

Safety Attitude and Its Associated Factors among Workers in Micro- and Small-Scale Enterprises (MSSEs) in Shiraz

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Abstract

Background: Individual factors play an important role in the safety performance of small and medium-sized enterprises that might have physical, mental or psychological nature. Some of these factors are related to the subjects' personality and unchangeable; however, others are related to motivation and attitude, which could be improved through training. This study aimed to assess the safety attitude and its effective factors among workers in micro- and small-scale enterprises (MSSEs) in Shiraz in 2015.

Methods: This cross-sectional study was conducted on 349 workers in MSSEs. Safety Attitude Questionnaire (SAQ) was filled out by self-report method which consisted of questions including general information, cognitive, affective and conative dimensions. Then, SPSS software version 22 was used to assess the significant difference between the variables ($P < 0.05$).

Results: The mean score of safety attitude was (103.05 ± 8.73 out of 125). The minimum and maximum safety attitude scores were related to affective (16.13 ± 3 out of 20) and cognitive (46.7 ± 4.12 out of 55) dimensions, respectively. Also, there was a significant difference between the educational level and safety attitude. Workers with higher education had higher safety attitude scores.

Conclusion: The results showed that most of the workers had safety attitude but they were not desirable in affective and conative domains. Therefore, it is required to enhance the affective domain through training the workers, enhancing their participation, paying attention to their views on occupational safety and health issues and promote the conative one through the supervision of legal authorities.

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Introduction

Small industries play a vital role in the development of national economy, employment generation, and self-employment,¹ which is considered as the main basis of each country's economy.² According to Ministry of Industry, Mine and Trade, enterprises with fewer than 10 workers are considered as small,³ and according to

Ministry of Health and Medical Education, enterprises with fewer than 5 workers are considered as micro.⁴

Workers are not satisfied with occupational health and safety services in these enterprises, and work under undesirable conditions. On the other hand, lack of safety controls in small enterprises with workers' low awareness about the safety procedures and behaviors leads to disabling accidents and diseases

with alarming trends.² Based on Heinrich's theory, 88% of the accidents are the result of unsafe behaviors which are themselves the consequence of low safety attitude among the workers. Studies have shown that positive safety attitude could increase the production and decrease the occupational accidents.⁵

Individual factors play an important role in the safety performance in small and medium-sized enterprises which might be of physical, mental, or psychological nature. Some of these factors are usually related to the subjects' personality that is unchangeable, but some others are related to motivation and attitude which could be improved by training.^{6,7} Attitude means inner propensities and emotions to evaluate people, objects, and situations and their interpretations into desirable and undesirable categories.⁸

Safety attitude means the workers' propensity to positive or negative reaction to objectives, ideas, challenges, plans, motivations, and rewards in the workplace.⁸ The most effective way to change the attitude towards safety is changing the safety behaviors by plans such as training.⁸ In other definitions, the workers' beliefs about organizational safety actions and its evaluation are considered as an initial alert for safety defect.^{6,7}

The ideal safety attitude leads to safety promotion, safe behavior, and reduced frequency of accidents and near miss-incidents. In other words, it represents the workers' involvement and participation. This attitude among managers influences both workers' behavior and accident rate. Some studies have shown that any change in the attitude has an important effect on the subjects' safe behavior. Therefore, psychologists attempt to offer policies to make the attitude more positive.⁶

Based on Friedman theory,⁶ attitude is a perdurable system, including cognitive, affective, and conative elements. These three elements are introduced as a three-part attitude model.

Workers' attitude toward safety is one of the requirements of establishing a safety culture which is the subject's sense of responsibility and acceptance about safety principles.⁹ Safety attitude reflects an individual structure of beliefs and emotions about safety policies, procedures, and actions including individual commitment and individual sense of responsibility toward safety principles.^{10,11} In order to enhance safety in the workplace and prevent occupational accidents, in addition to establishment of advanced technological and managerial systems for the workers' safety behaviors, their values, beliefs, and attitudes must be promoted.⁷

