar (2003) states that the literature on safety culture and climate is characterized by conceptual ambiguity and many authors fail to discriminate between the terms.

The construct that this study aims to investigate is safety climate, which reflects the immediate perceptions of employees about the nature of safety in their organizations. Investigation of safety climate/culture reflects one of the three distinct approaches: attitudinal (measuring employees' attitudes), perceptual (focusing on employees' perceptions of the work environment), and combination of these two (Clarke, 2006b). The debate on culture and climate reveals that safety culture studies are more concerned with safety attitudes. These views are consistent with the proposition by Cox and Flin (1998), which made use of attitudes as a measure of safety culture. The present study measures perceptions of employees, which have been suggested to provide greater predictive validity in relation to work accidents than safety attitudes in a meta-analytic review (Clarke, 2006b).

The ambiguity mentioned earlier applies for the definition of safety climate as well. Among many definitions of safety climate adopted by researchers, the examples include "the shared perceptions with regard to safety policies, procedures and practices" (Zohar, 2003, p. 125); "the manifestation of the underlying safety culture in safety related behaviors of employees and in employees' expressed attitudes" (Mearns,Whitaker & Flin, 2001, p. 771); "a higher order factor comprising of first order factors reflecting perceptions of safety-related policies, procedures and rewards, and higher order factor should reflect the extent to which employees believe that safety is valued within the organization" (Griffin & Neal, 2000, p. 348). However, the terms safety climate and safety culture are used in the following sections to reflect the terminology used in the cited references.

The term safety climate was first measured in the work of Zohar (1980), where a particular type of climate and its implications were examined. According to Zohar, safety climate is one of the different climates that an organization produces, and climate was operationalized as "a summary of molar perceptions that employees share about their work environments" (Zohar, 1980, p. 96). These perceptions were suggested to serve as a frame of reference for guiding appropriate and adaptive task behaviors and therefore they were proposed to affect the safety-related behaviors.

1.3 Studies on Safety Climate and Accident Involvement

In the review where he summarizes the conceptual and measurement issues related to safety climate, Zohar (2003) states that precise definitions of the constructs, namely safety climate or safety culture, should be made in the first place. After conceptual clarity is warranted, the theoretical model should specify the link between climate perceptions and organizational safety records, along with the underlying variables. As discussed in the previous sections, the literature on the definitions and dimensions of safety climate is ambiguous. This applies to the models of safety climate as well, the underlying mechanisms being hardly explored.

In line with Zohar, according to Neal and Griffin (2002), the present literature on culture/climate has focused on two major issues, one of them being the factor structure of the concept and the other being the relationships between safety climate and a number of outcome variables. In order to provide a background for a model on safety culture/climate, literature on the dimensionality of the construct and on the existing models, along with the relationships to outcomes is presented below.

1.3.1 Dimensions of Safety Climate

Safety climate has been suggested to be a multidimensional concept (Parker et al., 2006). Since it is broadly defined as the employees' perceptions regarding safety in their workplace, these perceptions may be about different aspects of the work environment. Hence it is seen that safety climate is a collection of different dimensions concerning work characteristics and organizational practices. There have been many studies concerning the factor structure of safety climate, and the factor structure was found to differ across industries (e.g., Harvey et al., 2002; Wiegmann et al., 2004).

The first measure tested to identify the factor structure of safety climate was designed by Zohar (Silva, Lima & Baptista 2004; Williamson, Feyer, Cairns, & Biancotti, 1997), which had 40 items and was developed according to the characteristics differentiating high and low accident-rate companies (Zohar, 1980). The differentiating organizational features were suggested to characterize individual plants and constitute the safety climate of the plant. Therefore the questionnaire designed to measure safety climate would include these characteristics as dimensions. In his work to determine the various dimensions of safety climate, Zohar reviewed safety literature and outlined the characteristics that differentiated high and low accident rate companies. Based on the review, it was concluded that safety climate would include the following dimensions: perceived management attitudes toward safety, perceived effects of safe conduct on promotion, perceived effects of safe conduct on social status, perceived organizational status of safety officer, perceived importance and effectiveness of safety training, perceived risk level at work place, and perceived effectiveness of enforcement versus guidance in promoting safety.

To test whether workers in different companies share a common safety climate perception and how the climate varies between organizations, the above mentioned climate questionnaire was administered to twenty factories from different sectors in Israel. According to the results, safety climate was concluded to be a characteristic of industrial organizations and it was found to be related to

the general safety level in the organizations. Among eight dimensions predicted, the following dimensions of safety climate revealed: *the importance of safety training*, *management attitudes towards safety*, *effects of safe conduct on promotion*, *level of risk at workplace*, *effects of work pace on safety*, *status of safety officer*, *effects of safe conduct on social status*, and *status of safety committee*.

The above mentioned study by Zohar was considered to be seminal for being especially safety-focused and his conceptualization of the term was cited, along with his measure in nearly all safety-climate studies (Yule, 2003). Other researchers attempted to validate Zohar's measure of safety climate in different industries and sectors (Glendon & Litherland, 2001; Williamson, et al. 1997). The measure was found to be sensitive to different safety climates and different industrial sectors. The attempts to identify the factor structure of safety climate in the U.S. led to different factor structures across different work groups, and the results were suggested to differ due to cultural factors. The dimensions identified in these studies include *organizational responsibility for safety*, *workers' concern about safety*, *personal skepticism*, *individual responsibility*, *personal immunity*, *changes in work demands*, and *value of the work* (Williamson et al., 1997).

In their study, Williamson et al. (1997) aimed to develop a measure of attitudes, perceptions and awareness of safety that were considered to be related to safety climate in workplace. According to the authors, previous research showed existence of two consistent areas: *views about management attitudes toward safety* and *views about workers' involvement or attitudes toward safety*. Based on this assumption and previous findings on factor structures of safety climate, these authors developed 62 items tapping into either one of these two areas. The results yielded two versions of the scale, both having acceptable internal consistency. Long version had 32 items, with a Cronbach alpha of 0.75 and short version had 17 items, with an alpha of 0.61, and a factor analysis yielded five factors which were a combination of general safety attitudes and perceptions of workplace conditions: *personal motivation for safe behavior*, *risk justification*, *positive safety practice* (reflecting perceptions), *fatalism,* and *optimism* (reflecting attitudes). As a limitation of the study, the outcome data used to assess the validity of the

questionnaire did not include objective measures such as records of accidents or near misses, but included self-reports.

Another study showing the multidimensionality of perceptions of work safety was conducted by Hayes, Perander, Smecko, and Trask (1998). The purpose was to develop an instrument to assess important dimensions of workplace safety perceptions that had adequate psychometric integrity. The content of the instrument and item generation were based on a review of safety literature. The analyses validated the 50-item Work Safety Scale (WSS) through reported and unreported accidents and near accidents. According to the results, the scale measured the following dimensions reliably: *job safety* (perceptions of the safety level of the job), *coworker safety* (how safe employee's coworkers behave), *supervisor safety* (safety practices of immediate supervisor), *management safety practices* (the practices of management), and *satisfaction with the safety program*. The WSS subscales were found to correlate with accident rates; management safety practices, supervisor safety being the best predictors of accidents, job satisfaction, and compliance with the rules. Perceived management commitment was found to associate with compliance to the rules. Similar to majority of the safety climate studies, this study made use of self-report measures of outcome variables, therefore suffer from the common method variance threat.

Another safety climate questionnaire was tested by Glendon and Litherland (2001). A forty-item questionnaire with a 9-point rating scale was validated using behavior observation to determine safe performance in construction and maintenance departments of the same organization. Factor analysis results revealed 32 items and six factors with a Cronbach's Alpha of .96 (ranging from .72 to .93 for factors). The factors included communication and support, adequacy of procedures, work pressure, personal protective equipment, relationships, and safety rules. Although the questionnaire was found to be reliable and safety performance was measured by a more objective scale than self-report, the study failed to find relationship between safety climate and safety performance.

A more recent attempt has been made by Silva, Lima, and Baptista (2004) to develop a measure on safety climate. Organizational and Safety Climate

Inventory (OSCI), which assesses both organizational and safety climate, emerged as a useful tool to predict accident levels from safety climate. Using a fairly large sample from different sectors Silva et al. analyzed the reliability, factor structure, and predictive validity of the OSCI. The questionnaire consisted of 78 items, including measures of both organizational (22 items) and safety climate (56 items). The Safety Climate Questionnaire included four main scales: *safety climate content scale*, *safety as an organizational value scale*, *organizational safety practices scale*, and *personal involvement with safety scale*. These subscales also had sub-dimensions related to the categories as well. Internal consistency reliabilities of the scales were satisfactory (alphas ranging from .77 to .90). Also, predictive validity of the questionnaire was assessed using accident data from the companies. Results showed that a stronger safety climate was associated with fewer and with less severe accidents. Allowing to measure safety climate in both general and specific dimensions, the OSCI was suggested to be a diagnostic and an intervention tool for organizational safety climate.

On the organizational indicators of safety culture, Wiegmann et al. (2004) identified the components of safety culture by investigating previous reports. According to the authors, the indicators included *organizational commitment*, defined as the extent to which upper level management identifies safety as a core value or guiding principle for the organization; *management involvement*, defined as the extent to which managers get personally involved in critical safety activities within the organization and includes good communication about safety issues; *employee empowerment*, which is the involvement of the workers in the safety procedures; and *reward systems and reporting systems*, which allow and encourage employees to report safety problems, and which provide feedback to employees.

In another study, Seo, Torabi, Blair, and Ellis (2004) reviewed the present literature to develop a safety climate scale. Their scale consisted of 30 items and it was validated in two different samples using confirmatory factor analysis to yield dimensions of *management commitment, supervisor support, coworker support, employee participation* and *competence level*. The authors also suggested that

management commitment and supervisor support had a greater role and infleunced other dimensions of safety.

According to Parker et al. (2006), the studies on the dimensionality of safety climate are similar in their findings on what the main dimensions are. Safety-related attitudes and actions of management, and commitment to safety by top management are stressed to be important for safety climate. Safety behavior of workers and safety performance of the organization are discussed to be related to workers' perceptions of managers' attitudes and behaviors about safety. Another important component of safety climate is communication. That is frequent and open contact between managers and workers is likely to lead to good safety performance. In a study where 18 scales to measure safety climate were investigated, Flin, Mearns, O'Connor, and Bryden (2000) concluded that three core factors were included in most of the studies: perceptions of management attitudes and behaviors in relation to safety, safety management system, and perceptions of risk/hazards in the worksite. The other factors to emerge were work pressure and competence of employees.

Along with the common factors found in different studies, some studies focused on the particular dimensions that would be more strongly related to safety behavior. For example in the study done by Gravan and O'Brein (2001), relationships between safety climate factors and safety behavior were investigated. Eleven factors were extracted from the 38-item scale, which was adopted by Zohar (1980) and modified for the sample. According to the results, safety climate factors of *management commitment to safety*, *specific strategies for safety*, *employee willingness to take ownership and participate in safety management*, *negative stereotypes of safety conscious workers* and *proactive approaches to safety in organizations* had stronger relationships with self-reported safety behaviors than the other dimensions.

In another study comparing safety climate factors, a 35-item climate questionnaire based on that of Glendon and Litherland's (2001) was used (Wills, Watson, & Biggs, 2006). According to the results, some dimensions of safety climate were suggested to be more strongly related to safe driving behavior in the work-related contexts than the other dimensions. The following dimensions were

found to be important predictors of occupational safety: importance and practicality of organization's safety rules; communication of safety issues within organization; and management's commitment to safety.

As the examples presented above suggest, researchers agree on the multidimensinality of the concept although the factor structures found in the studies tend to differ. The number of dimensions was reported to range between two to 19 (Flin et al., 2000; Guldenmund, 2000). The variability of the findings was suggested to be due to different research settings. Studies have been carried out in different organizations operating in different industries. Hence the factors representing safety perception for one industry may not be valid for another. This applies to the countries as well. The difference in factor structures found in different studies was also suggested to be due to different approaches to measuring safety climate. The questionnaire items used in the studies vary, although they measure the same concept. Therefore the dimensions identified thorough different questionnaires are not identical. Also, the interpretation of the factors depends mainly on the researcher, which may result in the differences among studies as well.

Since safety climate factors are not universally stable, there is a need to apply and validate climate scales in different settings. To the knowledge of this author, there has not been an investigation of the factor structure of a safety climate measure in the Turkish context. The present study aims to fulfill this need by using Zohar (1980) scale in the manufacturing sector. Zohar's study concerning safety climate dimensions was first to validate a measure about the concept (Yule, 2003). Furtermore his scale was cited and used by other researchers for validation (Williamson, 1997) and conceptual definitions. In a study comparing compatible safety climate measures to identify the best measurement model, Mueller, DaSilva, Townsend, and Tetrick (1999) found that a six-factor model adapted from Zohar's (1980) model provided the best fit to the observed data. Therefore the scale by Zohar was thought to be a good starting point for safety climate research in Turkey, and it was applied in the present study to measure safety climate perceptions.

1.3.2 Studies Concerning Outcome Measures

Organizational climate perceptions serve as a frame of reference for guiding appropriate and adaptive task behaviors (Schneider cited in Guldenmund, 2000). This view underlies the relationship between climate perceptions and organizational outcomes, and applies to safety climate as well. It is on this premise that previous research has investigated the link between climate perceptions and actual behavior, and the questionnaires were validated with safety performance or accident data. Identifying the role of safety climate in explaining safety related behavior is important in order to prevent undesirable outcomes. Presenting a model on the causes of poor or good safety climate, its contents and consequences can help us identify the intervention areas for a better safety climate. When the link between safety climate and safety-related behavior is considered, attempts to modify safety climate can be seen as taking preventive actions for undesirable outcomes. It was suggested that safety climate research allows for focusing efforts on problematic areas, providing proactive information about safety problems (Clarke, 2006a; Cox & Cheyne, 2000; Seo et al., 2004). The studies on the relationship between safety climate and outcome variables along with the proposed models of safety climate are discussed below. Organizational records concerning accidents and injuries have in general been used as the objective outcome variables in most studies. Yet some researchers suggested that problems could arise by use of such records (Zohar, 2000). Accidents or major injuries do not happen very frequently, therefore my not serve as precise indices of unsafe behavior. An alternative outcome measure used by Zohar (2000) was the microaccidents, which was assumed to be strongly related to lost-days accidents and defined to be minor injuries requiring medical attention.

The relationship between safety climate scores and safety behavior has been established in many studies from different sectors, like manufacturing (Clarke, 2006; Gravan & O'brien, 2001; Probst, 2004; Williamson, 1997; Zohar, 2000), construction (Mohammed, 2002; Siu, Philips, & Leung, 2004), and health (Hayes et al., 1998; Neal & Griffin, 2006). For example, organizations with a

negative safety climate and negative attitudes toward safety held by management were found to have higher injury or near injury rates (Mullen, 2004). Also in a recent study by Neal and Griffin (2006), perceptions of safety climate were found to correlate positively with self-reported safety behaviors, and both perceptions and behaviors were found to correlate negatively with accidents. Some examples of the studies on accident involvement and workplace safety are summarized below.

In a study done by Tomas, Melia, and Oliver (1999), predictors of workplace safety were investigated. A structural equation model of accidents was tested which involved work-site and personal characteristics, interpersonal relations, and organizational characteristics. Results of this study suggested a model with a clear direction; climate affected supervisors' safety response (supervisors' attitudes toward safety), supervisors' safety response affected coworkers' attitudes, which in turn affected workers' safety behaviors, and these relations were affected by hazards at the work site.

Studies about individual work and human characteristics also demonstrate the factors related to occupational safety. For example, employee perception of greater management commitment and social support were found to be associated with lower injury rates (Rundmo, 1994). The importance of the organizational factors to influence safety behavior at work was demonstrated in another study conducted by Mullen (2004). Semi-structured interviews were conducted to establish a comprehensive framework for understanding organizational factors that affect individual workplace safety behavior. Findings suggested the importance of organizational factors to affect individual safety behavior among other social factors. The organizational factors identified in Mullen's study included role overload, performance over safety, socialization influences, safety attitudes, and perceived risks.

Safety climate was found to be related to psychological distress and job satisfaction (psychological strains). In a study conducted by Siu et al. (2004), safety attitudes and communication (exchange of information with management about issues within department), work stress, and job satisfaction were measured along with self-reported accident involvement. According to the path analysis,

psychological distress was found to be a mediator between safety attitudes and accident rates. Communication did not predict safety performance.

In a recent study, the relationship between safety climate and injury rates across industries was investigated (Smith, Huang, Ho, & Chen, 2006). The association between company level safety climate and three separate measures of injury risk was supported both by self-reports and company records. Organizations with strong safety climates were found to report fewer workplace injuries after controlling for hazard level of industries. This relationship was tested in the medical sector as well, using a revised version of Zohar's Safety Climate Scale (Hofmann & Mark, 2006). According to the results, overall safety climate of the unit significantly predicted medication errors, positive climate relating to fewer accidents. Also, overall safety climate was found to be associated with other variables such as nurse satisfaction and patient satisfaction.

In the meta-analytic review of the previous literature on safety climate and safety performance link, Clarke reviewed 32 studies (2006a). This author reported a small positive correlation between safety climate and accidents/injuries, suggesting that perceptions of positive safety climate were associated with less accident involvement. Also a positive safety climate was found to correlate significantly with better safety performance. The effect of safety climate on safety performance was not generalizable to all occupational settings, suggesting the presence of moderators for that relationship. In another meta-analysis by Clarke (2006b), safety perceptions were found to be valid predictors of work accidents. In addition to perceptions, safety climate was suggested to be influenced by dispositional characteristics, such as safety locus of control (operationalized as fatalism) and sensation seeking. According to the author, given the small effect sizes accounted by safety climate perceptions on accident involvement, the importance of other variables as predictors and moderators of the climate-accident relationship should be investigated.

All told, the reviewed literature shows that organizational, social, and individual factors should not be overlooked when identifying the causes of workplace accidents. In the following section, the models on safety climate, which include variables critical in the "safety climate-accidents" link, are discussed.

1.3.3 Models on Safety Climate

There seems to be no agreement on a general model of safety culture/climate tapping into causes, content, and consequences (Guldenmund, 2000). The studies mentioned above about dimensions of climate deal with the contents of safety climate. As mentioned above, safety attitudes and perceptions have been shown to be related to measures of safety performance, but the relationship between safety attitudes, safety climate and culture, and the linkages between these constructs and safety outcomes are not clear (Clarke, 2000). In his review, Guldenmund (2000) outlines the models of safety climate/culture and concludes that they do not embody a causal chain, but rather specify some broad categories of interest and tentative relations. According to him, there is no overall satisfying model of safety climate/culture.

Different attempts to model the relationships between the determinants of safety culture, the components of it, and the safety behavior are presented below. The commonalities and what these models lack are also discussed. Drawing from these studies, a new model of safety behavior is proposed.

In the study by Cooper (2000), a reciprocal model of safety culture was proposed, in which the interactive relationships between psychological, situational, and behavioral factors are discussed to be applicable to the accident causation. Bandura's reciprocal determinism (cited in Cooper, 2000) depicts that an individual's internal psychological factors, the environment they are in and the behavior they engage in all interact to determine the influence they have on each other. Similarly, the model includes three elements that play a role in safety culture; subjective internal psychological factors (attitudes and perceptions), observable ongoing safety related behaviors, and objective situational features. The reciprocal model makes a good point in emphasizing the reciprocal relations, but does not make specific predictions about climate or outcomes.

In another study, Neal, Griffin, and Hart (2000) examined the mechanisms by which safety climate affects safety behavior. The importance of this study is

that it included the impact of general organizational climate on safety climate in explaining safety outcomes. In their model, Neal et al. identified the antecedents, immediate determinants, and components of safety performance (see Figure 1.1). According to the model, organizational climate predicts safety climate; that is, general organizational climate provides a context in which specific evaluations about safety climate are made (both organizational climate and safety climate are antecedents of safety performance). Also, safety knowledge and motivation are hypothesized to mediate the relationship between safety climate and safety performance. Safety knowledge and safety motivation are suggested to be direct determinants of safety performance, and safety compliance and safety participation are suggested to be components of safety performance.

