

Impact of Worker's Satisfaction on Safety Culture in Dimension Stone Quarries of Pakistan

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Abstract: Safety culture is a collection of realistic and flexible customs and practices for handling hazards. In addition, it is the attitude of a worker that directs safety culture towards a positive or negative direction. Motivation theories claim that human behavior (or attitude) is driven by some force e.g. a physiological deficit or a need. Once need(s) are fulfilled, human mind is considered to be satisfied, otherwise unsatisfied. A satisfied mind is capable of utilizing most or even all of its energies for a positive attitude towards work. Full focus on work always creates a positive safety culture where there is no or minor chance of damage from a hazard and this is only possible for a satisfied mind. In this study, a link has been defined between factors indirectly affecting safety culture via mental satisfaction. A survey of working conditions of workers in dimension stone quarries of Pakistan has been carried out for this purpose. Five Hypotheses have been proposed to find the link between factors affecting mental satisfaction and hence safety culture. Inferences of this survey show that safety culture is guided by the mental satisfaction of a worker.

Key words: Safety culture • Worker's satisfaction • Dimension Stone Quarries • Pakistan

INTRODUCTION

A number of definitions regarding safety culture have been developed since that time but one that is most widely used is that developed by the Advisory Committee on the Safety of Nuclear Installations [1], "The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to and the style and proficiency of, an organization's health and safety management". Guldenmund [2] suggests that safety climate refers to the attitudes towards safety within an organization while safety culture concerns the underlying beliefs and convictions of those attitudes, in other words the prevailing values of the social group. Even though people within an organization will be subject to the same policies and procedures, people will tend to see things very differently according to which part of the organization they are in [3]. Cooper [4] suggests that this

is because sections will be subject to different customs and practices as well as differing levels of risk which will influence the emphasis on compliance to safety and the way safety is managed on a working level. Cheyne *et al.*, [5] have suggested that employee attitudes are one of the most important measures of safety climate and culture because they are often influenced by other features of the working environment. While Lee [6] proposed that attitudes towards safety are a basic element of safety culture. Any safety interventions may fail if the attitudes and perceptions of safety are not taken into account [7].

In this study, it has been proposed that a safety culture is not strictly influenced by on the job factors but also the human behavior guides any safety culture towards positive or negative directions. It is actually mental satisfaction of a human being that allows him to participate positively for the formation of a positive safety culture. Geller and Williams [8] has proposed these principles in several sources as a map or mission

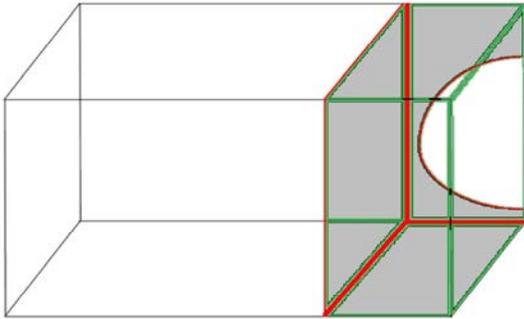


Fig. 1: Dimension stone bench drilling and cutting

statement for guiding the design of interventions to benefit safety-related behaviors and attitudes in the workplace as well as in homes, neighborhoods and throughout entire communities [9-13]. The maintenance of work-related behaviors implies that the conditions of the job somehow provide the needs of the individuals, fostering a sense of satisfaction. Attitudes are evaluative statements-either favorable or unfavorable-concerning objects people, or events. It has been treated both as a general attitude and as satisfaction with five specific dimensions of job: pay, the work itself, promotion, opportunities, supervision and co-workers [14, 15]. The combined effect of these factors produces for the individual some measure of satisfaction and dissatisfaction [16]. Values are enduring beliefs that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end state of existence [17]. These values include family, recreation, financial security, promotion and integrity. An attitude is a mixture of complex physiological phenomena which has cognition, emotions, motivation and behavior [18].

Production Cycle of Dimension Stones: The production cycle in dimension stone quarrying consist of bench drilling, cutting, dropping and squaring. In the first step, three mutually perpendicular holes are drilled one by one to meet at a single common point. This work is carried out through Down the Hole (DTH) drill machine. In the second step, diamond wire is passed through two holes at a time to cut the bench in one plane. The bench is cut in three mutually perpendicular planes to become free from rest of the rock. Figure 1 explains these workings.

In the third step, the bench is dropped for further squaring to produce blocks. Bench dropping is carried out through a hydro bag and if necessary, hydraulic jacks can also be inserted to facilitate the task. Figure 2 shows the dimension stone bench dropping through hydro bag.