Accurate attitude toward safety is a key to prevent minor accidents and injuries, save time to do

duties, reduce the workers' sick days, and promote productivity. Subjects with positive attitude are responsible and disciplined, and prevent workplace risks.¹² They usually have better performance in the workplace, so they are open-minded and pay attention to the consequences of their behaviors. On the contrary, negative attitude can lead to unsafe working habits and accidents, because it distracts the subjects from safety precautions. Attitude is like a fuel that moves the behaviors and represents the direction of the subjects' feelings.¹³ Research has shown a significant relationship between safety attitude and safety performance (self-reported occupational accidents and injuries rates).^{10,11}

To date, several studies have been conducted on safety attitude in large-scale industries as well as Health care service provider centers; however, little attention has been paid to safety attitude in micro- and small-scale enterprises (MSSEs), which is an essential part of the workforce. This study aimed to investigate the safety attitude, its dimensions, and effective factors in MSSEs in Shiraz, Iran.

Materials and Methods

This cross-sectional study was conducted in the first half of 2015 on 349 randomly selected workers in MSSEs (fewer than 10 workers) in Shiraz (n=300). In order to assess the safety attitude, Safety Attitude Questionnaire (SAQ) with Cronbach's alpha of 0.86 was used and validated by Hemmatju and others.¹⁴ The questionnaire had 25 questions, each receiving a score from 1 to 5 as strongly disagree (1), disagree (2), neither agree or disagree (3), agree (4), and strongly agree (5). Finally, the safety attitude level was determined by dividing the obtained scores into maximum score of the questions. Accordingly, the minimum and maximum score of the questionnaire was obtained to be 25 and 125, respectively. The affective, cognitive and conative domains had 4, 11 and 10 questions, and their maximum points were 20, 55, and 50, respectively. Workers' safety attitude was categorized into 4 classes including very poor (0-49.5), poor (49.5-75), moderate (75-100.5) and good (>100.5). SAQ was distributed among the workers' MSSEs. In every enterprise with more than one worker, all the workers who were willing to participate in the study completed the questionnaire, and their mean score was considered as their point of view into safety attitude. Besides the questions about the safety attitude, some questions about work experience, age, and accidents' experience were included in the questionnaire. To observe the ethical issues, the authors explained the objectives of the study for the workers and their related information was kept confidential. The most important questions are presented in Table 1.

The collected data were entered into SPSS, version 22. Then, descriptive statistics were used in order to

Table 1: Dimensions and Questions of Safety Attitude Questionnaire

Dimension	Questions
Affective	1. Brave people never use Personal Protective Equipment (PPE) such as safety hats, shoes or gloves. 2. It's none of my business that others don't pay attention to safety issues. In my opinion, accident depends on person's chance. 4. In my opinion, accident is the result of God-given destiny.
Cognitive	1. I believe that it's impossible to prevent accidents. 2. I believe that accidents can occur every moment. 3. All the staff should know about how to use the fire-fighting equipment. 4. It's necessary for every worker to know about occupational safety rules. 5. All workers should know their duties and responsibilities about safety issues. 6. It's impossible to do the jobs in a safe manner in some situations. 7. Being mindful while working prevent accidents. 8. Workplace housekeeping leads to safety promotion. 9. All workers should predominate their duties completely in an emergency situation. 10. It's required to know about fire-fighting stations, public- health center, and safety institutes for emergency calls.
Conative	1. Every worker should know and use his occupational Personal protective equipment (PPE). 2. I'm interested in receiving safety training related to my job. 3. It's necessary to use proper and appropriate tools while working. 4. Working in a safety manner doesn't influence the safety of the whole enterprise. 5. Safety is the most important issue in my mind while working. 6. In my opinion, it's important to negotiate the views towards working safely with my coworkers. 7. I'm strongly eager to report my job's unsafe conditions. 8. In my opinion, some safety rules and procedures are impractical. 9. Spending time in order to do jobs safely is valuable. 10. I'm strongly interested in risk recognition of unsafe works in my jobs.

describe the data and inferential statistics were used to analyze the data with Mann Whitney Test and Kruskal-Wallis test. The $P < 0.05$ was considered to be statistically significant.