The study by Neal et al. (2000) employed a large sample of hospital employees and organizational climate was assessed using Hart et al.'s Organizational Climate Scale (as cited in Neal et al., 2000). Safety climate was measured by 16 items concerning management values, communication, training, and safety systems. Components of safety performance were measured by an 8-item scale. The results supported the role of safety climate as a predictor of the determinants and components of safety performance. Also safety climate was found to mediate the relationship between organizational climate and safety related outcomes. Although being important to show the relationship between organizational and safety climate, the lack of an objective measure of safety performance was a major limitation of this study.

As an extension of this study, Neal and Griffin (2006) investigated the lagged effects of safety climate on individual safety motivation and safety performance over a 5-year period. A longitudinal study is important in the sense that it can establish the direction of a causal relationship. It was found that, individuals who belonged to groups with a positive safety climate reported an increase in safety motivation two years later. Also, individual safety motivation was found to result in individual safety participation. This study showed that safety climate and safety motivation could have lasting effects, and self-report measures of safety behavior had predictive validity.

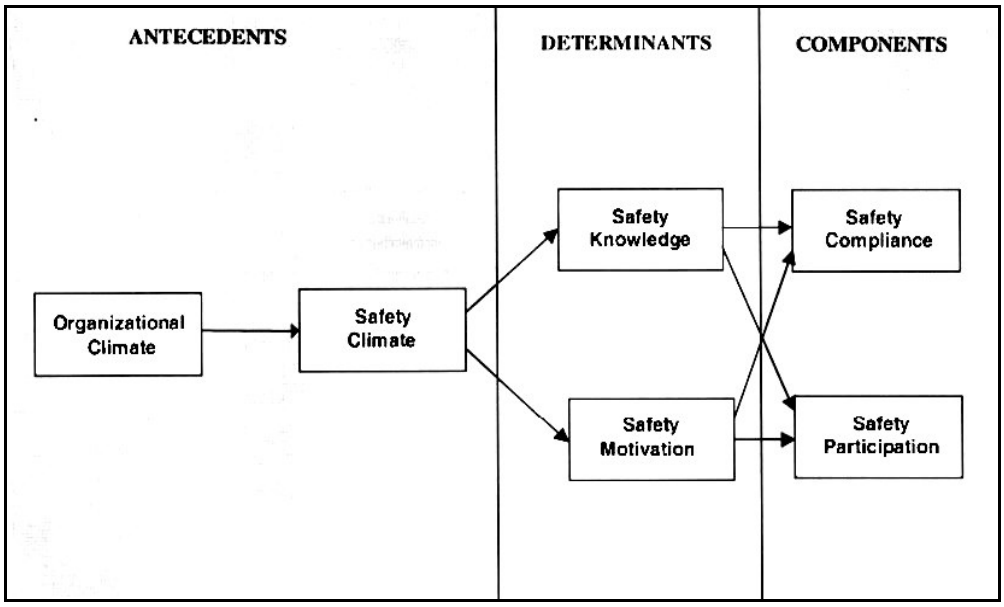

Figure 1.1 Hypothesized relationships among constructs of the model by Neal et al. (2000)
From "The impact of organizational climate on safety climate and individual behavior" by Neal, Griffin, & Hart, 2000, Safety Science, 34, p.99. Copyright by Elsevier Science Ltd.

In another study on safety climate in construction site environments, Mohammed (2002) investigated the determinants of safety climate by investigating the antecedents, climate itself, and outcome of climate (see Figure 1.2). The hypothesized antecedents included management (commitment and communication), safety (perception of safety rules and procedures, support given by coworkers, supervisory environment and worker's involvement in safety matters), risk (worker's appreciation of risk construct, appraisal of physical work environment), and work pressure (perception of valuing expediency over safety), and competence (worker's knowledge of safety) constructs. The outcome measure was assessed by self-reported safe work behavior. The results showed significant relationships between safety climate and determinants other than work pressure, and significant relationship between safety climate and safe work behaviors. The major limitation of this study was again the reliance on self-report measures.

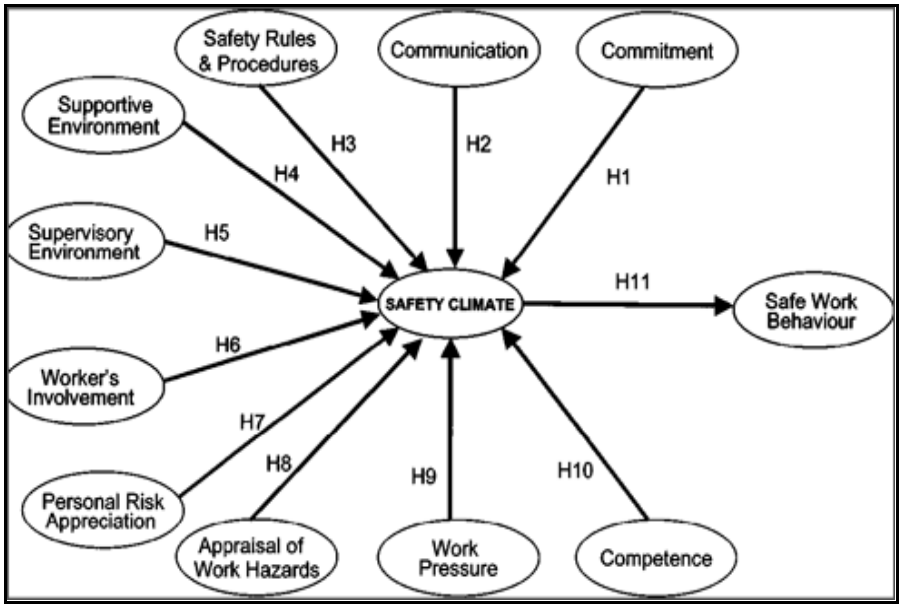

Figure 1.2Research model by Mohammed.

From "Safety climate in construction site environments" by Mohammed, 2002, Construction Engineering and Management, September/October 2002, p.376. Copyright by ASCE.

A multilevel model of safety climate was proposed by Zohar (2003), where climate perceptions were suggested to effect safety behavior through behavior-outcome expectancies. Once this link is established, exogenous variables, potential mediators and moderators are added to the model (see Figure 1.3). The climate-mediated and unmediated links between safety policies, safety behavior and injury rate as well as feedback loops and exogenous variables are presented in the model. This model is a comprehensive one as it involves potential organizational and exogenous variables. As can be seen in Figure 1.3, organizational climate related to safety influences safety behavior through behavior-outcome expectancies, and safety behavior in turn influences injury rates. The group level climate, characterized by supervisory safety practices for a group of employees, was suggested to be the moderator of this relationship.

The effects of supervisory safety practices on climate perceptions were investigated in different studies (Hofmann & Morgeson, 1999; Zohar, 2000). The supervisory safety practices studied included supervisory response to safe/unsafe conduct, communication, and priorities of safety versus speed. These studies

stressed the mediating role of safety climate in leader-member interaction and safety behavior relationship. In the study conducted by Zohar (2002), relationship between leadership and safety was investigated comparing different leadership styles in the group level. According to the results, leadership dimensions associated with greater concern for members' welfare promoted supervisory safety practices which created a more positive safety climate and hence an increase in safe behavior.

Zohar's model is suggested to be multilevel, which can be investigated at two hierarchical levels: organizational and group/subunit levels (Zohar, 2003; 2005). Cross-level relationships was investigated in a study where policies and procedures were suggested to be formulated at the company level and executed at lower subunit levels (Zohar, 2005). The relationship between organizational level safety climate and safety behavior was proposed to be mediated by group level safety climate (see Figure 1.3). The results supported the existence of a fully mediated model, meaning that organizational level climate predicted group level climate, which in turn predicted role behavior.

The variability between groups in the same organization was also investigated and it was found that climate variability was negatively related to organizational climate strength and procedural formalization. This suggests that group safety climate, which is strongly influenced by supervisory practices, will be similar among different work groups when company procedures show a coherent pattern (Zohar, 2005). The model by Zohar (2003) presents the existence of potential mediator and moderator variables suggested by other researchers in previous studies. The variables to affect the basic climate-safety behavior link investigated in Zohar's work include supervisory safety practices, namely leadership style and effectiveness, supervisory goals etc. The model does not take into account other variables such as individual characteristics. Risk taking tendencies and fatalism views of employees were suggested by other researchers (e.g., Mearns et al., 2004) as potential moderators, which can be integrated into a model of safety climate as well.

The potential contributors to work-related safety behavior investigated in the present study are discussed in the following chapter.

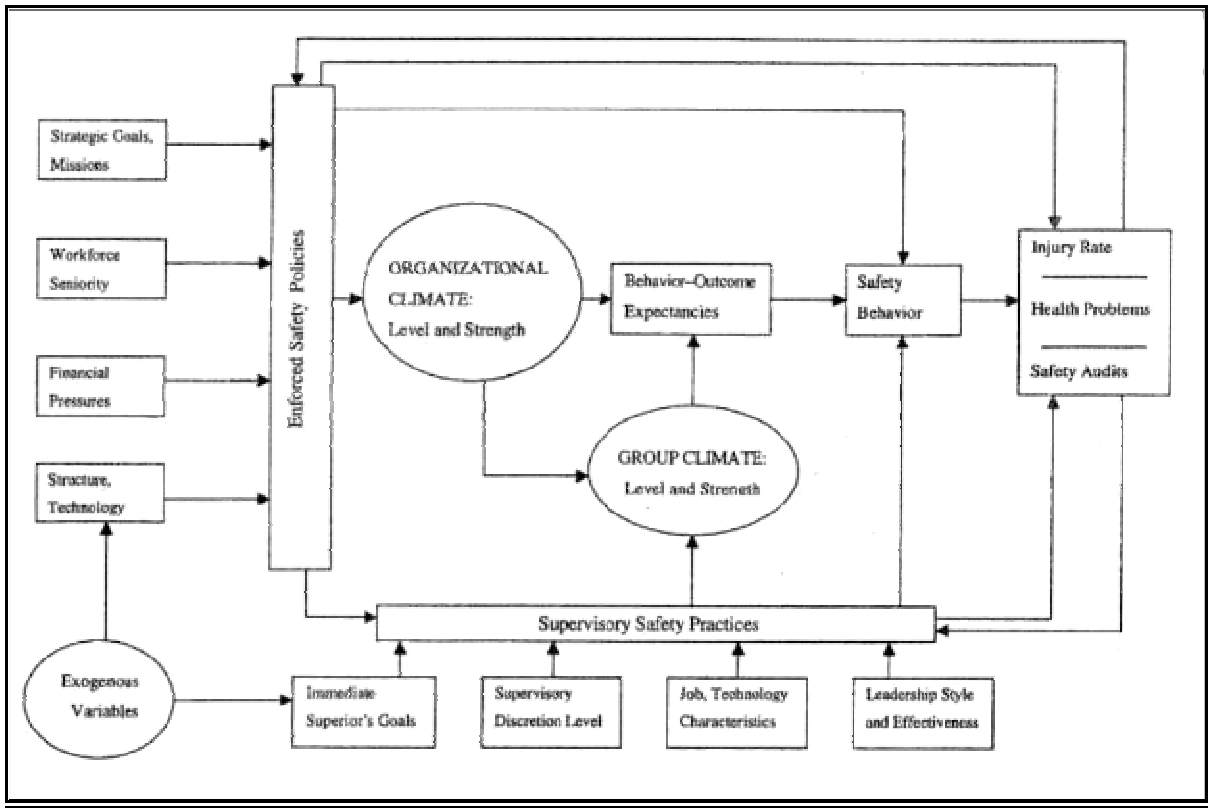

Figure 1.3 Multilevel model by Zohar.

From "Safety Climate: Conceptual and Measurement Issues" by Zohar, 2003 in Handbook of Occupational Health Psychology editors Quick and Tetrick, 2003, p.127. Copyright by APA.

CHAPTER 2

2 POTENTIAL CONTRIBUTORS TO SAFETY CLIMATE

The models outlined above present approaches to safety climate by focusing on different characteristics of it. They all take into account the effects of organizational/situational variables as well as the characteristics of employees (risk perceptions, knowledge, etc.). Yet, what is missing in these models is an integrated framework that takes into account the influences that may affect climate beyond organizational variables, mainly dispositional and cultural influences. The proposed model involves the potential effects of both dispositional and culture-induced individual differences variables on the perception of safety and safety-related behavior in work organizations. The moderating effects of a culturally induced variable (i.e., fatalism views of employees) and a dispositional variable (risk taking-sensation seeking tendencies) on the relationship between safety climate and safety-related behavior are investigated in the present study.

In the following sections, studies on cross-cultural influences on risk perception and safety behavior, and the suggested relationships between cultural values and safety-related behavior are presented.

2.1 Culturally Influenced Variables

According to Hofstede (2001), culture is defined as "the collective programming of the mind that distinguishes the members of one group or the category of people from another" (p. 21). It is also suggested that collective programming takes place at the national and the organizational level, organizational cultures distinguishing the employees of one organization from

other (van Oudenhoven, 2001). Drawing from this definition, organizations are hypothesized to function according to implicit models in the minds of their members, models which are culturally determined. The culture and related dimensions, in terms of social norms or habits, provide a frame of reference for the way people react to their environment. Social contexts that individuals function in shape their values, attitudes, and worldviews (Douglas & Wildavsky, 1983). This view should apply to workplace as well. Although organizational and national cultures are argued to be different from each other, national culture has effects on how organizations function (Hofstede, 2001). Cultures in different organizations will differ to some extent within one nation, but they are supposed to differ even more from nation to nation because they reflect the hosting national culture to a certain degree (van Oudenhoven, 2001). In line with these views, many researchers shifted their focus from whether culture has effects on organizations to how these effects occur (e.g., Aycan, Kanungo, Mendonca, Yu, Deller, Stahl, & Kurshid, 2000). This view should apply to the concept of safety culture as well. Safety climate perceptions and safety-related behavior of employees are expected to be influenced by national culture. Drawing from here, culture-based individual difference variables are suggested to influence safety climate perceptions and safety-related behavior of employees in the present study.

The main culturally induced individual difference variable to be investigated in the present study is fatalism views of employees. Several studies revealed fatalism views as one of the dimensions of safety attitudes (Mearns et al., 2004) and safety climate (Williamson et al., 1997). Fatalism was also suggested to be one of the dispositional factors to influence safety attitudes (Clarke, 2006b). It was also named as "safety locus of control," reflecting the extent to which an individual believes that he/she has control over external events in the safety domain. Those having external safety locus of control can be identified as fatalistic individuals, who would take less adequate precautions believing that "accidents can happen to anyone." On the contrary, individuals with an internal safety locus of control would be more likely to take the necessary precautions to prevent injuries as they believe that they have control over their environment.

Fatalism has also been argued to be one of the decision strategies employed by people (Dinklage cited in Kuzgun, 2000). Decision making is a complex process, involving individuals to define different behavioral alternatives, evaluate them, and finally to choose one alternative to execute. This process involves individual's approach to decision making and the methodologies in deciding. In accordance with this, fatalistic individuals leave decision making or solutions to external or environmental incidents, to fate. Their approach involves thinking like "one cannot do anything about things happening to them; it is all up to fate".

Research concerning fatalism views in Turkey involved preparation for earthquakes and self-protecting behaviors (Kasapoğlu & Ecevit, 2003; Türküm, 2006). Fatalism was investigated in a study concerning most common probable factors that generate differences in responsible behaviors related to earthquakes (Kasapoğlu & Ecevit, 2003). Responsible behaviors that the study addressed included hazard planning and mitigation practices. Interviews were conducted to see the effects of factors like locus of control and knowledge on earthquakes, along with fatalism/rationalism views. Fatalism and rationalism were assessed by one item each ("God knows everything" for fatalism and "I am confident that I will be able to solve the problems that will emerge in the future" for rationalism). These authors found negative relations between fatalism and self-reported responsible behavior; however, rationalism did not affect responsible behavior. One possible drawback of this study may be the criterion deficiency relating to fatalism. It was suggested that fatalism did not necessarily denote religiosity (Aycan et al., 2000). However the item used to measure fatalism in this study was very close to religiosity. Therefore caution should be taken when interpreting the results of the reported study.

Fatalism views were also studied in association with self-protecting behaviors. In the study conducted by Türküm (2006), the prediction of self-protecting behaviors by fatalism views were investigated. Self-protecting behaviors were measured by items relating to checking the expiry dates of foods before purchasing and obeying the traffic rules; fatalism was measured by the item "No matter how hard s/he tries, everybody lives his/her fate." However,

results failed to indicate a significant relationship between fatalism views and self-protecting behaviors.

Fatalism views have also been argued to be among critical socio-cultural dimensions to affect internal work culture, along with paternalism, power distance, and loyalty towards community (Aycan & Kanungo, 2000; Aycan et al., 2000). According to Aycan et al. (2000), fatalism is "the belief that whatever happens must happen" (p. 198), reflecting a combination of "locus of control" and "futuristic orientation." It is associated with the belief about controlling the outcomes of one's actions. Taking preventive action is believed to be pointless when fatalism is adhered.

In the cross-cultural study conducted by Aycan et al. (2000), the relationships between fatalism views and managers' perceptions of their employees' responsibility seeking and participation were investigated. Fatalism was measured by items such as "When bad things are going to happen, they just are going to happen no matter what you do to stop them" and "The wise person lives for today and lets tomorrow to take care of itself." Results showed that managers' perception of fatalism negatively influenced their assumption of both employee responsibility seeking (whether or not employees accept and seek responsibility in their job) and participation (in the decision making processes), and that managers who perceived high fatalism in their cultures were more likely to assume that employees did not accept and seek responsibility. Also, employees were found to participate in decision making only if they believed that they had the power to control matters. In the same study, ten countries were also compared in terms of their scores on the cultural dimensions studied. Turkey was the fifth country on fatalism score (with a score below the mid-point of the scale). Russia, India, Romania, and Canada were found to score higher than Turkey on the fatalism scale (Aycan & Kanungo, 2000).

Culture theory by Douglas and Wildavsky (1983) also involves fatalism as one of the dimensions. Cultural theory is one of the attempts to explain how people perceive and act upon the world around them (Oltedal et al., 2004). The theory is based on anthropology and political science, and tries to explain how technological and environmental dangers are selected as threats and feared by

different social groups. Although the original theory takes into account the dangers in general, such as environmental hazards, there are some studies on the theory focusing on occupational risks and risk perception (Rohrmann & Chen, 1999; Sjöberg, 2003). Fatalism views, as measured by cultural theory will be applied to safety-related behavior in the proposed model.

According to cultural theory, values and worldviews of certain social or cultural contexts shape the individual's perception and evaluation of risks; people choose what to worry based on socially shared worldviews. From cultural theory perspective, culture or socially driven worldviews are the most important predictors of individuals' perceptions (Douglas & Wildavsky, 1983; Rippl, 2002; Tansey & O'Riordan, 1999).

Drawing from this perspective, a number of cultural dimensions were proposed in the theory framework. The dimensions of the theory include fatalism, hierarchy, individualism, and egalitarianism. Being high or low in these dimensions meant differing in the following domains: shared beliefs and values (cultural biases), the patterns of interpersonal relations (social relations) and observable social relations (behavioral patterns). These domains constitute a way of life and the dimension a person belongs to will guide his or her interaction with the environment. *Fatalists* are assumed to have a strong orientation toward socially assigned classifications, without group identification. They feel that there is little they can do to control their situation; therefore they are passive, remaining indifferent about risk. They are assumed not to worry about things that they can do nothing about. Fatalists can be expected not to follow the rules when safety is considered, showing small amount of safety-related behaviors. Lack group commitment and indifference towards risks can be expected to make them more prone to taking risks in the workplace. Therefore, individuals with fatalistic views can be expected to show less compliance with safety rules when compared with individuals who are low in this dimension. In addition to fatalism, other dimensions identified in the theory were conceptualized as follows.

Individuals with *hierarchic* orientations are assumed to accept risks as long as decisions about those risks are justified by the authorities or experts. There are well-defined roles for each member and they believe in the need for a well-

defined system of rules and fear deviance that disrupts those rules. Hierarchists rely heavily on experts to identify the rules. When safety-related behaviors are considered, it can be suggested that hierarchists will show compliance to rules because of the importance of authorities. Being high in hierarchy will be related to safety-related behavior.