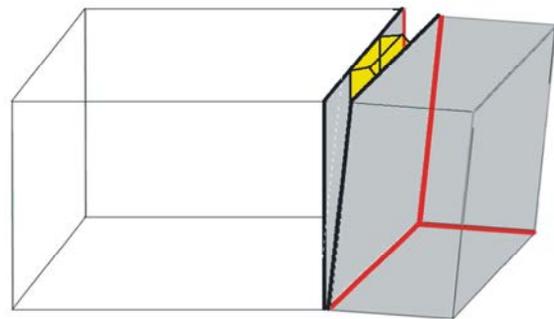


Fig. 2: Dimension stone bench dropping through hydro bag

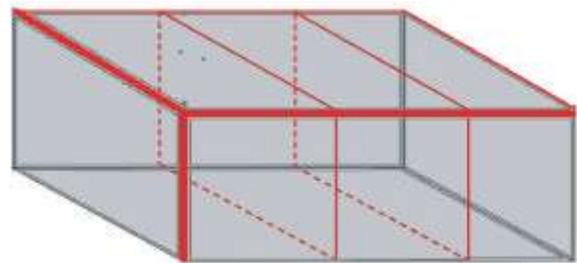


Fig. 3: Dimension stone bench squaring phase

In the fourth and last step, the bench is cut to smaller pieces to produce optimum size blocks. This squaring of blocks is done either by cutting with diamond wire or by drilling and cementing the holes. Line drilling is required for this purpose and spherical or similar machinery is used for this purpose (Figure 3).

In recent days, due to the adaptation of more mechanized methods in its quarrying, dimension stone mining is prone not only to naturally posed dangers of rock sliding and slipping, but also dangers of moving machinery, presence of abnormal level of noise and dust make it necessary to take strict safety measures. It is the duty and responsibility of management staff to implement safety regulations. This research paper discusses the impact of human behavior in safety implementation in dimension stone quarrying.

Worker Behavior and Safety Culture: Behavioral Approach to psychology emphasizes that human behavior is determined mainly by what a person has learned, especially from rewards and punishments. Cognitive Approach is a way of looking at human behavior that emphasizes research on how the brain takes in information, creates perceptions, form and retrieves memories, processes information and generates integrated patterns of action. The humanistic approach (also known

as phenomenological approach) views behavior as controlled by the decisions that people make about their lives based on their perceptions of the world [19].

Motivation Theories: The term motivation derived from the Latin word *movere*, meaning to move [20]. Motivation represents “those psychological processes that cause the arousal, direction and persistence of voluntary actions that are goal oriented [21]. Motivation is the willingness to exert high levels of effort toward organizational goals, conditioned by the effort’s ability to satisfy some individual need [22]. A need in this context is an internal state that makes certain outcomes appears attractive. An unsatisfied need creates tension that stimulates drives within the individual. These drives then generate a search behavior to find particular goals that, if attained, will satisfy the need and lead to the reduction of tension [22].

Motivation is used to explain the relationships between environmental stimuli and behavioral responses. Motives can be organized into four categories. These are biological factors, emotional factors, cognitive factors and social factors. Instinct theory explains human behavior as motivated by automatic, involuntary and unlearned responses [19]. Any motive has two components. The first component is internal state that activates and orientates the person or animal toward a specific goal and the second component is external incentive-which is, in fact, the goal [18].

Hull’s Drive Theory: Hulls [23] suggested that it was a physiological deficit or a need and not an instinct that instigated an organism to undertake behaviors that then resulted in the offset of the need. He also suggested that if there is no driving force, the organism will not act at all, no matter how strong the habit would be [24]. Hull viewed the drive as a stimulus, arising from a tissue need, which in turn stimulates behavior. The strength of the drive is determined upon the length of the deprivation, or the intensity / strength of the resulting behavior. He believed the drive to be non-specific, which means that the drive does not direct behavior rather it functions to energize it. In addition this drive reduction is the reinforcement. Hull recognized that organisms were motivated by other forces, secondary reinforcements. " This means that previously neutral stimuli may assume drive characteristics because they are capable of eliciting responses that are similar to those aroused by the original need state or primary drive" [25].