Results

Out of 300 studied enterprises, 84 (28%) had fewer than 2 workers, 194 (64.66%) had between 3 to 5, and 22 (7.33%) had between 5- 10 workers. Mean and standard deviation

of the subjects' age and work experience was 35.39 ± 11.33 , and 16.15 ± 11.68 , respectively. In terms of the type of activity, 58%, 8.6%, 10.6%, and 22.6% of the enterprises have been active in the field of mechanical, metal, stone and mosaic, and wood industries, respectively.

The frequency distribution of the subjects' demographic characteristics by safety attitude, as well as the relationship between safety attitude and its effective factors is shown in Table 2. The mean score

Table 2: Frequency distribution of demographic characteristics by safety attitude, and the relationship between the safety attitude and its effective factors

Dimension	Frequency (%)	Safety Attitude Score (%)		Mean±SD	P value	
		Moderate	Good			
Age	<18	10 (2.9)	7 (70)	3 (30)	102.06±6.77	0.112*
	25-18	53 (15.2)	21 (39.6)	32 (60.4)	100.9±8.4	
	35-25	146 (41.8)	60 (41.1)	86 (58.9)	103.58±9.1	
	45-35	74 (21.2)	21 (28.4)	53 (71.6)	104.7±7.75	
	60-45	57 (16.3)	28 (49.1)	29 (50.9)	101.21±8.93	
	>60	9 (2.6)	3 (33.3)	6 (66.7)	105.87±10.02	
Work experience	<5	61 (17.5)	32 (52.5)	29 (47.5)	101.13±8.54	0.6*
	5-10	92 (26)	26 (28.9)	64 (71.1)	104.89±8.9	
	10-15	65 (18.6)	32 (49.2)	33 (50.8)	101.59±8.85	
	15-20	44 (12.6)	13 (29.5)	31 (70.5)	104.35±7.31	
	>20	87 (29.4)	36 (41.4)	51 (58.6)	102.72±9.02	
	Primary School	40 (11.5)	24 (60)	16 (40)	99.82±8.63	
Marital status	Middle School	96 (27.5)	59 (61.5)	37 (38.5)	100.51±8.38	0.947**
	High School	135 (38.7)	36 (26.7)	99 (73.3)	104.05±7.94	
	Associate degree or higher	78 (22.3)	21 (26.9)	57 (73.1)	106.53±9.15	
	Married	108 (30.9)	43 (39.8)	65 (60.2)	102.63±8.24	
Accident experience	Unmarried	241 (69.1)	97 (40.2)	144 (59.8)	103.04±9.03	**0.47
	Yes	211 (70.33)	15(24.2)	23 (27.4)	103.29 ±8.81	
	No	89 (29.67)	47 (75.8)	61 (72.6)	102.46±8.56	

*Kruskal-Wallis Test; **Mann Whitney Test

of worker safety attitude was categorized as desirable. Among the study variables, there was a significant relationship between the worker safety attitude and educational level ($P < 0.001$).

Figure 1 represents the safety attitude dimensions (including conative, cognitive, and affective). As observed, the mean score of attitude towards safety in cognitive domain (46.7 ± 4.12) was higher than the other two, i.e. conative (40.21 ± 4.03) and effective (16.13 ± 3), respectively.

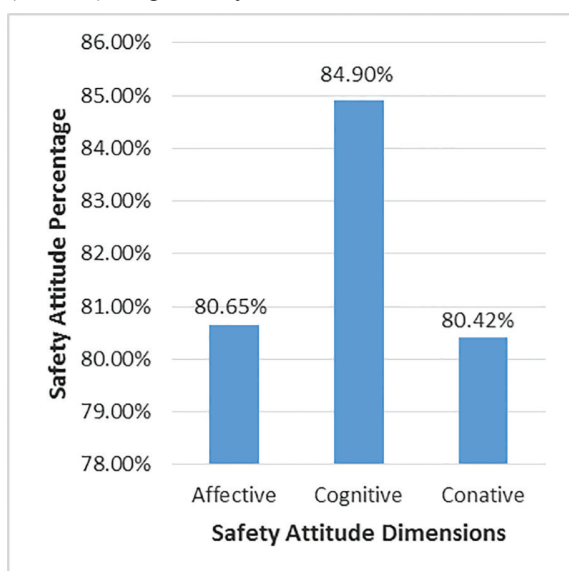


Figure 1: Comparison of the safety attitude dimensions among workers in the studied Micro- and Small-scale Enterprises (N=349)