From *egalitarian* point of view, everyone in the society is seen equal and the good of the group comes before the good of any individual. Egalitarians are proposed to be sensitive to risks that would have important consequences. They are assumed to oppose risks that would inflict irreversible dangers on many people. Drawing from here, egalitarians can be expected to show compliance to rules too, because they will avoid risk taking. They will not be willing to jeopardize others.

And lastly, *individualists* are not constrained by the society and they do not have close ties with other people. They adopt trial-error because they believe that everything will return to normal after disturbance. Therefore, they are assumed to perceive risk as an opportunity. Relatively low levels of compliance to safety rules can be expected from individualists, because they are bound with neither authority nor group commitment.

Several studies were conducted to associate these dimensions to perceived level of risk in different types of situations. In a study by Sjöberg (2003), distal factors in risk perceptions, such as personality types and world views proposed by different theories, were investigated using risk judgments in genetic engineering. According to the results, only a small variance in risk perception was accounted for by cultural theory and weak relations were found between dimensions of the theory and risk perceptions. Egalitarianism was the most clearly related dimension to perceived risk. Although being a weak but consistent relationship, it was shown that low scores on egalitarianism were related to low levels of judgment of riskiness of the situation. Individuals with low levels of risk perception were found to be low in egalitarianism, low in fatalism, and high in individualism.

Fatalism views were investigated to be one of the major variables to affect workplace safety-related behaviors in the present study. The other dimensions of culture theory (i.e., hierarchy, individualism, and egalitarianism) and other most-

commonly cited dimensions of cross-cultural research (ie., power distance, collectivism, and uncertainty avoidance) were also included in this study in an exploratory fashion..

2.2 Risk Taking and Sensation Seeking Tendencies

Along with fatalism (and the other culture-based factors), this study focuses on risk taking and sensation seeking tendencies of employees. The lieu of human errors among the causes of accidents is undeniable (Oltedal et al., 2004), and errors can be linked to risk perception and judgments of individuals. Hence, understanding the relationships between risk taking tendencies and safety climate and safety-related behaviors are critical to gain insight about the cautions that can be taken to reduce workplace accidents.

Risk related perceptions and attitudes were found to be dimensions of safety culture in some studies mentioned above and were suggested to be salient constructs in safety culture (Harvey et al., 2002; Mohammed, 2002). Risk has been defined to be a subjective construct, referring to the possibility of harm and loss within a particular situation (Cooper, 2003). It has also been conceptualized as perceived probability of being injured and perceived severity of the injury (Seo, 2005). The appraisal of risk by employees (i.e. the perception of risk in a situation) was discussed to be an important component of risk taking behaviors, along with being one of the determinants of unsafe work behavior (Seo, 2005).

In a study conducted on risk behavior, Sitkin and Pablo (1992) proposed a model, which differentiates risk propensity and risk perceptions as determinants of risk behavior. According to their conceptualization, decision-making behavior in risky contexts was referred to as risk behavior. Risky decisions were characterized as having more uncertain outcomes, more difficult to achieve decision goals, and extreme consequences. The model of risk behavior stresses the roles of *risk propensity,* conceptualized as an individual's risk taking tendencies, and *risk perception,* defined as a decision maker's assessment of the risk inherent in a situation. Risk propensity was suggested to be predicted by individual

characteristics, such as risk preferences, inertia and outcome history. Further, it was suggested to predict risk behavior and risk perception. These suggested relationships can well be applied to work settings, where risk taking tendencies (risk propensity) leads to unsafe work behavior, which in turn affect accidents.

In line with this, one view of accident involvement focuses on the concept of accident liability of individuals (Lawton & Parker, 1998). There suggested to be a consistency in the individual's tendency to have an accident in various circumstances. In a study on the individual differences in accident liability, the link between accident involvement and the propensity to take risks was investigated and it was found that people in the accident involved group scored higher on some dimensions of sensation seeking scale (Lawton & Parker, 1998). Consistent with this finding, the effects of risk taking and sensation seeking tendencies of employees on safety-related behavior in the workplace were investigated in the present study. The translated and revised version of Arnett's Risk Taking/Sensation Seeking Scale (Sümer & Özkan, 2002) was used to assess risk taking/sensation seeking tendencies of participants.

Sensation seeking tendencies was studied as one of the dispositional factors to affect unsafe driving. Sensation seeking is defined as "a trait describing the tendency to seek novel, varied, complex, and intense sensations and experiences and the willingness to take risks for the sake of the experience" (Zuckerman, cited in Dahlen & White 2006, p. 904) and "a propensity for seeking out novel and intense experiences" (Arnett, 1995). The definition implies that sensation seeking may cause risky behavior. It has actually been found to relate to different types of risk taking behavior such as drunk driving, driving speed, and self-reported traffic violations (Iversen & Rundmo, 2002). Sensation seeking was found to be the strongest predictor of risky driving among other personality variables (Iversen & Rundmo, 2002). In another study investigating the predictors of unsafe driving, sensation seeking was studied along with driving anger and personality dimensions (Dahlen & White, 2006). Individuals who were high in sensation seeking were assumed to engage in reckless driving behavior to provide the type of stimulation that they would find pleasurable. According to the results,

risky driving was predicted by sensation seeking scores and sensation seeking scores were related to loss of concentration.

Similar findings were reported in a study by Sümer (2003). The contextual model proposed in the study included sensation seeking as a distal context variable to affect accidents through proximal variables, such as dysfunctional drinking habits, aberrant driving behavior and speed. According to the results, sensation seeking, measured with the 20-item Arnett Inventory of Sensation Seeking (cited in Sümer, 2003), was found to predict preferred speed. It also had a direct effect on aberrant driving behavior, which affected the number of accidents. Arnett's inventory was tested in another study, where factor affecting reckless driving in adolescence were investigated (Arnett, Offer, & Fine, 1996). The results confirmed the previous findings on the relationship between sensation seeking and reckless driving behavior.

The relationship between sensation seeking and risky driving behavior can be generalized to occupational safety behavior and accidents as well. Drawing from the findings of the above mentioned studies on risk taking-sensation seeking tendencies and risky driving behavior, another focus of the present study is the investigation of the relationship between risk taking-sensation seeking tendencies and safety-related behavior in the workplace. That is, the effects of risk taking tendency of employees on safety behavior, its relation to safety climate perceptions, and the potential moderating effect of this dispositional characteristic are investigated in the current study.

2.3 Present Study

The studies summarized in the previous sections demonstrate the importance of safety climate in predicting safe behavior and occupational accidents. Organizational safety climate has been suggested to have an important influence on the promotion of employee commitment and involvement in safety (Clarke, 2006), and it can be used as a diagnostic tool for problematic areas, providing proactive information about safety-related problems (Seo et al., 2004).

Although being a promising research area, definitional and dimensional ambiguities surround the concept, and there is no general agreed upon model of safety climate (Guldenmund, 2000). The present study tries to put forward a model of safety climate, which takes into account potential moderators not included in the previous studies, by applying the safety climate questionnaire in an organization from manufacturing sector in Bursa, Turkey.

The available studies mentioned earlier mainly focus on organizational variables to affect safety climate, such as supervisory practices, leadership, or organizational culture. Broad cultural effects or culturally determined attributes, such as fatalism, are left out of research areas. The present study tries to address this issue by integrating the effects of culturally affected views of employees to safety climate-safety behavior relationship, specifically fatalism views. In addition to fatalism, a conceptually relevant dispositional variable (i.e., risk taking-sensation seeking tendency), which has received a considerable attention in accident involvement research, is included in the present study. Similar to fatalism, direct effects of risk taking-sensation seeking on safety behavior is examined along with its potential moderator effect in the safety climate-safety behavior relationship.

Thus, the major aim of the present study is to investigate the relationship between safety climate and safety-related behavior. The proposed model tries to integrate a critical dimension of culture (i.e., fatalism) and a conceptually relevant dispositional factor (i.e., risk taking-sensation seeking tendencies) to the existing models of safety climate as a contribution. The hypothesized relationships are presented in Figure 2.1.

Although the link between safety climate and safety behavior has already been demonstrated in the previous studies (Cooper & Philips, 2004; Mohammed, 2002; Neal et al., 2000; Seo, 2005) the other relationships shown in the figure have not been studied directly. Thus, the present study investigates the moderating effects of both fatalism and risk taking tendencies on the relationship between safety climate and safety-related behaviors along with their direct effects.

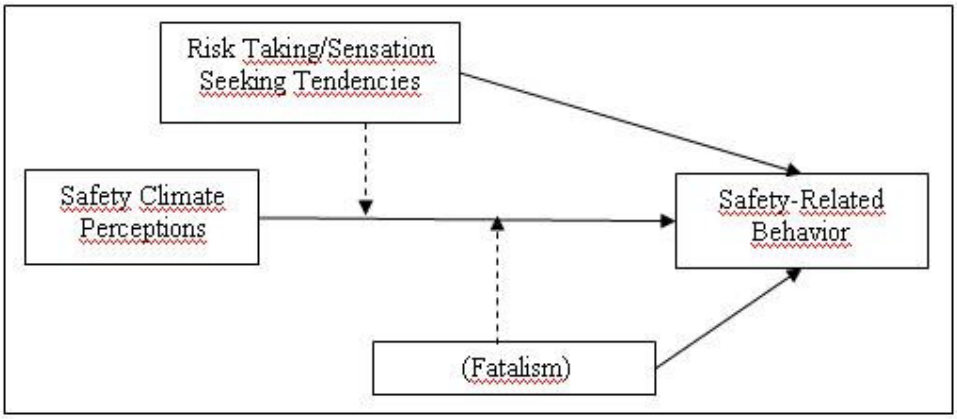

Figure 2.1 The proposed model of safety climate: Fatalism and risk taking tendencies as critical factors.

The research summarized here generally made use of self-report measures for the outcome, which are safety behaviors. Although self-reports of behavior were criticized and discussed to be limitations for previous studies, it was suggested to be a sound predictor of accidents and near-misses (Mearns, Flin, Gordon, & Fleming; 2001). The aim of the present study is not to compare and contrast different organizations, but to investigate the relationships between variables of interest in a given organization. Therefore, use of self-reported safety behavior and accident involvement was found to be appropriate. To be able to partially overcome the limitations associated with the usa of one outcome measure, an additional outcome measure, the percentage/frequency of protective equipment used by employees while working, was employed in the present study. Failure to use protective equipment at the workplace was reported to account for about 40 % of work accidents (Zohar, 2003) and was discussed to be a component of safe behaviors (Gravan & O'Brein, 2001). In obtaining this measure, a list of the protective equipments used in the factory was presented in a separate section of the questionnaire and the employees were asked to choose the equipments they actually used while working. This data were then compared with the factory lists for each job to obtain a score for each individual reflecting the percentage of protective equipment used.

2.3.1 Hypotheses

As demonstrated by previous studies on safety climate, a direct link between safety climate perceptions and safety-related behavior is hypothesized. Safety-related behavior is expected to increase as safety climate perceptions, measured by Zohar's questionnaire, becomes more positive.

H_{1a}: Safety climate perceptions predict safety-related behaviors, measured by self-reported compliance to safety rules.

H_{1b}: Safety climate perceptions predict safety-related behaviors, measured by self-reported use protective equipment

The link between culture-based variables and safety related behavior is also investigated. It is suggested that employees with high fatalism scores, defined as being indifferent to risks in cultural theory, engage in less safety-related behavior.

H_{2a}: Fatalism views predict self-reported frequency of compliance to safety rules.

H_{2b}: Fatalism views predict self-reported use of protective equipment.

The effects of other culturally influenced views (i.e., individualism, power distance, and uncertainty avoidance) on safety-related behavior are also investigated. However, these relationships are examined in an exploratory fashion.

Fatalism is also expected to moderate the relationship between safety climate perceptions and safety related behavior. For employees with high fatalism scores, the above-mentioned relationship is expected to be weaker.

H_{3a}: Safety climate scores predict self-reported frequency of compliance to safety rules, if person is low on fatalism.

H_{3b}: Safety climate scores predict self-reported use of protective equipment, if person is low on fatalism.

In addition to that, the potential effects of the perceptions of individualism, power distance, and uncertainty avoidance of employees, on the safety climate-safety behavior link will be investigated.

Regarding risk taking tendencies, a direct relation between safety-related behaviors and risk taking, measured by Risk Taking and Sensation Seeking Scale adapted by Sümer and Özkan (2002), is hypothesized. Employees with risk taking and sensation seeking tendencies are expected to be more likely to behave unsafely.

H_{4a}: Risk taking/sensation seeking tendencies of employees predict self-reported frequency of compliance to safety rules.

H_{4b}: Risk taking/sensation seeking tendencies of employees predict self-reported use of protective equipment.

Risk taking tendencies are also proposed to serve as moderators of the relationship between safety climate and safety-related behavior. It is suggested that the link between climate and safety behavior is stronger for employees scoring low in risk taking and sensation seeking.

H_{5a}: Safety climate scores predict self-reported frequency of compliance to safety rules, if person is low on risk taking/sensation seeking.

H_{5b}: Safety climate scores predict self-reported use of protective equipment, if person is low on risk taking/sensation seeking.

CHAPTER 3

3 METHOD

This study investigated the relationship between safety climate perceptions of employees and their safety-related behaviors and the potential moderators of this relationship. The presumed moderators are culturally influenced individual difference variables (fatalism views, individualism/collectivism, power distance, and uncertainty avoidance) and risk taking-sensation seeking tendencies of employees. The direct effects of these individual characteristics on safety-related behaviors and accident involvement are also investigated. This chapter includes sections on sample characteristics, measures used, procedure and level of analysis along with a section describing the analyses performed.

3.1 Sample

Respondents were blue-collar employees of a manufacturing firm, specialized in tool manufacturing, stampings, assemblies, and resistance welding machines, in Bursa, Turkey. Out of 550 workers who received the questionnaire booklets, 185 returned them back to the researcher.

The demographic characteristics of the final sample are presented in Table A (in Appendix A). All of the respondents were men, with an average age of 29.79 years (SD = 7.31, ranging between 18 and 51 years) and all of them worked in the production line, like tool manufacturing and stamping. Since the sample included employees working in the production, the sample mainly consisted of high school graduates (76.7 %). The average tenure in the company was about 6 years (SD = 5.21 years, ranging between half a year and 22 years) and the

majority worked in the company for not more than 5 years (42 %), with only 11 workers working more than 15 years.

3.2 Measures

The questionnaire package used in this study was printed as a booklet, which contained six sections. The details of these sections and psychometric properties of the specific measures included are explained in the following sections. The whole package can be found in Appendices A, B, C, D, and E.

3.2.1 Section I: Safety Climate Questionnaire

The 40-item questionnaire developed by Zohar (1980) was used to indicate the safety climate perceptions of the employees. Zohar's scale was cited to be the first one used to measure perceptions that employees share about safety in their organizations (Yule, 2003). The questionnaire consisted of eight factors, namely *perceived importance of safety training programs*, *perceived management attitudes toward safety*, *perceived effects of safe conduct on promotion*, *perceived level of risk at workplace*, *perceived effects of required workpace on safety*, *perceived status of safety officer*, *perceived effects of safe conduct on social status*, and *perceived status of safety committee*. The items in the questionnaire were translated from English to Turkish by two Industrial/Organizational Psychology graduate students and controlled by a bilingual psychology graduate student to identify the translation reflecting the conceptual meaning of the item.

The questionnaire employs a 6-point Likert scale; values ranging from 1 to 5 showing agreement with the given sentence, and 6 indicating that the sentence is not relevant to the work situation (1 = Highly Disagree, 5 = Highly Agree, and 6 = Not Relevant). The climate scores are obtained by averaging the individual responses given to the items, higher scores indicating positive safety climate. Thus high scores indicate more favorable conditions and procedures (concerning

safety) as perceived by the individual worker. The reliability estimates were not reported in the original work of Zohar (1980). An alpha coefficient of .91 was found in the current study. See Appendix B for Safety Climate Scale.

3.2.2 Section II: Cultural Value and Dimensions

Cultural value and dimensions were assessed by two separate questionnaires in the sections two and three. The second section included Cultural Biases Questionnaire adopted by Rippl (2002). This measure consists of 18 items measuring the four worldviews mentioned in the theory, namely fatalism, hierarchy, individualism, and egalitarianism. The items in the questionnaire were translated from English to Turkish by the same graduate students and controlled by the same bilingual psychology student to ensure conceptual equivalence.

In addition to the items of the original questionnaire described above, five items for fatalism were added to the existing questionnaire. These items were added to better represent the fatalistic views of the respondents, including expressions more familiar to Turkish population. The generated items include "One cannot change his/her fate no matter how hard he/she tries" and "There is nothing else but to accept the negativities in life." See Appendix C for whole scale.

3.2.3 Section III: Hofstede's Cultural Dimensions

Dorfman and Howell's (1988) cultural scales were used in the present study to assess the cultural dimensions of Power Distance, Uncertainty Avoidance, and Collectivism/Individualism. These scales were adapted from Hofstede's (1980) dimensions and it was suggested to capture the essence of the cultural dimensions at the individual level (Clugston, Howell, & Dorfman, 2000). Main aim of this study was not to study the effects of Hofstede's dimensions on safety-related behavior. These dimensions were used as they are the most commonly used and known culturally difference variables. Therefore the above-

mentioned dimensions, namely power distance, uncertainty avoidance, and collectivism/individualism, were employed in the study. A five-point Likert scale (1 = Highly Disagree, 5 = Highly Agree) was used for the items, higher scores indicating being high for the particular dimension. The reliability coefficients for the dimensions were reported to be .70 for Power Distance, .81 for Uncertainty Avoidance, and .77 for Collectivism/Individualism by Clugston, Howell, and Dorfman (2000). See Appendix D for scale items.

3.2.4 Section IV: Risk Taking and Sensation Seeking Scale

The Risk Taking and Sensation Seeking Scale, based on the scale by Arnett (1994), was translated into Turkish by Sümer and Özkan, (2002). The scale is composed of 25 items to be rated on a 4-point Likert scale (1 = Describes me very well, 2 = Describes me somewhat, 3 = Does not describe me very well, 4 = Does not describe me at all). The scale was found to have a Cronbach alpha of .75 (Sümer & Özkan, 2002). See Appendix E for Risk Taking and Sensation Seeking Scale.

3.2.5 Section V: Outcome Measures

One item ("How often do you comply with company's safety rules while performing your job?") was used to measure the general frequency of compliance with safety procedures. This item employed a 4-point frequency scale (1 = Rarely; 2 = Occasionally; 3 = Mostly; 4 = Always).

To overcome the limitations associated with the use of a single criterion measure, an additional outcome variable (i.e., the number of safety equipments used) was employed in the present study. A list of protective equipments used in the factory was provided and the respondents were asked to choose the equipments they normally used while working. These data were then compared with the required safety equipments/tools for each job as obtained from the

personnel department. A score reflecting the degree of protective equipment used was calculated for each participant by using the following formula (1):

$$\text{Degree of protective equipment use} = \frac{\#\text{ of equipments/tools reported by employee}}{\#\text{ of equipments/tools required by the job}} \times 100 \quad (1)$$

The resulting value reflects the percentage of the required equipment used by the employee. Outcome measures part of the package is provided in Appendix F.

3.2.6 Section VI: Demographics

The demographic characteristics of the respondents were collected in this section. The questions included variables that might help understand the characteristics of the employees involved in accidents or reporting unsafe behavior. The questions included age, sex, education level, and marital status, tenure in the current organization, total tenure, department and branch along with accident history (being involved in an accident before). See Appendix G for demographic questionnaire.

3.3 Procedure

The questionnaire packages were first applied to a sample of 10 employees working in the carpenter workshop of Middle East Technical University, who had similar characteristics to the real sample before data collection to ensure the readability of the questionnaire.

The organization in which data collection took place is included in the largest 500 industrial companies list in Turkey and it is the market leader in its sector. As indicated above, it is specialized in tool manufacturing, stampings,

assemblies, and resistance welding machines. A total of 867 employees work for the organization, 673 of them being blue-collar workers.

Human resources specialist of the company was contacted to explain the purpose of the study. After conveying the purpose of the study, the organizational information necessary for the development of outcome measures were obtained and questionnaire package was finalized accordingly. With the guidance of the human resources department and occupational health specialists, the days to administer and collect the questionnaires were arranged.

Data were collected over a two-month period from November to December 2006, with two administrations of the questionnaire.