Lewin’s Field Theory: According to Lewin’s Field Theory, the motivational force on a person to reach an environmental goal is determined by his tension (t), for the goal (magnitude of the need), valence (G), (the properties of the goal object) and the psychological distance of the person from the goal (e). Specifically,

$$Force = \frac{f(t,g)}{e}$$

Atkinson’s Theory [26,27] of Achievement Motivation: According to this theory, the tendency to approach an achievement-related goal (T_s) is a product of three factors which are: the need for achievement or the motive for success (M_s), the probability that one will be successful at the task (P_s) and the incentive value of success (I_s). These factors were presumed to be multiplicatively related:

$$T_s = M_s \times P_s \times I_s$$

Expectancy Theory: Expectancy theory states that motivation is a combined function of the individual’s perception that effort will lead to performance and of the perceived desirability of outcomes that may result from the performance [28]. Although there are several forms of this model, Vroom [29] developed the formal model of work motivation drawing on the work of other researchers. Vroom’s theory assumes that the “choices made by a person among alternative courses of action are lawfully related to psychological events occurring contemporaneously with the behavior” [30].

Maslow’s [31] Theory of Motivation: According to Maslow [31], human behavior is motivated by a set of basic needs. Which needs are most active in driving behavior depends on two principles:

- A need which is satisfied is no longer active: the higher the satisfaction, the less the activity (the exception to this rule is the need for self-actualization);
- Needs can be ordered in a hierarchy, such that from all the non-satisfied needs, the one which is lowest in the hierarchy will be the most active. A lower need is more "urgent" in the sense that it must be satisfied before a higher need can take over control.

When the need hierarchy concept is applied to work organizations, the implications for managerial actions become obvious [30]. Managers have the responsibility to create a proper climate in which employees can develop to their fullest potential. Failure to provide such a climate would theoretically increase employee frustration and could result in poorer performance, lower job satisfaction and increased withdrawal from the organization” [28].

The study is divided in to following sections: after introduction which is presented in Section 1 above, section 2 shows the methodological framework of the study. Results are discussed in Section 3. Final section concludes the study.

Methodological Framework of the Study: The purpose of this study is to determine a link between the worker’s mental satisfaction as a result of fulfillment of his needs and hence the impact of his behavior (which is, in fact, a reflection of his satisfaction level) on safety implementation in dimension stone mines of Pakistan. Following hypotheses are basis for this research study.

Hypothesis 1: Karen Horney identified ten major needs which are acquired as a consequence of individuals attempting to find solutions to their problems in developing a personality and dealing with others in a social environment [32, 33]. Psychologists and anthropologists have noticed that cultures can create certain general tendencies in behavior and mental processes among the people living in them [34].

Therefore this hypothesis states that “Socially satisfied workers are more likely to work safely”.

Hypothesis 2: In the Maslow’s proposed theory of motivation, physiological needs (air breathing, hunger, water and to avoid extreme weathers etc.) are taken as the starting point [35, 36]. The higher the accomplishment of these needs more will be the satisfaction of person and vice versa.

As the satisfied workers could concentrate well on the assigned task in a safe and standard way therefore this hypothesis states that “on site living facilities are fateful in safety implementation”.

Hypothesis 3: Sparrow [37, 38] suggests that organizations should become platforms for individuals as opposed to individuals becoming resources for organizations. To be world leaders, organizations must be

able to attract and retain the best employees and providing greater opportunity for personal development may lead to increased employee job satisfaction.

Therefore this hypothesis states that “appreciation and acknowledgement by management tend the worker to work safely”.

Hypothesis 4: Glendon and Mckenna [39] suggest that organizations with a positive safety culture are characterized by effective communication. Such communication is founded on shared beliefs of the importance of safety and mutual trust as well as confidence in effectiveness of preventive measures.

Therefore this hypothesis of this research paper states that “Regular counseling of workers is helpful in prevailing safe work environment”.

Hypothesis 5: Incentive theory is a theory of motivation stating that behavior is directed toward attaining desirable stimuli and avoiding unwanted stimuli. People are said to behave in order to get positive incentives and avoid negative incentives. The value of an incentive is influenced by physiological, cognitive and social factors [19].

Therefore, this hypothesis states that, “Workers fulfilling their fiscal needs perform tasks more safely than those who do not fulfill their fiscal needs”.

Sample: Two small scale mines of dimension stones were selected to carry out the research. One of these mines is of black granite deposit situated in district Mansehra of Pakistan while the other mine is of white marble deposit situated in district Buner of Pakistan. The sample size exceeds 130 workers working in the production departments of these mines. As claimed by the site managements, all of these workers have been properly trained to carry out standard operating procedure safely as even a small mistake during work can lead to a lost work injury or a fatal injury. Most of the workers (58%) have a qualification above or equal to middle school level.

Questionnaire: Questionnaire comprised of following sets of questions:

Social Conditions: The workers were asked to rate the satisfaction level for their social status, job satisfaction and their utilization and treatment in the team. Answers were taken as 5-point Likert-type response modes from “strongly satisfied” (5) to “strongly unsatisfied (1).