Discussion

This study aimed to assess the safety attitude and its effective factors on the workers of MSEs in Shiraz. The mean score of safety attitude was 103.05 ± 8.73 and most of the subjects (59.9%) were in a favorable level in this regard. Among the studied factors, there was a significant relationship between the educational level and safety attitude. Although the total safety attitude was desirable in these enterprises, safety principles were not strictly observed. In other words, safety attitude was superficial and beliefs about safety principles were not translated into behavior. Hence, the enterprises had no favorable safety status. This can be explained by the fact that small enterprises are under the supervision of various management and workers do not necessarily have the commitment and adherence to occupational safety and health requirements sufficiently and necessarily. As Ooshaksaraie et al. states,¹⁵ there are statistically significant differences between large, medium, and small metal industries, and large industries have higher safety culture than small ones. Therefore, in order to achieve their goals in international trade and competition, medium and large industries must consider higher levels of standards and audits. Moreover, they

must take different standard certifications, to gain the trust of the customers and staff and increase the quality of production and satisfaction. As found in some other studies,¹⁶⁻²¹ there was a significant relationship between educational level and safety attitude. In fact, workers with higher levels of education had a higher safety attitude, too. It is probably because people with higher levels of education have better safety awareness and better understanding of the safety training; they understand and use more precisely the safety instructions provided at different posts. Therefore, their positive safety attitudes are reinforced.²² However, in some studies,²³⁻²⁵ there was no statistically significant relationship between education and safety attitude.

In this study, the highest score of safety attitude was obtained in the cognitive domain (cognition and awareness about safety requirements), and conative domain (tendency to practice), respectively; the lowest score obtained in the affective domain (pleasant feeling or emotions about safety) were calculated. Contrary to expectations, the study subjects did not have favorable safety attitude in emotional and conative domains; the reason can be attributed to the workers' lack of awareness about safety procedures and requirements and negative feelings about safety requirements. By improving these factors, first, the emotional dimension of the attitude, which has a motivational effect on behavior, and then the attitudinal conative dimension are promoted.²²

In this study, there was no significant relationship between different dimensions of attitude. This finding is consistent with the results of some studies,^{18, 24} in which knowledge does not necessarily lead to desirable safety performance because of such factors as environmental conditions, which can affect the performance of the safety system. However, in order to achieve pleasant safety performance, in addition to awareness, attitude must also be changed and the workers should have been deepened scientific beliefs about safety.

Contrary to other studies,^{5, 16, 26-28} there was no significant relationship between safety attitudes and reported accidents in small enterprises in the present study; the reason can be attributed to the fact that other studies have been carried out in medium and large industries with recording systems for reporting the incidents. However, small enterprises usually lack the conventional system for recording and reporting incidents, so the reported incidents may not be consistent with actual statistics of the incident reports.

Regarding the relationship between work experience and safety attitudes, there are contradictory results in the literature. In some studies,^{9, 29, 30} there has been a significant relationship between work experience and safety attitude. This has been attributed to several factors; people with more background

experiences may have higher degrees of pride and self-esteem. Moreover, experienced individuals may be accustomed to workplace hazards and risks, and they are less concerned about risk control and accident prevention.²² On the contrary, some studies^{5, 31} have reported a direct and significant relationship between work experience and safety attitude, the reason of which is that more experienced people understand the workplace risks better.

A similar contradictory relationship was found between age and safety attitude.^{9, 23-25} Some studies, like the current study, suggest no significant relationship between age and safety, and have shown that older workers are more likely to have better safety attitude since they are more experienced and have a better risk perception. The main limitation of this study was that some background information about safety attitude including accidents was collected by self-report method which may have been affected by recall error.

According to the study results, workers in MSSEs have a good safety attitude, especially in the cognitive domain. However, there is a need to enhance the affective domain through workers' training, participation and involvement; paying attention to their views on occupational safety and health issues; and encouragement and enhancement of their passion and motivation to follow the safety principles and requirements. Moreover, it is required to promote the conative domain through the supervision of legal authorities.

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Conflict of Interest: None declared.

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