3.3.1 Questionnaire Administration

Booklets were administered in two occasions in the main factory in Bursa, first in November 2006 and second in December 2006. In the first administration, a total of 400 booklets were distributed to the employees by the researcher with an accompanying human resources specialist and a union representative. The booklets were distributed during the lunch break, along with a brief explanation of the aim study. Employees were requested to fill in the questionnaires outside the work hours according to the company restraints and were given four days to complete them. Employees were asked to return the booklets to the union room. Participants were assured that their supervisors or human resources specialists would not have access to the filled questionnaires. Due to the low response rate (about 23%) an additional 150 booklets were distributed to the employees a month later. In the second round, booklets were distributed by the union representatives and the immediate supervisors of the employees, yielding a better response rate (about 60%). From 550 potential respondents, 185 returned the booklets back, yielding a response rate of 34%.

3.3.2 Level of Analysis

Safety climate of an organization is suggested to be an emergent property, characterizing groups of individuals (Zohar, 2003). In the studies concerning safety climate, the aggregate scores of employees were taken to reflect the level of safety climate for groups of people (Klein, Danserau, & Hall, 1994). However in this study, the main concern was not the score of a group of employees. No between groups variation was investigated. Rather, individual level analyses were targeted. The main focus of the study was to examine the relationship between safety climate perceptions (and other independent variables investigated) and safety behavior at the individual level.

3.4 Analyses

Before testing the hypotheses, a series of exploratory factor analyses were conducted to investigate the factor structures of the safety climate, cultural values, and risk taking-sensation seeking measures.

Several analyses were conducted to test the hypotheses of prediction of outcome variables (two indices of safety behavior) by safety climate, cultural values and dimensions, and risk taking-sensation seeking tendencies. To test the effects of these variables on safety-related behavior, mostly multiple regression analyses were conducted. In these analyses, outcome variables were first regressed on control variables (age, education, tenure in the company) and then on safety climate scores. Outcome variables were also regressed on cultural values and dimensions separately (fatalism, individualism/collectivism, power distance, and uncertainty avoidance), and on risk taking-sensation seeking tendencies. For the hypotheses concerning moderated relationships, hierarchical regression analyses were performed for each potential moderator, namely fatalism, risk taking tendencies and sensation seeking tendencies.

Additionally, employees who were involved in accidents and those who were not involved in accidents were compared in terms of their safety climate, fatalism, sensation seeking, risk taking scores, and their frequency of safety-related behavior, using independent samples t-tests.

CHAPTER 4

4 ANALYSIS

The present study investigated the relationship between safety climate perceptions and individual safety-related behaviors. Along with safety climate perceptions, the effects of fatalism views and risk taking-sensation seeking tendencies on safety-related behaviors were investigated. The potential moderating effects of these variables were also examined. In this chapter, exploratory factor analyses on the scales included in the study and descriptive statistics of the variables are presented, followed by the results of hypotheses testing.

4.1 Exploratory Factor Analyses

Zohar's Safety Climate Questionnaire (1980) and other scales measuring cultural dimensions were not employed in a study in Turkey before. Therefore, an exploratory factor analysis was conducted to examine the underlying dimensions of these scales in a Turkish sample. Risk Taking and Sensation Seeking Scale was translated and employed in a Turkish sample (Sümer & Özkan, 2002), but it was also factor analyzed to see the factor structure in the current sample. A hundred and eighty five of the questionnaires were returned from a potential of 550. Three cases were deleted because of having missing values on more than half of the items, leaving 182 cases for analyses. All the analyses were done using SPSS (Statistical Package for the Social Sciences) (SPSS Inc., 1999).

4.1.1 The Safety Climate Questionnaire

Prior to the analyses, responses to 40 items of the questionnaire were examined for accuracy of data entry, missing values, and the assumptions of multivariate analysis. Two items (items 3 and 26) of the questionnaire were removed because of having missing values on more than 5 % of the cases. No cases were deleted for being outliers and the missing values on the variables, which did not exceed 5% of the cases, were replaced by the means. Although 182 cases do not meet the minimum requirement of 200 for the present questionnaire (i.e., 5 persons per item), the KMO and Bartlett's test was significant, meaning that the sample was appropriate for factor analysis. This test show the factorability of the sample if there are fewer than five cases per variable (Tabachnick & Fidell, 2001). The normality, inspected through histograms and skewness and kurtosis values were moderate, therefore no transformations were performed. Pairwise linearity was also inspected for the items and found to be satisfactory as well.

An initial principal components analysis (PCA) with varimax rotation was conducted to determine the number of factors underlying the Safety Climate Questionnaire. This analysis yielded a nine-factor solution, explaining 62.32 % of the total variance but the solution was not interpretable. Factor analyses with different rotation techniques were also tried but the factor structures obtained in different analyses did not fit with the original structure of the scale as well.

Since no meaningful results were obtained from factor analyses, reliabilities of the original groupings of Zohar (1980) were calculated. The original structure of the questionnaire had eight factors; *perceived importance of safety training programs, perceived management attitudes toward safety, perceived effects of safe conduct on promotion, perceived level of risk at workplace, perceived effects of required workpace on safety, perceived status of safety officer, perceived effects of safe conduct on social status,* and *perceived status of safety committee*. But the reliabilities of these groupings found in the present study were not satisfactory either. Therefore, the items of the scale were regrouped considering both the original groupings and conceptual similarity of the

items, yielding the six subscales shown in Table 4.1. The reliabilities of the factors/subscales are given in the table.

Table 4.1 Factors/subscales of Zohar Safety Climate Scale (1980) found in the present study.

	Items representing the subscales	Reliability
Factor/Subscale 1: Perceived importance of safety training		**.64**
7	The investment of money and effort in safety training programs is a worthy investment because it improves workers' performance on the job.	
12	My safety training really helps me both in my work and at home.	
25	The efforts invested in organizing safety training programs really pay back to the company.	
29	Workers who take safety training courses are less involved in accidents than those who don't.	
33	Workers who take safety training courses have a better chance for promotion than those who don't.	
39	Workers who take safety training courses are doing a better job than those who don't.	
Factor/Subscale 2: Perceived management attitudes toward		**.90**
5	I usually inform my supervisor about safety hazards because they appreciate it and try to correct it.	
6	Our general manager is well informed about safety issues in this plant.	
11	Plant management in this factory is willing to invest money and effort to improve the safety level in here.	
14	Our management is well informed about safety problems and it quickly acts to correct them.	
18	Managers in this factory really care and try to reduce risk levels as much as possible.	
21	Our managers view safety regulation violations very seriously even when they have resulted in no apparent damage.	
24	I think safety issues are assigned high priority in management meetings.	
27	When a manager realizes that a hazardous situation has been found, he immediately attempts to put it under control.	
36	Plant management in this factory is always willing to adopt new ideas for improving the safety level.	

The structure in the table included some departures from the original one. First, factor/subscale concerning perceived effects of required workpace on safety (items 9, 16, and 37) was removed because of being not applicable to the current organization.

Table 4.1. (continued)

	Items representing the subscales	Reliability
	Factor/Subscale 3: Perceived effects of safe conduct on promotion	**.69**
4	The workers who behave safely have a higher chance for promotion than those who don't.	
13	Reckless behavior results in a negative evaluation of supervisors towards that worker.	
20	When a worker violates safety regulations it has an adverse effect on his supervisor's evaluation of him even when no harm was caused.	
28	Workers who work safely try to emphasize it and make sure others appreciate it.	
30	One of the main factors affecting workers' evaluation for promotion is whether they were involved in an accident.	
32	Department managers usually remember those who were involved in an accident and take it into consideration.	
35	Being involved in an accident has an adverse effect on the worker's reputation.	
	Factor/Subscale 4: Perceived level of risk at workplace	**.53**
15	My chances of being involved in an accident are quite large.	
22	I am sure it is only a matter of time for me to get involved in an accident.	
34	Compared to other factories, I think this one is rather dangerous.	
	Factor/Subscale 5: Perceived status of safety officer/committee	**.71**
10	The safety officer has much influence on what is happening in our factory.	
23	When the safety officer has a negative opinion of someone, it affects his supervisor's evaluation.	
38	When a worker confronts a dangerous situation in his work environment, he reports it to the safety officer.	
40	When the safety officer issues a safety regulation, we take it into consideration and behave accordingly.	
1	When a member of the safety committee approaches a worker and warns him, it really affects his behavior.	
17	The safety committee in our plant has a very positive effect on what is happening here.	
19	I would like to become a member of our plant safety committee because it would give me more status.	
	Factor/Subscale 6: Perceived effects of safe conduct on social status	**.51**
2	Workers who violate safety regulations aggravate their fellow workers even when no harm has resulted.	
8	The best guys in our department care about safety and they want other workers to behave according to the regulations.	
31	Workers who use personal protective equipment are not considered to be cowards but rather good and tidy workers.	

In addition to that, the two conceptually related factors, *perceived status of safety officer* and *perceived effects of safety committee* were merged to yield better reliabilities. Item 31 (i.e., "Workers who use personal protective equipment are not considered to be cowards but rather good and tidy workers.") was included in the factor concerning the perceived effects of safe conduct on social status because of content relevance; this also increased the reliability of that factor. These modifications resulted in a 35-item questionnaire and 6 factors/subscales, tapping into safety climate perceptions.

4.1.2 Cultural Bias Questionnaire

A total of 10 cases were removed from analysis due to having missing values on more than 5 % of the items, and four more were deleted because of being outliers, leaving 168 cases for factor analysis. The remaining missing values were replaced with the mean values. Some of the items were negatively skewed but no transformations were made. Pairwise linearity was found to be satisfactory for the remaining analyses.

A PCA with varimax rotation was performed but results did not yield an interpretable factor solution for this scale either. Four factors (hierarchy, egalitarianism, individualism, and fatalism) were extracted in the original study (Rippl, 2002). Using the original factor structure as a guide, items were grouped and reliabilities were calculated. According to the results, the reliabilities for three of the factors were rather low (.48, .56, and .53 for hierarchy, egalitarianism, and individualism scales, respectively). The reliability of the fatalism scale was .78. As the hypotheses of the present study focused primarily on the fatalism factor, a decision was made to keep the fatalism scale only. Therefore the other three subscales were eliminated from further analyses.

4.1.3 Dorfman and Howell's Cultural Scales (1988)

A total of 5 cases were removed from the analysis due to having missing values on more than 5 % of the items, leaving 177 cases for factor analysis. The remaining missing values were replaced with the mean values. Normality and pairwise linearity were satisfactory.

An initial PCA with varimax rotation was conducted to determine the number of factors. According to Kaiser Criterion, 6 factors were extracted explaining 67.49 % of the variance. However, inspection of the scree plot suggested existence of 3 factors, so the factor analysis was repeated by forcing the number of factors to three. The three-factor solution was retained since it made more sense conceptually than the 6-factor solution.

The total variance explained by the three-factor solution was 48.29 %. According to rotated component matrix, eight items loaded in first factor (*individualism/collectivism*), six items loaded in the second factor (*power distance*), and four items loaded in the third factor (*uncertainty avoidance*) (see Table 4.2). Although one item crossloaded on different factors (item 14), it was retained in its original factor (*uncertainty avoidance*) because it increased the reliability of that factor. Although item 13 was found to load on the individualism/collectivism factor, the original grouping (*uncertainy avoidance*) was accepted in the analyses because of the content relevance. This also increased the reliability of that factor. The reliabilities were .76, .76, and .71 for *individualism/collectivism*, *power distance*, and *uncertainty avoidance* factors, respectively.

4.1.4 Risk Taking and Sensation Seeking Scale

A total of 7 cases were removed from the analysis due to having missing values on more than 5 % of the items, leaving 175 cases for factor analysis. The remaining missing values were replaced with the mean values. Normality and pairwise linearity were satisfactory.

Table 4.2 Item loadings and explained variance of Dorfman and Howell's Cultural Scales (1988)

Item #	Items	Factor Loadings F1	F2	F3
1	Group welfare is more important than individual rewards	.69		
2	Group success is more important than individual success	.71		
3	Being accepted by members of your work group is very important	.65		
4	Employees should only pursue their goals after considering the welfare of the group	.62		
5	Managers should encourage group loyalty even if individual goals suffer	.61		
6	Individuals may be expected to give up their goals in order to benefit group success	.58		
	Reliability	**.76**		
7	Managers should make most decisions without consulting subordinates		.64	
8	It is frequently necessary for a manager to use authority and power when dealing with subordinates		.69	
9	Managers should seldom ask for the opinions of employees		.67	
10	Managers should avoid off-the-job social contacts with employees		.75	
11	Employees should not disagree with management decisions		.63	
12	Managers should not delegate important tasks to employees		.67	
	Reliability		**.76**	
13	It is important to have job requirements and instructions spelled out in detail so that employees always know what they are expected to do	.57		
14	Managers expect employees to closely follow instructions and procedures	.44		.45
15	Rules and regulations are important because they inform employees what the organization expects of them			.68
16	Standard operating procedures are helpful to employees on the job			.70
17	Instructions for operations are important for employees on the job			.79
	Reliability			**.71**
	Explained Variance	**19.10**	**16.45**	**12.78**

Note. F1 = Individualism/Collectivism; F2 = Power Distance; F3 = Uncertainty Avoidance.

Original scale had two factors; sensation seeking and risk taking. The original grouping of the items were retained in the present study since no interpretable results were reached in the factor analyses. Relibility of the whole

scale was acceptable (.77), although reliabilities of the factors were rather low (.61 and .69 for risk taking and sensation seeking respectively).

4.2 Descriptive Statistics

Means, standard deviations, and reliabilities of the variables along with the correlations are presented in Table 4.3. As can be seen from the table, reliability of the climate scale as a whole was good although the reliabilities of some of the subscales were rather low (.52 and .51 for *level of risk in the workplace* and *effects of safe conduct on social status* subscales, respectively). Reliabilities of the other scales employed in the study were in general satisfactory (ranging from .78 to .61), reliabilities for risk taking and sensation seeking being the lowest.

Mean of the safety climate scores was above the mid-point of the scale (M = 3.70), suggesting that employees had relatively positive perceptions concerning the safety practices in the organization. Mean score of fatalism was below the mid-point of the scale (M = 2.85). Since high scores on this scale meant being high on fatalism, the participants seemed not to have fatalistic views. Mean score for the power distance scale was also below the mid-point (M = 2.64), where high scores meant being high on power distance. Therefore the sample seemed to be relatively low on power distance.

The mean scores for individualism/collectivism and uncertainty avoidance were above the mid-point of the scales (M = 4.08 and M = 4.13, respectively). Participants seemed to be relatively high on these two dimensions in general. The mean scores of the subscales of risk taking and sensation seeking were close to the mid-point (M = 2.34 and M = 2.54 for risk taking and sensation seeking, respectively).

As can be seen in the table, mean of the frequency of compliance to safety rules was very high with a little deviation in the scores. This range restriction can be due to use self-report of safety behavior, with more than half of the participants reporting behaving safely all the time. Mean of the self reported use of protective equipment was 46.75 over 100, higher scores meaning using more of the

equipments necessary. This shows that employees reported using nearly half of the necessary equipments.

Concerning the bivariate correlations, as expected, all of the subscales of safety climate were significantly correlated with total safety climate score and the subscales were significantly correlated with one another, except for level of risk in the workplace. This subscale was found to correlate significantly with management attitudes toward safety and effects of safe conduct on promotion.

Fatalism views did not have significant correlation with safety climate scores, only tended to correlate significantly with one safety climate subscale (level of risk in the workplace). The nature of the relationship suggested that the perceived level of risk was higher for those who had more fatalistic views. Fatalism views also correlated significantly with power distance and uncertainty avoidance dimensions. Fatalism views tended to increase as power distance of individuals increased and decrease as uncertainty avoidance increased.

Safety climate score tended to have significant correlations with collectivism, power distance, and uncertainty avoidance. These relationships suggest that as participants scored higher on the cultural dimensions, their safety climate scores increased as well. Higher scores on the individualism/collectivism subscale meant being closer to collectivism. Drawing from here, safety climate tended to increase for participants with collectivist tendencies. Similarly, high scores meant being high on power distance and safety climate perceptions became more positive as individuals scored higher on power distance. Participants who were uncertainty avoidant perceived the organization's safety climate more positively as well. Close examination of the correlations between these variables and climate subscales revealed these findings: collectivism had significant positive correlations with *importance of training programs*, *effects of safe conduct on promotion*, *status of safety officer/committee*, and *effects of safe conduct on social status* subscales. Power distance tended to have significant positive correlations with *importance of training programs* and *status of safety officer/committee.* Lastly, uncertainty avoidance correlated significantly (positively) with all the subscales except *level of risk in the workplace*.

Table 4.3 Means, Standard Deviations, Reliabilities, and Correlations of the Variables

Variables	N	# Items	1	2	3	4	5	6	7
1. Safety climate (overall)	161	40	**.91**						
2. Importance of training programs	161	6	.80**	**.64**					
3. Management attitudes toward safety	161	9	.80**	.54**	**.90**				
4. Effects of safe conduct on promotion	161	7	.82**	.65**	.50**	**.69**			
5. Level of risk in the workplace	161	3	.16	.14	-.18*	.21**	**.52**		
6. Status of safety officer/committee	161	4	.90**	.69**	.71**	.70**	.09	**.71**	
7. Effects of safe conduct on social status	161	3	.72**	.55**	.53**	.62**	.06	.62**	**.51**
8. Fatalism	161	9	-.01	-.09	-.08	.02	.20**	-.02	-.04
9. Individualism/Collectivism	161	6	.26**	.17*	.11	.27**	.05	.23**	.33**
10. Power distance	161	6	.19*	.22**	.12	.16	.09	.19*	.12
11. Uncertainty avoidance	161	5	.33**	.27**	.28**	.25**	-.04	.33**	.36**
12. Risk taking/sensation seeking (overall)	147	25	.09	.02	-.01	.11	.35**	.08	-.04
13. Risk taking	161	12	-.15	-.06	-.24**	-.07	.31*	-.13	-.15
14. Sensation seeking	161	13	.08	-.01	-.03	.08	.34**	.10	-.04
15. Frequency of compliance with safety rules	147	1	.26**	.21*	.22**	.18*	.07	.28**	.20*
16. Protective equipment use	146	54	-.13	-.06	-.16*	-.10	.08	-.13	-.12
Mean			3.7	3.66	3.80	3.47	3.27	3.55	3.97
SD			.69	.85	1.04	.88	1.12	.92	.92

Note. A five-point Likert-type scale was used for safety climate and cultural dimensions: 1 = "Strongly disagree" and 5 = "Strongly agree". A four-point Likert-type scale was used for risk taking and sensation seeking scale: 1 = "False" and 4 = "True". Frequency of compliance with safety rules was assessed on 4-point scale: 1 = "Rarely" and 4 = "Always". Protective equipment use was assessed over 100 points, 0 = using none of the necessary equipments, 100 = using all of the necessary equipments. $p^{**} < .01$, $p^{*} < .05$. Reliabilities are presented at the diagonal in bold.

Table 4.3. (continued)

Variables	8	9	10	11	12	13	14	15	16
8.Fatalism	**.78**								
9.Individualism collectivism	-.04	**.76**							
10.Power distance	.42**	.07	**.76**						
11.Uncertainty avoidance	-.17*	.52**	.02	**.71**					
12. Risk taking/sensation seeking (overall)	.13	-.001	.09	.008	**.61**				
13.Risk taking	.15	-.06	.10	-.04	.65**	**.69**			
14.Sensation seeking	.14	-.04	.04	0	.58**	.84**	**.77**		
15.Frequency of compliance to safety rules	.03	-.06	.13	-.03	-.03	-.05	-.07		
16. Protective equipment use	-.03	.05	-.1	.02	-.21**	-.11	-.22**	-.02	
Mean	2.85	4.09	2.64	4.14	2.35	2.55	2.67	3.57	46.75
SD	.99	.84	1.08	.76	.49	.50	.42	.60	26.44

Note. A five-point Likert-type scale was used for safety climate and cultural dimensions: 1 = "Strongly disagree" and 5 = "Strongly agree". A four-point Likert-type scale was used for risk taking and sensation seeking scale: 1 = "False" and 4 = "True". Frequency of compliance with safety rules was assessed on 4-point scale: 1 = "Rarely" and 4 = "Always". Protective equipment use was assessed over 100 points, 0 = using none of the necessary equipments, 100 = using all of the necessary equipments. $p^{**} < .01$, $p^{*} < .05$. Reliabilities are presented at the diagonal in bold.