Management Response: Information from different studies on leader behavior indicates that autocratic behavior leads to dissatisfaction among employees [40-43] demonstrating positive motivational behavior becomes instrumental in motivating employee work performance [44, 45].

In this set of questions the workers were asked to rate according to Likert type scale of the attitude of management to them both on the job and off the job. They were asked whether the management gives weight to their suggestions for improved working and safety, whether the management staff creates a class barrier between them and others, whether the management takes care of workers requirements, whether the management appreciates them after goal achievements etc. Answers were taken as 5-point Likert-type response modes from “strongly satisfied” (5) to “strongly unsatisfied” (1).

Worker’s counseling: In this set of questions, the workers were asked about whether they are given proper on the job training by either of supervisors or other relevant persons or they are not properly given on the job training. The workers were also asked whether they are updated about machinery operations, safety, production plans and productivity improvement or not, whether their work environment and work attitude is properly monitored and evaluated or not. Answers were taken as 5-point Likert-type response modes from “strongly agreed” (5) to “strongly disagreed” (1).

Fiscal Conditions: In this set of questions, workers were asked to respond about the satisfaction about the remuneration paid to them against their work, whether they are able to cope with the existing inflation rate or not, whether they properly focus on their work or for most of the work time they think of dealing with their fiscal needs or their family. Answers were taken as 5-point Likert-type response modes from “strongly satisfied” (5) to “strongly unsatisfied” (1).

Incentives: In this set of questions, the workers were asked to respond about any additional remuneration paid as an acknowledgement of their efforts, whether any bonus paid or not, whether any promotion is given as a result of better performance or not. Answers were taken as 5-point Likert-type response modes from “strongly satisfied” (5) to “strongly unsatisfied” (1).

MATERIALS AND MEHTODS

In order to find the relationship between mental satisfaction and safe working, the injury record of every worker of both mines during last six months was analyzed as follows:

Zero near miss and illness of a worker due to work during the specified period was rated as 5, 1 near miss as 4, 2 near misses as 3 and 3 near misses were rated as 2. For 4 or more near misses only 1 point was awarded. For calculation purposes, the means of safety record as well as components of mental satisfaction were recorded.

The means of satisfaction level of each component of mental satisfaction were compared with the safety record of every worker. Based on the mean value, the safety record was categorized as poor (for mean value between 1 and 4) or good (for mean value above 4). Four considered as poor (one near miss or illness) as to maintain high standards of safety. Percentage of socially satisfied workers with poor safety record and good safety record was calculated separately. Similarly, both percentages were calculated for socially unsatisfied workers. The percentages of good and poor safety record were also calculated for other components of mental satisfaction for both satisfied workers and unsatisfied workers separately. Figure 4 shows the research framework of the study.

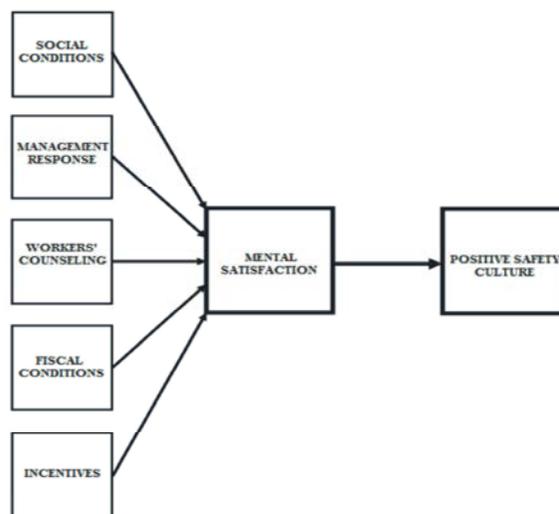


Fig. 4: Factors affecting mental satisfaction and safety cultures.

Source: Self extract

RESULTS AND DISCUSSION

There are one hundred and seventy five sets of questionnaire were sent to the two mines of dimension stones in Pakistan. As questions regarding the safety attitude of worker and management commitment to safety were also asked, therefore some respondents did not answer accurately i.e. they rated 3 (which corresponds to “I don’t know”) against most of the asked questions. Ultimately 158 questionnaires were responded accurately. The return rate is therefore 90.29 %. All of the respondents were male with the age range between 18 and 49. The age was distributed in intervals of 8 years each from 18 to 49 categories i.e. between 18 and 25, 26 and 33, 34 and 41, 42 and 49. The age distribution shows that more than 65% of the total workers have their age between 26 years and 41 years which indirectly corresponds to the fact that they are strong and experienced workers. Table 1 show the age and gender distribution of Mine A and Mine B.