Two outcomes of safety behavior, compliance with safety rules and use of protective equipment did not correlate significantly. This suggests that these two indices were not related, meaning that even though employees reported following the safety rules of the company, this was not necessarily accompanied by their use of protective equipment.

When compliance with safety rules is considered, the relationship between safety climate and safety behavior was found to be significant. Self-reported safety behavior of employees (measured by frequency of compliance with the rules) increased as the perceived safety climate increased. High scores on safety climate indicated more positive perceptions of safety in the workplace, therefore employees who perceived the organization's safety climate as more positive tended to perform more safety-related behaviors.

Surprisingly, safety related behavior did not correlate significantly with nearly any of the other variables investigated. That is, there found to be no association between safety-related behavior and fatalism views, risk taking, or sensation seeking tendencies for this sample. The only significant correlation was found between sensation seeking and protective equipment use. The nature of the relationship was negative as can be expected; protective equipment use tended to decrease for individuals who were high on sensation seeking.

4.3 Hypotheses Testing

In this section, the results of the analyses conducted to test the hypotheses are presented.

4.3.1 Hypotheses concerning safety climate perceptions and safety-related behavior

H_{1a}: Safety climate perceptions predict safety-related behaviors, measured by self-reported compliance to safety rules.

H_{1b}: Safety climate perceptions predict safety-related behaviors, measured by self-reported use protective equipment

To test these hypotheses, safety-related behavior was regressed on safety climate scores in two different regression analyses. The effects of safety climate were investigated after controlling for age, education, and tenure of employees. These variables were chosen as control variables because safety behavior was suggested to be influenced by demographic characteristics of individuals (Arnett, 1995). For example, older employees behave more safely when compared to younger employees, because of the differences in sensation seeking tendencies (Arnett, Offer, & Fine, 1997). Similarly, participants with a higher education level may be expected to be more conscious about safety.

Hierarchical regression was conducted to determine whether safety climate predicts safe behavior after controlling for the effects of age, education, and total tenure of employees. Results of these analyses are presented in Tables 4.4 and 4.5.

Table 4.4 Predicting Self-Reported Frequency of Compliance with Safety-Related Rules from Safety Climate Score: Summary of the Hierarchical Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.031	.031	1.45			
Age				-.005	.012	-.060
Education				-.083	.080	-.093
Tenure				-.018	.015	-.192
Step 2	.078	.047	6.856**			
Age				.0082	.012	.099
Education				-.052	.080	-.058
Tenure				-.014	.012	-.156
Safety climate score				.221**	.084	.228**

Note. Education: 1 = Primary School, 2 = Secondary School, 3 = High School, 4 = 2-Year College, 5 = 4-Year College. $R = .176$, $F(3,139) = 1.45$, $p > .01$ in the first step, $R = .279$, $F(4,139) = 2.85$, $p < .05$ in the second step. $P^{**} < .01$.

Control variables did not contribute significantly to the prediction of frequency of compliance with safety-related rules in the first step ($R = .176$,

$F(3,139) = 1.45$, $p > .01$). Addition of safety climate in the second step contributed significantly to the prediction of frequency of compliance, $R = .279$, $F(4,139) = 2.85$, $p < .05$. Beta weights of control variables were not significant in both steps and the effect of safety climate on safety behavior in the last step was significant ($\beta = .228$, $p < .05$). The relationship between these variables was found to be positive, supporting Hypothesis 1a. That means employees tended to comply more with safety-related rules while performing their jobs as they perceived safety climate in their workplace more positively.

Table 4.5 Predicting Self-Reported Use of Protective Equipment From Safety Climate Score: Summary of the Hierarchical Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.067	.067	3.230*			
Age				.259	.487	.074
Education				-5.475	3.339	-.146
Tenure				.482	.516	.124
Step 2	.075	.008	1.209			
Age				.200	.490	.057
Education				-6.03	3.375	-.161
Tenure				.422	.518	.109
Safety climate score				-3.93	3.573	-.096

Note. Education: 1 = Primary School, 2 = Secondary School, 3 = High School, 4 = 2-Year College, 5 = 4-Year College. $R = .258$, $F(3,139) = 3.23$, $p < .05$ in the first step, $R = .264$, $F(4,139) = 2.52$, $p > .05$ in the second step. $p^* < .05$.

Same analysis was conducted for the other outcome measure, which is the use of protective equipment. Control variables contributed significantly to the prediction of protective equipment use in the first step, $R = .258$, $F(3,139) = 3.23$, $p < .05$. Addition of safety climate in the second step did not lead to a significant increase in the explained variance, $R = .264$, $F(4,139) = 2.52$, $p > .05$. These findings yielded no support for Hypothesis 1b.

In addition to the relationships emphasized in the hypotheses, individual effects of safety climate subscales on safety-related behavior were investigated. Regression analyses were conducted by regressing both outcome measures on

safety climate subscales separately (Tables 4.6 and 4.7 for frequency of compliance behavior and use of protective equipment, respectively).

Table 4.6 Predicting Self-Reported Frequency of Compliance with Safety-Related Rules From Safety Climate Subscales: Summary of the Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.085	.085	2.17*			
Importance of safety training programs				.0028	.014	.025
Management attitudes toward safety				.0046	.007	.03
Effects of safe conduct on promotion				-.0058	.012	-.062
Level of risk in the workplace				.0087	.015	.053
Status of safety officer/committee				.021	.013	.230
Effects of safe conduct on social status				.007	.023	.034

Note. $R = .292$, $F(6,146) = 2.17$, $p < .05$ in the first step $p^* < .05$.

Table 4.7 Predicting Self-Reported Use of Protective Equipment From Safety Climate Subscales: Summary of the Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.049	.049	1.20			
Importance of safety training programs				.853	.638	.168
Management attitudes toward safety				-.273	.334	-.097
Effects of safe conduct on promotion				-.672	.548	-.162
Level of risk in the workplace				.913	.676	.125
Status of safety officer/committee				-.173	.579	-.043
Effects of safe conduct on social status				-.148	1.084	-.016

Note. $R = .222$, $F(6,145) = 1.21$, $p > .05$ in the first step.

Safety climate subscales contributed significantly to the prediction of frequency of compliance with safety rules ($R = .292$, $F(6,146) = 2.17$, $p < .05$),

showing the predictive power of the whole scale. However the individual contributions of none of the variables were significant.

The results shown in Table 4.7 were found for the analysis conducted with use of protective equipment. Safety climate subscales did not predict use of protective equipment, the R^2 being insignificant.

4.3.2 Hypotheses concerning fatalism views

Two sets of hypotheses were generated on fatalism views of employees. First one is about its relation to safety-related behavior, while other is about its moderating role on safety climate-safety behavior relationship.

> *H_{2a}: Fatalism views predict self-reported frequency of compliance to safety rules.*
>
> *H_{2b}: Fatalism views predict self-reported use of protective equipment.*

To test these hypotheses, two regression analyses were conducted. The results of these analyses are presented in Tables 4.8 and 4.9.

Control variables were not included in the analysis, since they did not make any significant contribution to the explained variance. Contrary to the hypothesis, fatalism views did not contribute significantly to the prediction of frequency of compliance, $R = .031$, $F(3,146) = 1.36$, $p > .05$. The effect of fatalism views on safety behavior, found with inspection of beta weights, was not significant ($\beta = -.368$, $p > .05$). These findings did not support Hypothesis 2a, meaning that fatalism views of employees did not have any effect on frequency of compliance with safety rules.

Table 4.8 Predicting Self-Reported Frequency Of Compliance With Safety-Related Rules From Fatalism Views: Summary of the Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step 1	.001	.001	.136			
Fatalism views				.00023	.006	.368

Note. Education: 1 = Primary School, 2 = Secondary School, 3 = High School, 4 = 2-Year College, 5 = 4-Year College. $R = .031$, $F(3,146) = 1.36$, $p > .05$.

Table 4.9 Predicting Self-Reported Use Of Protective Equipment From Fatalism Views: Summary of the Hierarchical Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.067	.067	3.230*			
Age				.259	.487	.074
Education				-5.475	3.339	-.146
Tenure				.482	.516	.124
Step 2	.067	.000	.019			
Age				.255	.490	.073
Education				-5.495	3.354	-.146
Tenure				.481	.518	.124
Fatalism views				-.0038	.274	-.012

Note. Education: 1 = Primary School, 2 = Secondary School, 3 = High School, 4 = 2-Year College, 5 = 4-Year College. $R = .258$, $F(3,139) = 3.230$, $p < .05$ in the first step, $R = .258$, $F(4,139) = 2.41$, $p > .01$ in the second step. $P^* < .05$.

Hypothesis 2b was tested by regressing use of protective equipment on control variables and fatalism views of employees. Addition of fatalism views in the second step did not lead to a significant increase R^2 change, $R = .258$, $F(4,139) = 2.41$, $p > .01$. The beta weight of fatalism views was not significant ($\beta = -.012$, $p > .05$). These findings did not support Hypothesis 2b either, meaning that fatalism views of employees did not have any effect on use of protective equipment while working.

Hypotheses concerning the moderated relationship between safety climate and safety related behaviors, with the fatalism views being moderator, were as follows;

H_{3a}: Safety climate scores predict self-reported frequency of compliance to safety rules, if person is low on fatalism.

H_{3b}: Safety climate scores predict self-reported use of protective equipment, if person is low on fatalism.

To test these hypotheses, safety related behaviors were regressed on centered safety climate scores, centered fatalism scores, and their interaction in two separate moderated regression analyses.

Table 4.10 The Relationship between Safety Climate and Frequency of Compliance with Safety-Related Rules, Fatalism Views Being the Moderator: Summary of the Moderated Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.0769	.069	5.308**			
Safety climate score (centered)				.249**	.077	.260**
Fatalism views (centered)				.003	.006	.034
Step 2	.069	.00	.003			
Safety climate score (centered)				.249**	.077	.260**
Fatalism views (centered)				.003	.006	.034
Safety climate * Fatalism views				-.0006	.009	-.005

Note. $R = .262$, $F(2,146) = 5.31$, $p < .01$ in the first step, $R = .262$, $F(3,146) = 3.52$, $p > .05$ in the second step. $P^{**} < .01$.

In the first regression analysis, the moderated relationship between safety climate and frequency of compliance with safety rules was investigated (see Table 4.10). Main effects of centered safety climate and fatalism views were entered at the first step. These variables contributed significantly to the prediction of compliance with rules, $R = .262$, $F(2,146) = 5.31$, $p < .01$. Analysis of the beta values revealed the effects of safety climate ($\beta = .260$, $p < .01$) Addition of interaction of these variables did not make significant contribution, yielding no support for moderation in Hypothesis 3a.

In the second regression analysis, use of protective equipment was regressed on centered values of safety climate and fatalism views, and their interaction. The results of this analysis are presented in Table 4.11.

Table 4.11 The Relationship between Safety Climate and Use of Protective Equipment, Fatalism Views Being the Moderator: Summary of the Moderated Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.018	.018	1.310			
Safety climate score (centered)				-5.52	3.52	-.130
Fatalism views (centered)				-.124	.281	-.037
Step 2	.021	.003	.464			
Safety climate score (centered)				-5.52	3.53	-.130
Fatalism views (centered)				-.09	.285	-.029
Safety climate * Fatalism views				-.30	.431	-.06

Note. R = .134, F (2,145) = 1.310, p >.05 in the first step, R = .146, F (3,145) = 1.025, p > .05 in the second step.

Safety climate and fatalism did not contribute significantly to the prediction of equipment use in the first step. Addition of the interaction term did not change the explained variance either. These results suggest that the nature of the relationship between safety climate and safe behavior does not differ as a function of fatalism views of employees.

4.3.3 Hypotheses concerning risk taking and sensation seeking tendencies

Two sets of hypotheses were generated for risk taking and sensation seeking tendencies of employees.

H_{4a}: Risk taking/sensation seeking tendencies of employees predict self-reported frequency of compliance to safety rules.

H_{4b}: Risk taking/sensation seeking tendencies of employees predict self-reported use of protective equipment.

To test these hypotheses, regression analyses were conducted regressing safety behavior on risk taking/sensation seeking tendencies (see Table 4.12 and

4.13). In the first analysis, the effects of risk taking/sensation seeking tendencies on frequency of compliance behavior were investigated.

Table 4.12 Predicting Self-Reported Frequency of Compliance with Safety-Related Rules from Risk Taking/Sensation Seeking Tendencies: Summary of the Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step 1	.001	.001	.077			
Risk taking/ Sensation seeking tendencies				-.0326	.117	-.023

Note. $R = .023$, $F(1,146) = .077$, $p > .01$.

According to the results, risk taking/sensation seeking did not contribute significantly to the prediction of safety-related behaviors. Therefore Hypothesis 4a was not supported.

In the other regression analysis, use of protective equipment was regressed on risk taking and sensation seeking tendencies (see Table 4.13) after controlling for the effects of age, education, and tenure.

Table 4.13 Predicting Use of Protective Equipment from Risk Taking and Sensation Seeking Tendencies: Summary of the Hierarchical Regression Analysis

Variable	R^2	R^2 *Change*	*F Change*	*B*	*SEB*	β
Step1	.067	.067	3.230*			
Age				.259	.487	.074
Education				-5.475	3.339	-.146
Tenure				.482	.516	.124
Step 2	.096	.029	4.387*			
Age				-.014	.498	.004
Education				-5.910	3.304	-.157
Tenure				.589	.512	.152
Risk taking/sensation seeking tendencies				-10.71*	5.113	-.180*

Note. $R = .258$, $F(3,139) = 3.230$, $p < .05$ in the first step, $R = .310$, $F(4,139) = 3.580$, $p < .01$ in the second step. $p^* < .05$

Addition of risk taking and sensation seeking scores after control variables contributed significantly to the explanation of protective equipment use.

Examination of the beta weights indicated that the effect of risk taking/sensation seeking was significant (β = -.180, p < .05), suggesting that equipment use is predicted by these tendencies, supporting Hypothesis 4b.

The expected moderating role of risk taking and sensation seeking tendencies on the relationship between safety climate and safety-related behavior were worded as follows;

> *H_{5a}: Safety climate scores predict self-reported frequency of compliance to safety rules, if person is low on risk taking/sensation seeking.*
>
> *H_{5b}: Safety climate scores predict self-reported use of protective equipment, if person is low on risk taking/sensation seeking.*

To test these hypotheses, hierarchical regression analyses were conducted for both outcome measures (see Tables 4.14 and 4.15).

The prediction of outcome variable was significant only in first step in the analysis, where frequency of compliance behavior was regressed on centered safety climate, risk taking scores, and their interaction terms (Table 4.14). According to the results, R = .265, F(2,146) = 5.44, p < .01 and beta value of safety climate was significant in this step (β = .254, p < .01). Addition of the interaction term in the next step did not make significant contribution to prediction of safety behavior, showing no support for moderation hypothesis.

The results of regression analysis to test Hypothesis 5b were similar to those mentioned above (see Table 4.15).

Explained variance in the first step was significant, R = .233, F(2,145) = 4.092, p < .05. Examination of beta weights revealed the effect of risk taking/sensation seeking tendencies (β = -.195, p < .05). Adding the interaction term of safety climate scores and risk taking/sensation seeking scores did not make any significant contribution. These findings suggest these tendencies do not moderate the relationship between safety climate perceptions and safe behavior of employees. Therefore Hypothesis 5b was not supported.

Table 4.14 The Relationship between Safety Climate and Frequency of Compliance with Safety-Related Rules, Risk Taking/Sensation Seeking Scores Being the Moderator: Summary of the Moderated Regression Analysis

Variable	R^2	R^2 Change	F Change	*B*	*SEB*	β
Step1	.070	.070	5.44**			
Safety climate score (centered)				.254**	.077	.266**
Risk taking/sensation seeking tendencies (centered)				-.074	.114	-.052
Step 2	.071	.00	.053			
Safety climate score (centered)				.252**	.078	.264**
Risk taking/sensation seeking tendencies (centered)				-.078	.116	-.055
Safety climate * Risk taking/sensation seeking				.048	.206	.019

Note. $R = .265$, $F(2,146) = 5.44$, $p < .01$ in the first step, $R = .266$, $F(3,146) = 1.62$, $p > .05$ in the second step. $p^{**} < .01$.

Table 4.15 The Relationship between Safety Climate and Use of Protective Equipment, Risk Taking/Sensation Seeking Being the Moderator: Summary of the Moderated Regression Analysis

Variable	R^2	R^2 Change	F Change	*B*	*SEB*	β
Step1	.054	.054	4.09*			
Safety climate score (centered)				-4.64	3.475	-.109
Risk taking/sensation seeking tendencies (centered)				-12.208*	5.128	-.195*
Step 2	.057	.003	.453			
Safety climate score (centered)				-4.370	3.504	-.103
Risk taking/sensation seeking tendencies (centered)				-11.620*	5.211	-.185*
Safety climate * Risk taking/sensation seeking				-6.261	9.301	-.056

Note. $R = .233$, $F(2,145) = 4.092$, $p < .05$ in the first step, $R = .239$, $F(3,145) = 2.87$, $p < .05$ in the second step. $p^{*} < .05$.

4.4 Additional Analyses

In addition to the analyses performed to test the hypotheses of the study, additional analyses were conducted to make between comparisons in the sample.

These analyses involved comparing employees who were involved in the accidents versus those who were not, and employees who reported to behave safely versus those who reported behaving less safely.

An independent samples t-test was conducted to see the differences between employees who were involved in an accident and those who did not, in terms of safety climate perceptions, safety related behavior, risk taking, and fatalism scores. Thirty-seven (25.2 %) of the respondents reported having been involved in a work accident. To compare the groups, 37 employees from those who did not have any accident involvement were randomly selected. According to the results, accident involved group differed significantly from accident not involved group in terms of risk taking tendencies. Employees who reported to have had an accident had higher risk taking scores (M = 26.78, SD = 5.23) than employees who reported not to have had an accident involvement (M = 26.78, SD = 5.23), $t(37) = -2.20$, $p < .05$. Comparison of the groups in terms of fatalism views, safety climate scores, and sensation seeking tendencies did not yield significant results.

Regarding safety-related behaviors, the sample was divided into four equal groups to identify the top and bottom 25 % of employees in terms of equipment use. The top quartile, (representing high equipment use group) and the last quartile (representing low equipment use group) were compared in terms of safety climate, risk taking, sensation seeking, tenure, and fatalism. Independent samples t-tests were conducted for the outcome variables. These two groups differed significantly in terms of sensation seeking and total tenure. According to the results, sensation seeking was higher for employees who reported less equipment use (M = 37.93, SD = 6.90) than employees who reported more equipment use (M = 33.95, SD = 6.70). Moreover, total tenure was higher for employees in the higher equipment use group (M = 8.75, SD = 1.04) than employees in the lower equipment use group (M = 5.86, SD = 1.00).

CHAPTER 5

5 DISCUSSION

5.1 Overview

The present study investigated the possible variables to affect safety-related behavior in an organization. The proposed model stressed the direct and moderated effects of safety climate on safety-related behavior with fatalism views and risk taking/sensation seeking tendencies of employees being the moderators. Direct effects of fatalism views and risk taking/sensation seeking tendencies on safe behavior were also investigated. In this chapter, first, findings of the study are discussed, starting with descriptive findings. Then implications of the findings and contributions of the study are addressed. Finally, limitations of the study are presented along with some suggestions for future research.

5.2 Descriptive Findings and Additional Analyses

Safety climate perceptions of the employees, which was the focus of the present study, was positive as the mean of the sample was above the mid-point of the scale. This means the participants of the study generally had favorable perceptions regarding the safety practices in their organization. When the subscale means were examined further, the mean for all of the subscales were above the mid-point of the scale. Employees tended perceive management attitudes toward safety positively; they thought safety training programs were important and useful; they thought that behaving safely affected promotion and social status; they perceived the status of the safety officer/committee positively; and they appraised their workplaces as involving high risk from a safety standpoint. So it

seems fair to state that participants of the present study had in general positive attitudes toward safety practices in their workplace.

Regarding cultural dimensions, although no between groups comparison was made, referring to the scale points only, the findings suggested the sample to be relatively high on collectivism and uncertainty avoidance, and low on fatalism and power distance. Turkey was categorized as being high on collectivism and power distance, and relatively low on fatalism by previous researchers (Aycan & Kanungo, 2000; Hofstede, 1980). The results of the study showed that although differing from previous findings on power distance dimension, the present sample somewhat reflected the characteristics of Turkish people found in earlier studies. In the present study, power distance, collectivism, and uncertainty avoidance were found to correlate significantly with safety climate perceptions.

Power distance was suggested to relate with the acceptance of unequal distribution of power in organizations (Hofstede, 1980; 1985). The results suggested that as power distance increased, safety climate perceptions became more favorable for employees. It seems plausible to argue that as employees tended to accept the hierarchical differences in the organization, they were more likely to internalize supervisory safety practices, or procedures and safety training programs developed by the management.

Collectivism dimension was conceptualized as interdependency between members of a group, the bounding of individuals by the group's norms (Aycan & Fikret-Paşa, 2003; Hostede, 1985). According to the results, safety climate perceptions were found to be more positive as collectivism of the employees increased, which may be reflecting an indisputable trust toward management.

Lastly, *uncertainty avoidance* relates to feeling uncomfortable with uncertainty and ambiguity (Hofstede, 1980). The observed positive relationship between climate perceptions and uncertainty avoidance seems to be embedded in the definition of the dimension. As expected, organization's clearly defined procedures, training programs and practices relating safety (reflected in high safety climate scores) will be favored more by employees who are high in uncertainty avoidance.

When the safety-related behavior is considered, participants reported complying with safety-related rules in the workplace most of the time. This range restriction is not suprising since compliance was measured using self-report of the participants to one item. To overcome the limitations associated with the use of this measure as the sole outcome variable, an additional item was included in the study, which required the participants to report the safety equipments they used in their jobs from a list provided. Since, failure to use protective equipment at the workplace was reported to account for about 40 % of work accidents (Zohar, 2003), this variable was added as the other outcome variable. Number of equipments/tools used provided a relatively indirect way of assessing safety-related behavior. However and interestingly, the two outcome measures of the study (i.e., self-reported frequency of compliance with the rules and self-reported number of equipments/tools used) did not correlate. One plausible reason for not observing a significant correlation between the two outcome measures could be the restricted range in the self-report measure of safety compliance behavior. As mentioned above, the ratings for the frequency of compliance with the safety rules were lenient, leading to restricted range in the scores. Participants seem to have inflated their compliance behavior, most likely because of social desirability. As it was difficult to decide which of these measures provided more valid results they were both included in the analyses.

Self-reported compliance with safety rules was found to be related to safety climate perceptions. That is, safety-related behavior of the participants tended to increase as they perceived safety climate more favorably, as hypothesized. This is consistent with the previous research, which demonstrated the link between self-reported behavior and safety climate.

Furthermore, employees with an accident report before were found to differ from those who did not have an accident report in terms of risk taking tendencies. This result suggested that employees who experienced an accident tended to score higher on risk taking tendencies. This is consistent with the previous research linking accident involvement and accident liability (Dahlen & White 2006; Lawton & Parker, 1998; Sümer, 2003). It is surprising that sensation seeking tendencies did not differ between these groups, contrary to the research

linking accident involvement to sensation seeking of participants (Dahlen & White, 2006; Sümer, 2003). When use of protective equipments is considered, sensation seeking tendencies differed for the employees who reported to use more of the protective equipments. Consistent with the previous studies, employees who reported to use protective equipment less, tended to score higher on sensation seeking measure (Dahlen & White, 2006; Iversen & Rundmo, 2002). Also employees who reported to use more protective equipments had higher tenure than the other group. That is, the veteran employees tended to follow safety regulations more than the inexperienced employees. This finding is consistent with the differences in age in terms of risky behavior and sensation seeking (Arnett, 1995; Arnett, Offer, & Fine, 1997). For example, adolescents drive faster and closer to the front vehicles, and they are more likely to drive under the influence of alcohol more than older drivers. Consistent with behaviors, sensation seeking was also found to be higher for adolescents than adults in previous studies (Arnett, Offer, & Fine, 1997).

5.3 Results of Hypothesis Testing

The hypotheses concerning three main variables, safety climate perceptions, fatalism views, and risk taking-sensation seeking tendencies, were investigated in the previous chapter. The effect of safety climate and sensation seeking tendencies on safety-related behavior were supported in the present study, although the other direct or moderated relationships were not supported. The results concerning hypotheses of the study are discussed in this section.

5.3.1 Hypotheses concerning safety climate perceptions and safety-related behavior

Safety climate was found to predict safety-related behavior for only one outcome measure, which is frequency of compliance to safety rules, supporting

Hypothesis 1a. In line with the previous research, safety climate predicted the frequency of compliance with safety rules, after controlling for age, education, and tenure. The importance of safety climate in explaining safety behaviors is critical in order to prevent undesirable outcomes. It was suggested that problematic areas identified by measuring safety climate perceptions can well be intervened to prevent accidents (Clarke, 2006a; Cox & Cheyne, 2000; Seo et al., 2004). Given the importance of safety climate in explaining accidents, the relationships between safety climate and a number of outcome variables have been investigated (e.g., Clarke, 2006a) in many studies from different sectors (Mohammed, 2002; Neal & Griffin, 2006; Williamson et al., 1997; Zohar, 2000), starting with the work of Zohar (1980). Employees tend to behave safely as the safety climate of the organization is perceived to be a positive one, decreasing the occurrence of accidents. This relationship was explained in a model through behavior-outcome expectancies by Zohar (2003). It was suggested that safety climate perceptions should affect behavior-outcome expectancies; these should influence prevalence of safety behavior; and behavioral safety should influence company records regarding safety. When procedures of the organization concerning safety are well-defined and the supervisory practices are also in line with these regulations, employees know the safety regulations and rules, and they are informed about how to behave. Their safety climate perceptions are therefore positive. When employees know the consequences of not behaving safely, and are aware that the results of behaving safely are going to be positive, they will be more likely to follow the procedures. Also according to the model Zohar's model, behaving safely will lead to a decreased number of accidents in the workplace. The present study confirms the mentioned link between climate perceptions and safety behavior, and indirectly supports the proposed behavior-outcome expectancies. Although the relationship between behavior and accident involvement was not investigated directly, comparison of the employees (in terms of safety-related behavior) who reported accident involvement and those without accident involvement was not significant. Therefore the last part of the model, the link between safety behavior and accident involvement, was not supported by the present study.

Given the role of safety climate in predicting safety-related work behavior, some actions can be taken by management to enhance climate perceptions of employees. Since some of the dimensions of safety climate directly relate to the perceptions about management activities regarding safety, the perceptions of safety climate should guide organizations on how they can handle safety practices in the workplace. For instance, the following actions can be taken to enhance safety climate in the organization: training programs about work safety can be given more emphasis, the procedures regarding safety in the workplace can be communicated and explained clearly to the employees, supervisors can also be trained about company procedures so that thay can closely monitor their subordinates. A more detailed argument about organizational practices supporting/enhancing safety climate is provided in the implications section.

5.3.2 Hypotheses concerning risk taking and sensation seeking tendencies

Risk taking/sensation seeking tendencies predicted protective equipment use after controlling for age, education, and tenure, supporting Hypothesis 4b. This result confirms the previous findings on the relationship between sensation seeking tendencies and risky driving behavior (Iversen & Rundmo, 2002). Further examination of this relationship showed that sensation seeking subscale contributed significantly to the use of protective equipment, meaning that sensation seeking tendencies predicted use of protective equipment. The appraisal of risks by employees was discussed to be an important component of risk taking behaviors, along with being one of the determinants of unsafe work behavior (Seo, 2005). The effects of both risk taking tendencies and sensation seeking of individuals have been studied as one of the contributors to unsafe driving behaviors in traffic psychology (Dahlen & White 2006; Iversen & Rundmo, 2002; Sümer, 2003). Present study investigated the effects of these tendencies on unsafe work behavior drawing from the models that related risky behaviors to industrial accidents (Oltedal et al., 2004). The results suggested that as sensation seeking tendencies of employees increased, their self-reported use of protective equipment

decreased. Demonstration of this relationship may have important implications for organizations. Since sensation seeking tendencies predict unsafe work behavior, selection and training of the employees may be designed to stress the importance of these tendencies. Training programs and supervisory practices can focus on reinforcing safe practices. Implications of these findings for organizations are provided in the implications section.

This study failed to find the same relationship for the other outcome measure. There was no relationship between risk taking/sensation seeking tendencies and self-reported compliance to safety rules. Again this may be due to the restricted range in frequency of compliance with safety rules measure.

The moderating role of risk taking/sensation seeking tendencies was also investigated. Safety climate were hypothesized to predict safety behavior, especially for participants low in sensation seeking. Results failed to support the moderation hypotheses (Hypotheses 5a and 5b) for neither of the outcome variables. That is for the present study, the relationship between safety climate and safety-related behavior did not differ based on employee's risk taking/sensation seeking level. Failure to support the moderating effects of risk taking/sensation seeking tendencies may be due to the methodological problems mentioned earlier. The restricted range of the responses and the use of self-report for all of the outcomes may be partially responsible for the observed results. It is possible that moderating effects could have been observed if objective records were employed as the outcome variables. Alternatively, moderation may simply not exist. That is, risk taking/sensation seeking tendencies may not be a moderator variable for the safety climate-safe behavior relationship.

5.3.3 Hypotheses concerning fatalism views

Hypotheses concerning the prediction of safety-related behavior by fatalism views of employees and the moderating role of fatalism views on safety climate-safety behavior relationship were not supported.

Fatalism views were suggested to relate to the perceived control of individuals over external events or over their environment (Mearns et al., 2004). In line with this, fatalistic individuals are suggested to be passive regarding the external events, remaining indifferent about the risks (Rippl, 2002). Therefore it was hypothesized that participants with fatalistic views would not care behaving safely, because following procedures or complying with rules would not change anything. Contrary to the hypotheses, safety-related behavior did not differ in accordance with the fatalistic views of the participants. Fatalism views did not correlate with accident involvement of the participants either.

The second set of hypotheses concerning fatalism regarded the moderating role of these views (Hypotheses 3a and 3b). In line with the above mentioned characteristics of fatalism views, the relationship between safety-related behavior and safety climate perceptions were expected to be stronger for participants low in fatalism. For fatalistic employees, favorability of organizational strategies regarding safety would not predict safe behavior since their outcome expectancies would be low. Contrary to the hypotheses, the relationship between safety climate and safety-behavior was not moderated by fatalism views. This suggests that the prediction of safety behavior did not differ according to fatalism views of participants for the present study. The above mentioned methodological problems, range restriction in the responses or the use of self-report, may have contributed to failure to support the effects of fatalism.

Another explanation may relate directly to the construct of fatalism. The inability to support the hypotheses regarding fatalism views is not totally inconsistent with the previous studies. Although being conceptualized to be an important dimension regarding risky behaviors, fatalism research lack consistent findings (Aycan et al., 2000; Rippl, 2002). In the present study, additional items were added to the original cultural theory scale to increase culture relevance of the fatalism scale. But this did not change the insignificant results relating fatalism views. Significant relationships relating to fatalism views could have been found with different items to measure the construct.

5.4 Implications of the Findings

The present study addresses an important issue for workplace safety. The importance of perceptions about organization's safety practices, thus safety climate, was confirmed for the present sample. As the view of "human factor" involved in accident causation increases, the terms related to safe behavior in the workplace gain more and more importance (Gravan & O'Brien, 2001). The present study showed that complying with the safety-related rules was associated with the perceived management involvement to safety practices, perceived importance of safety training programs in the organization, perceived effects of safe behavior on employee's promotion, perceived status of safety officer and the committee, and perceived effects of safe behavior on social status of the employee. Given that safe behavior increases as perceptions on these areas become more positive, problematic areas can be diagnosed by measuring the perceptions of safety climate. For example, the effectiveness of the training programs can be closely monitored and employee perceptions regarding safety trainings can be given importance. Training programs can be redesigned to meet the employee needs in safety area. The importance of such training programs can be emphasized by management to increase the perceptions of favorability by employees. For example, in a study done on behavioral safety in organizations, it was found that safety training alone was not adequate and feedback (which included randomly timed safety observations and posting the results on a graph for each department) was found to be an effective and readily accepted motivational strategy (Komaki, Heinzmann, & Lawson, 1980). Although not directly relating to behavioral training programs, the importance of situational characteristics, such as manager support and environmental favorability, were suggested to be important in transfer of learned skills to work (Cheng & Ho, 2001; Colquitt, Le Pine, & Noe, 2000). Drawing from these, training programs can be supplemented by feedback mechanisms that relate directly to the transfer of the behavioral changes stressed in trainings. For example, handouts mentioning the desired behaviors can be provided to employees to remind them of the

trainings. Warning signs which stress safe and unsafe practices, rules, and desired standards can be posted on the boards. Also, posting of departmental safety performance levels on boards can be employed. These practices which remind employees the importance safety behaviors can enhance the perceptions of management involvement in safety programs as well.

In addition to improving safety programs, other dimensions identified through safety climate perceptions can be enhanced too. For example, management practices concerning safety committee/officers can be reconsidered to make them more favorable. Additional benefits can be employed for employees who are involved in safety committee activities. To conclude, the perceptions of safety climate can be used as a snapshot of employee's satisfaction with safety practices of the organization, in a way showing the motivation of employees to comply with the rules.

The importance of safety climate to predict safe behavior can well constitute a guideline for managers and supervisors. As managers become aware of how things should be in an organization for a positive safety climate, or what affects employees' perceptions of safety climate may guide them on how to convey safety procedures in the organization.

Other important finding of this study was the effect of sensation seeking tendencies on safety-related behavior of employees. This finding can have important implications too. Firstly, given that sensation seeking is established as s critical job-related individual differences variable, then along with other job-related attributes (abilities, skills, and knowledge) it could be taken into consideration in the process of selection. Furthermore, findings concerning sensation seeking may have implications for personnel training as well. Training programs for employees with high risk taking tendencies can be designed. Close supervision can be provided to these employees. Additionally, the training programs concerning workplace safety can stress the importance of following safety practices and reinforcing safety-related behavior. The consequences of unsafe behaviors can be addressed as aversive examples to prevent unsafe practices in the workplace.

5.5 Contributions of the Study

Safety climate is a widely studied subject in organizational accident literature, especially after the great disasters like Chernobyl (Glendon & Stanton, 2000). Work-related accidents lead to severe damages in employees' lives, not mentioning the costs to the organizations. Therefore investigating variables to affect safety in the workplace is an important research area. To the author's knowledge, this is the first study to investigate the effects of safety climate on safety-related behaviors in Turkey. Identifying the safety climate structure in Turkey was thought to be a good start for this research area. Therefore the first and the most cited safety climate scale, Safety Climate Scale by Zohar (1980), was selected for the present study.

Despite the methodological drawbacks, such as restricted range, small sample size, and self-reports, this study is believed to have made a good point in identifying the relationship between safety climate and safety behavior. The importance of the safety-related practices in organizations was supported, proving safety climate to be an important construct to maintain in organizations.

The present study also investigated two of the variables assumed to affect safety behavior and safety climate. As a response to the need to investigate individual differences factors potentially moderating the safety climate-safety behavior relationship, the effects of fatalism views and risk taking-sensation seeking tendencies were included in the analyses. Individually explored cultural values have not been widely studied, despite the suggested affects of broad cultural variables on organizational culture (Hofstede, 1980). This study aimed to introduce cultural characteristics to safety climate construct.

The other variable to be investigated in the safety climate context was risk taking-sensation seeking tendencies. Although level of risk in the workplace and risk perceptions were suggested to be components of safety climate (Mohammed, 2002; Zohar, 1980), individual characteristics relating to risky behavior were not studied directly. This study aimed to contribute to the existing literature by

investigating risk taking and sensation seeking tendencies in the organizational safety context.

5.6 Limitations and Directions for Future Research

The major limitation concerning the present study stems from the use of self-report measures as the outcome variables. Although self-reported safety behaviors were suggested to be sound predictors of accident involvement (Mearns et al., 2001; Rundmo, 1994), they are deficient in reflecting actual safety behavior as they are prone to social desirability (Clarke, 2006c). Originally, company records would be obtained to have objective data about accident involvement or near misses of each participant, and these data would then be compared to that individual's self-reported safety climate perceptions. But this technique was not feasible since participation was voluntary and anonymous. Therefore self-reports for both scales and outcome variables were collected despite the possibility of common method variance and social desirability problems.

Using only one item for "compliance with safety rules" variable was a limitation of the study. The problems associated with using this limitation were tried to be eliminated by adding another outcome measure, which was the use of protective equipments. Failure to use the necessary equipment was suggested to explain accidents (Zohar, 2003), therefore employees were asked to report the equipments they used. One problem may arise with this outcome measure though. This measure simply compared the number of equipments an employee used while working with the company procedures regarding equipment use. The calculation of these scores did not take into account the relative importance of the equipments.

One other limitation was the sample size for this study. Although a total of 550 employees were reached and distributed booklets, only a relatively low percentage of these booklets were returned. This may be due to the length of the questionnaires, which took about 20 minutes to complete. A better way to distribute the booklets and collect data would be to make employees fill the

questionnaires during work hours. But the company policies did not allow for administering the questionnaires during the working hours. A better way to administer the questionnaire would be by interviewing each employee. More participation could have been obtained this way.

The presence of moderators to the relationship between safety climate and accidents in the workplace was suggested by researchers (Clarke, 2006a; Zohar, 2003). The present research included two of the possible moderators; fatalism views and risk taking-sensation seeking tendencies. Future, research can investigate these factors by comparing different organizations and making use of objective outcome measures. Other possible moderators, such as employee-supervisor interaction can be examined between different groups in the same organization. This can be useful in identifying the role of supervisory practices and leadership influences, complementary to broad organizational practices.

In addition to organizational moderators, cultural differences can be investigated deeper. Further research concerning fatalism views can employ participants and organizations from different cultures known to differ in fatalism views. The differences in terms of safety practices and safe behavior can be investigated reaching more sound conclusions about cultural influences. Regarding risk taking/sensation seeking tendencies, the effects of training programs designed to make employees more conscious about behaving safely can be studied.

Also, the effects of safety climate perceptions on other organizational outcomes, such as job satisfaction, job involvement and performance can be investigated. Since safety climate is a new area to investigate in Turkey, this research may be a good starting point despite its limitations.

6 REFERENCES

Arnett, J. (1994). Sensation seeking: A new conceptualization and a new scale. *Personality and Individual Differences,* 16, 289-296.

Arnett, J. (1995). The young and the reckless: Adolescent reckless behavior. *Current Directions in Psychological Science*, 4(3), 67-71.

Arnett, J., Offer, D., & Fine, M. A. (1997). Reckless driving in adolescence: "State" and "trait" factors. *Accident Analysis & Prevention*, 29(1), 57-63.

Aycan, Z. & Fikret-Paşa, S. (2003). Career choices, job selection criteria, and leadership preferences in a transitional nation: The case of Turkey. *Journal of Career Development*, 30(2), 129-144.

Aycan, Z., Kanungo, R. N., Mendonca, M., Yu, K., Deller, J., Stahl, G., & Kurshid, A. (2000). Impact of culture on human resource management practices: A 10-country comparison. *Applied Psychology: An International Review*, 49(1), 192-221.

Aycan, Z. & Kanungo, R. N. (2000). The impact of societal culture on organizational culture and human resources practices (in Turkish). In Z. Aycan (Ed.), Management, leadership, and human resource practices in Turkey (pp.25-53). Ankara: Turkish Psychological Association.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology,* 83(2), 234-246.

Cheng, E. W. C., & Ho, D. C. K. (2001). A review of transfer of training studies in the past decade. Personnel Review, 30(1), 102-118.

Clarke, S.G. (2000). Safety culture: Under-specified or overrated? *International Journal of Management Reviews,* 2(1), 65-90.

Clarke, S.G. (2006a). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Health Psychology,* 11(4), 315-327.

Clarke, S.G. (2006b). Contrasting perceptual, attitudinal and dispositional approaches to accident involvement in the workplace. *Safety Science,* 44, 537-550.

Clarke, S.G. (2006c). Safety climate in an automative manufacturing plant: The effects of work environment, job communication, and safety attitudes on accident and safe behaviour. *Personnel Review,* 35(4),413-430.

Clugston, M., Howell, J. P., & Dorfman, P. W. (2000). Does cultural socialization predict multiple bases and foci of commitment? *Journal of Management*, 26(1), 5-30.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, 85, 678-707.

Cooper, M.D. (2000). Towards a model of safety culture. *Safety Science*, 36, 111-136.

Cooper, M.D. (2002). Safety Culture: A model for understanding and quantifying a difficult concept. *Professional Safety*, June 2002, 30-36.

Cooper, M.D. & Philips, R.A. (2004). Exploratory analysis of the safety climate & safety behavior relationship. *Journal of Safety Research*, 35, 497-512.

Cox, S.J. & Cheyne, A.J.T. (2000). Assessing safety culture in offshore environments. *Safety Science,* 34, 111-129.

Dake, K. (1991). Orienting dispositions in the perception of risk. *Journal of Cross-Cultural Psychology*, 22, 61-82.

Dahlen, E.R. & White, R.P. (2006). The Big Five factors, sensation seeking, and driving anger in the prediction of unsafe driving. *Personality & Individual Differences*, 41, 903-915.

Dake, K. (1992). Myths of nature: Culture and the social construction of risk. *Journal of Social Issues*, 48, 21-37.

Dorfman, P. W., & Howell, J. P. (1988). Dimensions of national culture and effective leadership patterns: Hofstede revisited. *Advances in International Comparative Management*, 3, 127-150.

Douglas, M. & Wildavsky, A. (1983). Risk & Culture: An essay on the selection of technological and environmental dangers. London: University of California Press.

Flin, R. Mearns, K., O'connor P. & Bryden, R. (2000). Measuring safety climate: Identifying the common features. *Safety Science*, 34, 177-192.

Glendon, A.I. & Stanton, N.A. (2000). Perspectives on safety culture. *Safety Science*, 34, 193-214.

Glendon, A.I. & Litherland, D.K. (2001). Safety climate factors, group differences and safety behavior in road construction. *Safety Science*, 39, 157-188.

Gravan, T.N. & O'Brien, F. (2001). An investigation into the relationship between safety climate and safety behaviors in Irish organisations. *Irish Journal of Management*, 22, 141-170.

Griffin, M.A. & Neal, A. (2000). Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge and motivation. *Journal of Occupational Health Psychology*, 5(3), 347-358.

Guldenmund, F.W. (2000). The nature of safety culture: A review of theory and research. *Safety Science*, 34, 215-257.

Hayes, B.E. Per&er, J. Smecko, T. & Trask, J. (1998). Measuring perceptions of workplace safety: Development and validation of the Work Safety Scale. *Journal of Safety Research*, 29(3), 145-161.

Harvey, J., Erdos, G., Bolam, H., Cox, M.A.A., Kennedy, J.N.P. & Gregory, D.T. (2002). An analysis of safety culture attitudes in a highly regulated environment. *Work & Stress*, 16(1), 18-36.

Hofmann, D.A. & Mark, B. (2006). An investigation of the relationship between safety climate and medication errors as well as other safety outcomes. *Personnel Psychology*, 59, 847-869.

Hofstede, G. (1980). Culture's consequences: International differences in work-related values. Beverly Hills, CA: Sage.

Hofstede, G. (1985). The interaction between national and organizational value systems. Journal of management Studies, 22(4), 347-357.

Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions & organizations across nations. California: Sage Publications.

Huang, Y-H., Ho, M., Smith, G. S., & Chen, P. Y. (2006). Safety climate and self-reported injury: Assessing the mediating role of employee safety control. *Accident Analysis and Prevention*, 38, 425-433.

Iversen, H., & Rundmo, T. (2002). Personality, risky driving and accident involvement among norwegian drivers. Personality and Individual Differences, 33, 1251-1263.

Kasapoğlu, A., & Ecevit, M. (2003). Impact of the 1999 Marmara earthquake in Turkey. *Population and Environment*, 24(4), 339-358.

Klein, K.J.Dansereau, F. & Hall, R.J. (1994). Level issues in theory development, data collection, and analysis. *Academy of Management Review*, 19(2), 195-229.

Komaki, J., Heinzmann, A. T., & Lawson, L. (1980). Effect of training and feedback: Component analysis of a behavioral safety program. Journal of Applied Psychology, 65(3), 261-270.

Kuzgun, Y. (2000). Meslek Danışmanlığı: Kuramlar ve Uygulamalar. Ankara: Nobel Yayın Dağıtım.

Lawton, R. & Parker, D. (1998). Individual differences in accident liability: A review and integrative approach. Human Factors, 40(4), 655-671.

Mars, G. (1996). Human factor failure and the comparative structure of jobs. *Journal of Managerial Psychology*, 11(3), 4-11.

Mearns, K. Flin, R. Gordon, R. & Fleming, M. (2001). Human and organizational factors in offshore safety. *Work & Stress*, 15(2), 144-160.

Mearns, K., Rundmo, T., Flin, R., Gordon, R., & Fleming, M. (2004). Evaluation of psychosocial and organizational factors in offshore safety: a comparative study. *Journal of Risk Research*, 7(5), 545-561.

Mearns, K. Whitaker, S.M. & Flin, R. (2001). Benchmarking safety climate in hazardous environments: A longitudnal, interorganizational approach. *Risk Analysis*, 21(4), 771-786.

Mohammed, S. (2002). Safety climate in construction site environments. *Journal of Construction Engineering & Management*, September/October 2002, 375-384.

Mueller, L., DaSilva, N., Townsend, J., & Tetrick, L. (1999). *An empirical evaluation of competing safety climate measurement models.* Paper presented at the 1999 annual meeting of the Society for Industrial and Organizational Psychology, Atlanta, Georgia.

Mullen, J. (2004). Investigating factors that influence individual safety behavior at work. *Journal of Safety Research*, 35, 275-285.

Neal, A., Griffin, M.A. & Hart, P.M. (2000). The impact of organizational climate on safety climate and individual behavior. *Safety Science*, 34, 99-109.

Neal, A. & Griffin, M.A. (2002). Safety climate and safety behavior. *Australian Journal of Management*, 27, 67-74.

Neal, A. & Griffin, M.A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accidents at the individual and group levels. *Journal of Applied Psychology*, 91(4), 946-953.

Oltedal, S., Moen, B., Klempe, H. & Rundmo, T. (2001). Explaining Risk Perception. An evaluation of cultural theory. Norwegian Research Council's RISIT Report. Retrieved from http://www.svt.ntnu.no/psy/Torbjorn.Rundmo/Cultural_theory.pdf

Parker, D., Lawrie, M. & Hudson, P. (2006). A framework for understanding the development of safety culture. *Safety Science*, 44(6), 551-562.

Probst, T.M. (2004). Safety and insecurity: Exploring the moderating effect of organizational safety climate. *Journal of Occupational Health Psychology*, 9(1), 1-10.

Rippl, S. (2002). Cultural theory and risk perception: A proposal or a better measurement. *Journal of Risk Research,* 5(2), 147-165.

Rohrmann, B. & Chen, H. (1999). Risk perception in China and Australia: An exploratory crosscultural study. *Journal of Risk Perception*, 2(3), 219-241.

Rundmo, T. (1994a). Associations between organizational factors and safety and contingency measures on offshore petroleum platforms. *Scandinavian Journal of Work, Environment, Health*, 20, 122-127.

Rundmo, T. (1994b). Associations between safety and contingency measures and occupational accidents on offshore petroleum platforms. *Scandinavian Journal of Work, Environment, Health*, 20, 128-131.

Seo, D.C., Torabi, M.R., Blair, E.H. & Ellis, N.T. (2004). A cross-validation of safety climate scale using confirmatory factor analytic approach. *Journal of Safety Research*, 35, 427-445.

Seo, D.C. (2005). An explicative model of unsafe work behavior. *Safety Science*, 43, 187-211.

Silva, S., Lima, M.L. & Baptista, C. (2004). OSCI: An organizational and safety climate inventory. *Safety Science*, 42, 205-220.

Sitkin, S.B. & Pablo, A.L. (1991). Reconceptualizing the determinants of risk behavior. *Academy of Management Review,* 17(1), 9-38.

Siu, O. Philips, D.R. & Leungi T. (2004). Safety climate and safety performance among construction workers in Hong Kong: The role of psychological strains as mediators. *Accident Analysis & Prevention*, 36, 359-366.

Sjöberg, L. (2003). Distal factors in risk perception. *Journal of Risk Research*, 6(3), 187-211.

Smith, G.S. Huang, Y.H. Ho, M. & Chen, P.Y. (2006). The relationship between safety climate and injury rates across industries: The need to adjust for injury hazards. *Accident Analysis & Prevention*, 38, 556-562.

Sümer, N. & Özkan, T. (2002). Sürücü davranşıları, becerileri, bazı kişilik özellikleri ve psikolojik belirtilerin trafik kazalarındaki rolleri. *Türk Psikoloji Dergisi*, 17(50), 1-25.

Sümer, N. (2003). Personality and behavioral predictors of traffic accidents: Testing a contextual mediated model. *Accident Analysis & Prevention*, 35, 949-964.

Tabachnick, B. G., & Fidel, L. S. (2001). Using multivariate statistics. Needham Heights: Allyn & Bacon.

Tansey, J. & O'Riordan, T. (1999). Cultural theory and risk: A review. *Health, Risk & Society*, 1(1), 71-90.

Tomas, J.M. Melia, J.L. & Oliver, A. (1999). A cross-validation of a structural equation model of accidents: Organizational and psychological variables as predictors of work safety. *Work & Stress*, 13(1), 49-58.

Türküm, A. S. (2006). Are fatalism and optimism an obstacle to developing self-protecting bhaviors? Study with a Turkish Sample. *Social Behavior and Personality*, 34(1), 51-58.

Van Oudenhoven, J.P. (2001). Do organizations reflect national cultures? A 10-nation study. *International Journal of Intercultural Relations*, 25, 89-107.

Wiegmann, D.A., Zhang, H., von Thaden, T.L., Sharma, G. & Gibbons, A.M. (2004). Safety culture: An integrative review. *The International Journal of Aviation Psychology*, 14(2), 117-134.

Wildavsky, A. & Dake, K. (1990). Theories of risk perception: Who fears what & why? *Daedalus*, 119(4), 41-60.

Williamson, A.M., Feyer, A.M, Cairns, D. & Biancotti, D. (1997). The development of a measure of safety climate:The role of safety perceptions and attitudes. *Safety Science*, 25(1-3), 15-27.

Wills, A.R. Watson, B. & Biggs, H.C. (2006). Comparing safety climate factors as predictors of work-related driving behavior. *Journal of Safety Research*, 37, 375-383.

Yan, J. & Hunt, J.G. (2005). A cross cultural perspective on perceived leadership. *International Journal of Cross Cultural Management*, 5(1), 49-66.

Yule, S. (2003). *Senior management influence on safety performance in the UK and US energy sectors*. Doctoral Thesis, University of Aberdeen, Scotland, UK.

Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology,* 65, 96-102.

Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology*, 85(4), 587-596.

Zohar, D. (2003). Safety climate: Conceptual and measurement issues. In Quick, J. C.,Tetrick, L. E. (Eds.), Handbook of Occupational Health Psychology (pp. 123-147). Washington, DC: American Psychological Association Books.

Zohar, D. (2005). A multilevel model of safety climate: Cross-level relationships between organization and group-level climates. *Journal of Applied Psychology*, 85(4), 587-596.

7 APPENDICES

APPENDIX A

SAMPLE CHARACTERISTICS

Table A Sample Characteristics

Variable	**Frequency** (N = 157)	**%**
Age		
Below 20	15	10
21-30	72	48
31-40	49	32.7
41-51	14	9.4
	Mean = 29.79 SD = 7.31	
Education		
Primary	11	7.3
Secondary	13	8.7
High School	115	76.7
Vocational School (2-year)	10	6.7
University (4-year)	1	0.7
Tenure in the company		
0-1 year	24	16
2-5 years	63	42
6-10 years	29	19.3
11-15 years	23	15.3
16-20 years	9	6
More than 21 years	2	1.3
	Mean = 6.41 SD = 5.21	
Tenure in general		
0-1 year	20	13.3
2-5 years	53	35.3
6-10 years	31	20.7
11-15 years	20	13.3
16-20 years	19	12.7
More than 21 years	7	4.7
	Mean = 8.06 SD = 6.65	

APPENDIX B

QUESTIONNAIRE INFORMATION FORM

İŞYERİ GÜVENLİĞİ ALGISI

ANKETİ

ODTÜ-Psikoloji Bölümü
2006

AÇIKLAMA

Bir yüksek lisans tez çalışması olan bu araştırmanın amacı, çalışanların işyerindeki güvenlik ve ilgili konularda ne düşündüklerini incelemek, çalışma ortamındaki emniyet ve güvenliğe yönelik genel yaklaşım ve tutumlarını değerlendirmektir. Bu kitapçıktaki farklı bölümlerde, işiniz, işyeriniz ve/veya genel tutumlarınız ile ilgili maddeler yer almaktadır. Her bir madde için sizi en iyi yansıtan derecelendirmeyi yapmanız ve uygun olan rakamları daire içine almanız istenmektedir.

Tamamıyla gönüllülük esasına dayalı olarak yapılan bu çalışmada elde edilen veriler sadece araştırma amaçlı kullanılacak ve katılımcıların kimliklerini ortaya çıkaracak biçimde hiçbir kişi ve kurumla paylaşılmayacaktır.

Değerlendirmenin sağlıklı yapılabilmesi için tüm maddelerin cevaplandırılması gerekmektedir. Lütfen, tüm maddeleri dikkatlice okuyunuz ve boş bırakmayınız. Anket süresi yaklaşık 30 dakikadır. **Anketler araştırmacı tarafından toplanacak ve anketi uygulayan kişi dışında hiç kimse tarafından incelenemeyecektir.**

Çalışma hakkında daha çok bilgi edinmek ya da sonuçları hakkında bilgilendirilmek için aşağıdaki telefon ve e-posta adresleri aracılığıyla ilgili kişilere ulaşabilirsiniz.

Katkılarınız için şimdiden teşekkür ederiz.

Araştırmacı: Harika Yücebilgiç
Tel: (0532) 720 7588
E-posta: harika.yucebilgic@gmail.com

Danışman: Doç. Dr. H. Canan Sümer
Tel: (0312) 210 3132
E-posta: hcanan@metu.edu.tr

APPENDIX C

SAFETY CLIMATE SCALE

by

Zohar (1980)

BÖLÜM I

Aşağıda, işyerindeki uygulamaları ve bu uygulamalara yönelik düşünceleri anlatan cümleler yer almaktadır. Lütfen her bir maddede ifade edilen görüşün halihazırda çalıştığınız şirket için ne kadar geçerli olduğunu beş basamaklı ölçeği kullanarak belirtiniz. Her bir maddeye katılma derecenizi en iyi yansıtan rakamı daire içine alınız.

Eğer, maddede ifade edilen görüşler işyeriniz için geçerli değilse "Uygun Değil" seçeneğine karşılık gelen 6 rakamını daire içine alınız. **Lütfen hiçbir maddeyi boş bırakmayınız.**

1	2	3	4	5		6
Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum		Uygun Değil

1. İş yeri güvenliğinden sorumlu komitenin/birimin bir üyesi bir çalışana yaklaşıp onu ikaz ettiğinde, bu çalışanın davranışlarını gerçekten etkiler.	1	2	3	4	5		6
2. Herhangi bir yaralanma ile sonuçlanmasa bile, güvenlik kurallarını ihlal eden çalışanlar, çalışma arkadaşlarını kızdırırlar.	1	2	3	4	5		6
3. İşimin risk seviyesi beni çok rahatsız eder.	1	2	3	4	5		6
4. İşyeri güvenlik kurallarına uyan çalışanların terfi etme şansı, uymayan çalışanlara göre daha yüksektir.	1	2	3	4	5		6
5. Ben genellikle iş güvenliği ile ilgili tehlikeler konusunda amirimi bilgilendiririm çünkü yönetim bunu takdir eder ve düzeltmeye çalışır.	1	2	3	4	5		6
6. Müdürümüz bu fabrikadaki güvenlik konuları hakkında iyi bilgilendirilmiştir.	1	2	3	4	5		6
7. İş yeri güvenliği ile ilgili eğitim programlarına yapılan parasal yatırım ve gayret, değerli bir yatırımdır çünkü çalışanların işteki performanslarını artırır.	1	2	3	4	5		6
8. Bizim bölümdeki en iyi kişiler güvenlik/emniyet konusuna dikkat ederler ve diğer çalışanların da kurallara uygun davranmasını isterler.	1	2	3	4	5		6
9. İkramiye sistemi ile çalışmanın kazalarla hiç ilgisi yoktur. Basitçe iş yeri güvenlik kurallarına uyan ve uymayan çalışanlar vardır.	1	2	3	4	5		6
10. İş güvenliğinden/emniyetinden sorumlu kişinin fabrikamızda olan bitenler üzerinde çok etkisi vardır.	1	2	3	4	5		6

1	2	3	4	5		6

Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum		Uygun Değil

11. Fabrika yönetimi, bu fabrikadaki iş güvenliği seviyesini artırmak için parasal yatırım yapmaya ve bu konuda çaba sarf etmeye isteklidir.	1	2	3	4	5		6
12. Aldığım iş güvenliği eğitimimin, hem işimde hem de evde bana gerçekten yardımı dokunuyor.	1	2	3	4	5		6
13. İş başında dikkatsiz davranışlar, amirlerin çalışan hakkında olumsuz değerlendirme yapmaları ile sonuçlanır.	1	2	3	4	5		6
14. Yönetim iş yeri güvenliği ile ilgili problemler hakkında bilgi sahibidir ve bu problemleri çözmek için hemen harekete geçer.	1	2	3	4	5		6
15. Bir iş kazasına karışma ihtimalim oldukça yüksektir.	1	2	3	4	5		6
16. Prim sistemi ile çalıştığımdan, işimi o kadar hızlı yapıyorum ki güvenliğimle ilgili hususlara dikkat edecek zamanım olmuyor.	1	2	3	4	5		6
17. Bizim fabrikanın iş yeri güvenliğinden sorumlu komitesinin, burada olan her şey üzerinde olumlu etkisi vardır.	1	2	3	4	5		6
18. Bu fabrikadaki müdürler risk düzeyini dikkate alır ve riski mümkün olduğu kadar azaltmaya çalışırlar.	1	2	3	4	5		6
19. Bana daha fazla itibar sağlayacağı için iş yeri güvenliğinden sorumlu komitede üye olmayı isterdim.	1	2	3	4	5		6
20. Bir çalışan güvenlik kuralını ihlal ettiğinde, herhangi bir yaralanma olmasa bile, bu amirinin onun hakkındaki değerlendirmesinde aksi etki yapar.	1	2	3	4	5		6
21. Yöneticilerimiz, görünen herhangi bir hasar ile sonuçlanmasa bile, iş yeri güvenliği kuralları ihlallerini ciddi olarak gözden geçirirler.	1	2	3	4	5		6
22. İş kazasına uğramamın an meselesi olduğuna eminim.	1	2	3	4	5		6
23. İş yeri güvenliğinden sorumlu kişilerin bir çalışan hakkında olumsuz düşünmesi, amirinin o çalışan hakkındaki değerlendirmesini etkiler.	1	2	3	4	5		6
24. Yönetim toplantılarında iş yeri güvenliği konularına yüksek öncelik verildiğini düşünüyorum.	1	2	3	4	5		6
25. Güvenlik eğitim programlarını organize etmek yapılan yatırımlar, şirkete gerçekten geri döner.	1	2	3	4	5		6
26. İşimdeki güvenlik problemleri çok ciddidir.	1	2	3	4	5		6
27. Yönetici, tehlikeli bir durum olduğunu fark ettiğinde, onun kontrol altına alınması için derhal teşebbüse geçer.	1	2	3	4	5		6
28. İşlerini emniyet kurallarına uyarak yapan çalışanlar, iş yeri emniyetini vurgulamaya ve diğerlerinin de buna değer vermelerini sağlamaya çalışırlar.	1	2	3	4	5		6

1	2	3	4	5		6
Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum		Uygun Değil

29. İş güvenliği ile ilgili eğitim kursu almış olan çalışanlar, bu kursu almayanlardan daha az kazaya karışırlar.	1	2	3	4	5		6
30. Çalışanların terfi etmelerinde kullanılan ana faktörlerden birisi, bir iş kazasına karışıp karışmadıklarıdır.	1	2	3	4	5		6
31. Şahsi koruma teçhizatı kullanan çalışanlar, korkak olarak değil, daha çok iyi ve düzenli çalışanlar olarak kabul edilirler.	1	2	3	4	5		6
32. Bölüm yöneticileri bir kazaya karışanları genellikle hatırlarlar ve bu kararlarında konuyu dikkate alırlar.	1	2	3	4	5		6
33. İş güvenliği eğitim kursu alan çalışanların, almayanlara göre daha fazla yükselme şansları vardır.	1	2	3	4	5		6
34. Diğer fabrikalar ile kıyaslandığında, bu fabrikanın daha tehlikeli olduğunu düşünüyorum.	1	2	3	4	5		6
35. Bir iş kazasına karışmış olmak çalışanın itibarı üzerinde kötü etki yapar.	1	2	3	4	5		6
36. Fabrika yönetimi, bu fabrikadaki iş güvenliği seviyesini artırmak için yeni fikirleri uygulamaya her zaman isteklidir.	1	2	3	4	5		6
37. Pirim sisteminin olmadığı durumlarda işçiler daha dikkatli çalışabilirler.	1	2	3	4	5		6
38. Bir çalışan, çalışma ortamında tehlikeli bir durumla karşılaştığında, onu iş güvenliğinden sorumlu olan kişiye rapor eder.	1	2	3	4	5		6
39. Güvenlik eğitim kursu almış olan işçiler, almayanlardan daha iyi iş yaparlar.	1	2	3	4	5		6
40. İş güvenliğinden/emniyetinden sorumlu olan kişi bir güvenlik kuralı yayımladığında, onu dikkate alır ve ona göre davranırız.	1	2	3	4	5		6

APPENDIX D

CULTURAL BIAS QUESTIONNAIRE

by

Rippl (2002)

BÖLÜM II

Aşağıda yaşamın çeşitli alanlarına ilişkin ifadeler sunulmuştur Lütfen her bir maddede ifade edilen görüşe ne kadar katıldığınızı belirtiniz. Değerlendirmenizi yaparken sunulan beş basamaklı ölçeği kullanınız. İfade edilen cümleye katılma derecenizi en iyi belirten rakamı daire içine alınız. **Lütfen hiçbir maddeyi boş bırakmayınız.**

1	2	3	4	5
Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum

1. Sivil toplum hareketlerine katılarak değiştirebileceğim bir şey olduğuna inanmıyorum.	1	2	3	4	5
2. Yaşamımızdaki kısıtlamaları/kuralları, hoşumuza gitse de gitmese de kabul etmeliyiz.	1	2	3	4	5
3. Geleneklerimizi ve kültürel mirasımızı korumak önemlidir.	1	2	3	4	5
4. Polisin, bir suçu araştırırken özel telefon konuşmalarını dinleme hakkı olmalıdır.	1	2	3	4	5
5. Düzen genelde rağbet görmez ama önemli bir fazilettir.	1	2	3	4	5
6. Ne yapılması gerektiği konusunda amirlerimden açık talimatlar almayı tercih ederim.	1	2	3	4	5
7. Sağlam aile, işleyen toplumun temelidir.	1	2	3	4	5
8. Toplumumuz için önemli sorulara uzmanlar değil de halk karar vermelidir.	1	2	3	4	5
9. Bir ailede, yetişkinler ve çocuklar kararlarda aynı etkiye sahip olmalıdır.	1	2	3	4	5
10. İşte, önemli karar durumlarında herkesin fikrinin alınması benim için önemlidir.	1	2	3	4	5
11. Şirket ve müesseseler, herkesin önemli kararları etkileyebileceği şekilde düzenlenmelidirler.	1	2	3	4	5
12. Suçu önlemek için kişisel özgürlükler **kısıtlanmamalıdır**.	1	2	3	4	5
13. Hiçbir çeşit kulübe ya da sosyal oluşuma **katılmam**.	1	2	3	4	5
14. İdealimdeki iş, bağımsız bir iştir.	1	2	3	4	5
15. Problemlerim olduğunda, onları kendim çözmeye çalışırım.	1	2	3	4	5
16. Kendi başıma çözüm bulabileceğim görevleri tercih ederim.	1	2	3	4	5
17. Kişi kimseye güvenmezse daha iyi olur.	1	2	3	4	5
18. Başka insanlar için bir şeyler yapmanın hiçbir yararı yoktur, hatta bu uzun vadede sorun yaratır.	1	2	3	4	5
19. Bir kişi ne kadar çabalarsa çabalasın, alın yazısını **değiştiremez**.	1	2	3	4	5

1	2	3	4	5
Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum

20.Ne kadar çabalarsa çabalasın, herkes kendi kaderini yaşar.	1	2	3	4	5
21.Gelecek, ciddi planlar yapamayacak kadar belirsizdir.	1	2	3	4	5
22. Bana göre, kime oy verirsen ver, her şey aşağı yukarı şekilde devem eder.	1	2	3	4	5
23. Bireysel çaba ile bir şeylerin değiştirilmesi mümkün değildir.	1	2	3	4	5
24. Yaşanan olumsuzluklar karşısında, kişinin kabul etmekten başka yapabileceği bir şey yoktur.	1	2	3	4	5

APPENDIX E

CULTURAL SCALES

by

Dorfman and Howell (1988)

BÖLÜM III

Aşağıda yaşamın çeşitli alanlarına ilişkin ifadeler sunulmuştur Lütfen her bir maddede ifade edilen görüşe ne kadar katıldığınızı belirtiniz.

Değerlendirmenizi yaparken sunulan beş basamaklı ölçeği kullanınız. İfade edilen cümleye katılma derecenizi en iyi belirten rakamı daire içine alınız. **Lütfen hiçbir maddeyi boş bırakmayınız.**

1	2	3	4	5
Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum

1. Grup iyiliği bireysel çıkarlardan daha önemlidir.	1	2	3	4	5
2. Grup başarısı kişisel başarıdan daha önemlidir.	1	2	3	4	5
3. İşyerindeki grubunuzun üyeleri tarafından kabul edilmek çok önemlidir.	1	2	3	4	5
4. Çalışanlar, ancak grup refahını düşündükten sonra, kişisel amaçlarını takip etmelidir.	1	2	3	4	5
5. Kişisel amaçlar zarar görse bile, yöneticiler, gruba bağlılığı teşvik etmelidir.	1	2	3	4	5
6. Kişilerden grup başarısına katkıda bulunmak için, kendi amaçlarından vazgeçmeleri beklenebilir.	1	2	3	4	5
7. Müdürler çoğu kararlarını çalışanlarına danışmadan vermelidir.	1	2	3	4	5
8. Müdürlerin çalışanlarıyla ilgilenirken otorite ve güç kullanması sıklıkla gereklidir.	1	2	3	4	5
9. Müdürler çalışanlarının fikrini nadiren sormalıdır.	1	2	3	4	5
10. Yöneticiler, çalışanlarıyla iş dışında sosyal ilişki kurmaktan kaçınmalıdır.	1	2	3	4	5
11. Çalışanlar, yönetim kararlarına karşı çıkmamalıdır.	1	2	3	4	5
12. Yöneticiler, çalışanlarına önemli işleri devretmemelidir.	1	2	3	4	5
13. İş gerekleri ve emirlerin ayrıntılı olarak belirtilmesi önemlidir, böylece çalışanlar kendilerinden ne beklendiğini her zaman bilirler.	1	2	3	4	5
14. Müdürler, çalışanların talimat ve prosedürleri sıkı sıkıya takip etmelerini bekler.	1	2	3	4	5

1	2	3	4	5
Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum

15. Kural ve düzenlemeler, çalışanları organizasyonun beklentileri hakkında bilgilendirdiği için önemlidir.	1	2	3	4	5
16. Standard işlem prosedürleri, işte çalışanlara yardımcı olurlar.	1	2	3	4	5
17. Çalışanlar için yönergeler önemlidir.	1	2	3	4	5

APPENDIX F

RISK TAKING/SENSATION SEEKING SCALE

by

Sümer and Özkan (2002)

BÖLÜM IV

Aşağıda yaşamın çeşitli alanlarına ilişkin ifadeler sunulmuştur. Lütfen aşağıdaki ifadelerin, sizin için ne kadar doğru ya da yanlış olduğunu, aşağıda verilen dört basamaklı ölçeğe göre belirtiniz.

Değerlendirmenizi yaparken sunulan dört basamaklı ölçeği kullanınız. İfade edilen cümlenin doğruluk derecesini en iyi belirten rakamı daire içine alınız. **Lütfen hiçbir maddeyi boş bırakmayınız.**

1	2	3	4
Yanlış	Biraz yanlış	Biraz doğru	Doğru

1. Yabancı ülkeden biriyle evlenmek ilgimi çekerdi	1	2	3	4
2. Çok cazip bir iş teklifi alsam bile, bilmediğim bir yere taşınmak istemem	1	2	3	4
3. Uzun bir kuyrukta beklemek zorunda kaldığımda, genellikle sabırlıyımdır	1	2	3	4
4. Yola ya tatile planlı bir şekilde çıkmak yerine, orada aklıma estiği gibi davranmak isterim	1	2	3	4
5. Korku ve gerilim filmlerinden hoşlanmam	1	2	3	4
6. Bilmediğim bir ilacı asla kullanmam	1	2	3	4
7. Lunaparka gidecek olsam en hızlı araçlara binmeye bayılırdım	1	2	3	4
8. Çok uzak ve hiç bilinmeyen yerlere seyahat etmeyi isterdim	1	2	3	4
9. Risk alma eğilimim vardır	1	2	3	4
10. Yüksek bir yerden ya da uçurumdan aşağıya bakmak hoşuma gider	1	2	3	4
11. İçinde patlama ve çarpışma sahneleri bol olan macera filmlerinden hoşlanırım	1	2	3	4
12. Geleceği düşünüp para biriktirmek yerine, günümü gün ederek yaşamayı tercih ederim	1	2	3	4
13. Çalışırken radyo ya da televizyonun hep açık olmasını isterim	1	2	3	4
14. Yakınımda bir kavga, yangım ya da kaza olduğunda hemen gidip bakmak isterim	1	2	3	4
15. Yeni insanlarla tanışmaktan hoşlanırım	1	2	3	4
16. Ani kararlar alırım	1	2	3	4

1	2	3	4
Yanlış	Biraz yanlış	Biraz doğru	Doğru

17. Eğer bir gezegene ya da aya bedava gitmek mümkün olsaydı, ilk ben gitmek isterdim	1	2	3	4
18. Ev eşyalarının yerini sürekli olarak değiştirmekten hoşlanırım	1	2	3	4
19. Yeni yiyecekleri denemek yerine bildiğim yiyecekleri tercih ederim	1	2	3	4
20. Az param olduğunda bile şans ve talih oyunlarını oynamak isterim	1	2	3	4
21. Heyecanlı işlere bayılırım	1	2	3	4
22. Bilinmeyen bir yeri keşfeden ilk kişi olmayı çok isterdim	1	2	3	4
23. Tehlikeli bile olsa yeni şeyler denemek isterim	1	2	3	4
24. Çok yüksek yerlere tırmanmaktan hoşlanırım	1	2	3	4
25. Yüksek sesle müzik dinlemekten hoşlanırım	1	2	3	4

APPENDIX G

OUTCOME MEASURES

BÖLÜM V

A. Aşağıda **ÇOŞKUNÖZ Metal Form ve Makine End. A.Ş.** bünyesinde kullanılan kişisel koruyucu donanım listesi verilmiştir. Lütfen bu koruyucu donanımlar arasından **işinizi yaparken kullandıklarınızı,** donanımın yanına işaret (X) koyarak belirtiniz.

Ayrıca, kullandığınız donanımların **her birini ne sıklıkla kullandığınızı**, dört basamak üzerinden belirtiniz. Kullanma sıklığı değerlendirmenizi, **"Evet ise, kullanma sıklığı"** kısmına, aşağıdaki ölçeğe göre uygun rakamı daire içine alarak yapınız.

Nadiren	Ara sıra	Çoğunlukla	Her zaman
1	2	3	4

1. Çelik burunlu güvenlik ayakkabısı				
Evet ise, kullanma sıklığı	1	2	3	4
2. Kauçuk tabanlı elektrikçi emniyet ayakkabısı				
Evet ise, kullanma sıklığı	1	2	3	4
3. Kısa çizme				
Evet ise, kullanma sıklığı	1	2	3	4
4. Kalıpçı şapkası				
Evet ise, kullanma sıklığı	1	2	3	4
5. Coşkunöz baskılı lacivert şapka				
Evet ise, kullanma sıklığı	1	2	3	4
6. Baret (Bourton Bump Cap)				
Evet ise, kullanma sıklığı	1	2	3	4
7. Baret				
Evet ise, kullanma sıklığı	1	2	3	4
8. Kumlama tulumu				
Evet ise, kullanma sıklığı	1	2	3	4
9. Bakımcı tulumu				
Evet ise, kullanma sıklığı	1	2	3	4
10. Yağmurluk				
Evet ise, kullanma sıklığı	1	2	3	4
11. Deri önlük				
Evet ise, kullanma sıklığı	1	2	3	4
12. Kaynakçı önlüğü				
Evet ise, kullanma sıklığı	1	2	3	4
13. Deri dizlik				
Evet ise, kullanma sıklığı	1	2	3	4
14. Bez eldiven örme				
Evet ise, kullanma sıklığı	1	2	3	4

Nadiren	Ara sıra	Çoğunlukla	Her zaman
1	2	3	4

15. Muayene eldiveni					
Evet ise, kullanma sıklığı	1	2	3	4	
16. Deri eldiven					
Evet ise, kullanma sıklığı	1	2	3	4	
17. Kaynakçı eldiveni					
Evet ise, kullanma sıklığı	1	2	3	4	
18. Novatril 34-196					
Evet ise, kullanma sıklığı	1	2	3	4	
19. VEO 1001 LPKB					
Evet ise, kullanma sıklığı	1	2	3	4	
20. ANSELL Hylite-47-400					
Evet ise, kullanma sıklığı	1	2	3	4	
21. Rötüş için bez eldiven					
Evet ise, kullanma sıklığı	1	2	3	4	
22. Eldiven-Nitri solve					
Evet ise, kullanma sıklığı	1	2	3	4	
23. Yüksek gerilim eldiveni					
Evet ise, kullanma sıklığı	1	2	3	4	
24. Steril cerrahi eldiven					
Evet ise, kullanma sıklığı	1	2	3	4	
25. İnce siyah deri kolluk					
Evet ise, kullanma sıklığı	1	2	3	4	
26. Bez kolluk					
Evet ise, kullanma sıklığı	1	2	3	4	
27.Koruyucu bileklik					
Evet ise, kullanma sıklığı	1	2	3	4	
28. Emniyet kemeri					
Evet ise, kullanma sıklığı	1	2	3	4	
29. Polikarbonat camlı yüz siperliği					
Evet ise, kullanma sıklığı	1	2	3	4	
30. Koruyucu gözlük (SE 2172)					
Evet ise, kullanma sıklığı	1	2	3	4	
31.Koruyucu gözlük (3M 2720)					
Evet ise, kullanma sıklığı	1	2	3	4	
32. Kaynak maskesi düz					
Evet ise, kullanma sıklığı	1	2	3	4	
33. Kaynak maskesi siperlikli					
Evet ise, kullanma sıklığı	1	2	3	4	
34. Athermal 13 (Maske camı)					
Evet ise, kullanma sıklığı	1	2	3	4	

Nadiren	Ara sıra	Çoğunlukla	Her zaman
1	2	3	4

35. Goggles gözlük				
Evet ise, kullanma sıklığı	1	2	3	4
36. Kesici gözlük				
Evet ise, kullanma sıklığı	1	2	3	4
37. Elektro-optik filtreli yüz koruyucu				
Evet ise, kullanma sıklığı	1	2	3	4
38. Gürültü önleyici kulak tıkacı				
Evet ise, kullanma sıklığı	1	2	3	4
39. Moldex 7725 kulak tıkacı				
Evet ise, kullanma sıklığı	1	2	3	4
40. Maşon kulaklık				
Evet ise, kullanma sıklığı	1	2	3	4
41. Kulak pedi				
Evet ise, kullanma sıklığı	1	2	3	4
42. Yedek yastık				
Evet ise, kullanma sıklığı	1	2	3	4
43. 3M 6200 yarım yüz maskesi (gaz maskesi)				
Evet ise, kullanma sıklığı	1	2	3	4
44. 3 M 5935 P3 filtre (Pet)				
Evet ise, kullanma sıklığı	1	2	3	4
45. 3M 6057 ABE1 filtre				
Evet ise, kullanma sıklığı	1	2	3	4
46. 3M 5925 P2 Filtre				
Evet ise, kullanma sıklığı	1	2	3	4
47. 3M 501 filtre tutucu kapak				
Evet ise, kullanma sıklığı	1	2	3	4
48. 3M 9925 FFP2 Ventilli kaynak dumanı maskesi				
Evet ise, kullanma sıklığı	1	2	3	4
49. 3M 6200 no.lu yarım yüz maskesi (gövde)				
Evet ise, kullanma sıklığı	1	2	3	4
50. 3M 6059 ABC filtre (yarım yüz maske filtresi)				
Evet ise, kullanma sıklığı	1	2	3	4
51. 3M 9310 FFP1 toz maskesi				
Evet ise, kullanma sıklığı	1	2	3	4
52. Kumlama maskesi				
Evet ise, kullanma sıklığı	1	2	3	4

B. İşinizi yaparken, sizin daha güvenli çalışmanızı sağlayan genel güvenlik kurallarına ne sıklıkla uyduğunuzu belirtiniz. Değerlendirmenizi yaparken aşağıda sunulan dört basamaklı ölçeği kullanınız.

Nadiren	Ara sıra	Çoğunlukla	Her zaman
1	2	3	4

Güvenlik kurallarına uyma sıklığı	1	2	3	4

APPENDIX H

DEMOGRAPHICS SCALE

BÖLÜM VI

Aşağıda analizler için önemli olduğu düşünülen kişisel bilgiler istenmektedir. **Bu bilgiler sadece araştırma amaçlı kullanılacak ve kişilerin kimliklerini ortaya çıkaracak şekilde kesinlikle kullanılmayacaktır**. Katılımınız için şimdiden teşekkür ederiz

Yaşınız: ☐

Cinsiyetiniz: ☐

Eğitim durumunuzu yansıtan uygun seçeneği işaretleyiniz:

İlkokul ☐
Ortaokul ☐
Lise ☐
İki yıllık yüksek okul ☐
Üniversite (4 yıllık fakülte) ☐

Medeni durumunuzu yansıtan kutucuğu işaretleyiniz:

Evli ☐ Bekar ☐ Boşanmış ☐ Dul ☐

ÇOŞKUNÖZ Metal Form ve Makine End. Aş.'de çalıştığınız bölümü işaretleyiniz:

Seri Üretim Grup Md. ☐
Kalıp Grup Md. ☐
Teknoloji Grup Md. ☐
Kalite Güv. Md. ☐
Diğer: _____

ÇOŞKUNÖZ Metal Form ve Makine End. Aş.'de çalıştığınız iş kolu:

_____
_____

ÇOŞKUNÖZ Metal Form ve Makine End. Aş.'deki çalışma süreniz:

☐

Toplam çalışma süreniz: ☐

Şimdiye kadar iş kazası geçirdiniz mi? Eğer geçirdiyseniz nasıl ve nerede geçirdiğinizi yazınız. Evet Hayır

Evet ise _____
_____
_____
_____
_____

Size göre, fabrikanızdaki iş güvenliği seviyesini etkileyen en önemli faktör nedir?

_____
_____
_____
_____
_____
_____

Bu anket ile ilgili veya iş güvenliği ilgili diğer bir konuda yapmak istediğiniz başka bir yorumunuz var mı? Lütfen aşağıdaki boşluğu kullanınız.

_____
_____
_____
_____
_____
_____

Çalışmamıza sağladığınız katkılarınız için çok teşekkür ederiz