Income range is in between PKR 8,000 to PKR 100,000. The details of income distribution for each age limit for workers of both mines are tabulated in Table 2 and 3 respectively.

The comparison of mean values of social conditions and safety record shows that for mine A, 92 % of the socially unsatisfied workers have a poor safety record and have faced at least one near miss and disease due to unsafe working (e.g. damage to eye etc.) while only 7.69% of socially unsatisfied workers have a good safety record. 60.38% of the socially satisfied workers have poor safety record whereas 39.62% of satisfied workers have a good safety record. The point of concern is that only 20 % of the workers are satisfied. This suggests that the social conditions for this mine have not been too attractive to satisfy the workers for safe working. This is the main reason why the % age of good safety record of even satisfied workers does not exceed 40%. Similarly, for mine B, 90.57 % of the unsatisfied workers have a poor safety record, whereas only 9.43 % of unsatisfied workers have a good safety record. Here for this mine, 42.77 % of the satisfied workers have poor safety record while 57.23 % of satisfied workers did not face any injury or illness during last six months. Although there is a remarkable difference between good safety record of satisfied and unsatisfied workers yet the overall safety attitude is not too much positive. Here again parameters of social satisfaction does not attract the workers as only 32.91% of the total

Table 1: Age and Gender Distribution of All Workers of Mine A and Mine B

Age Limit	Gender	Mine A		Mine B	
		# of Respondents	% of Total Respondents	# of Respondents	% of Total Respondents
18-25	Male	24	28.24	14	19.18
26-33	Male	37	43.53	40	54.79
34-41	Male	20	23.53	12	16.44
42-49	Male	04	4.70	07	9.59
Total		85	100.00	73	100.00

Table 2: Income Distribution of All Workers of Mine A

Age Limit	Income Distribution (PKR)					Total
	8,000-13,000	14,000-19,000	20,000-25,000	25,000-50,000	Above 50,000	
18-25	13	08	03	-	-	24
26-33	19	12	04	01	01	37
34-41	05	06	06	03	-	20
42-49	-	-	01	02	01	04
Total	37	26	14	06	02	85

Table 3: Income Distribution of All Workers of Mine B

Age Limit	Income Distribution (PKR)					Total
	8,000-13,000	14,000-19,000	20,000-25,000	25,000-50,000	Above 50,000	
18-25	09	04	01	-	-	14
26-33	21	13	05	-	01	40
34-41	04	03	03	02	-	12
42-49	-	03	03	01	-	07
Total	34	23	12	03	01	73

Table 4: Social Conditions

	Safety Record			
	Poor		Good	
	Mine A		Mine B	
	(20 % Satisfied, 80 % Unsatisfied)		(32.91 % Satisfied, 67.09 % Unsatisfied)	
Social Conditions				
Unsatisfied	92.31	7.69	90.57	9.43
Satisfied	60.38	39.62	42.77	57.23

Table 5: Management Response

	Safety Record			
	Poor		Good	
	Mine A		Mine B	
	(52.31 % Satisfied, 47.69 % Unsatisfied)		(43.04 % Satisfied, 56.96 % Unsatisfied)	
Management Response				
Unsatisfied	93.55	6.45	95.56	4.44
Satisfied	38.24	61.76	46.47	53.53

workers are satisfied while 67.09 % of the total workers are not satisfied with the existing social conditions. From Atkinson’s theory of achievement motivation, if positive safety attitude is considered as a motive, then the incentive value of achieving this motive (i.e. social satisfaction) is not as per expectation of the workers of both mines in this case.

Parameters of social satisfaction for this research paper are taken as on site necessities of life (e.g. pure water, healthy meal, proper residence recreational activities etc.), health and education facilities (for the worker himself and for his family) and his status in the company that should meet his qualification, experience and aptitude. If these necessities/ facilities are provided to a worker he will be mentally relaxed and satisfied. From the above analyses of impact of social satisfaction on safety attitude the hypotheses that “Socially satisfied workers are more likely to work safely” and “on site living facilities are fateful in safety implementation” are clearly concluded which is shown in Table 4.

Table 5 shows the management response regarding safety record of mine workers in both mines. For mine A, a little more than half of the total employees are satisfied with the management response. They think that management is keen to improve safety attitude among workers, their suggestions in this regard are properly handled and management is also interested to create an environment where the workers can feel satisfied for progressive working etc. For mine B, this figure is a little less than half of the total number of workers.

The comparison of mean values of management response and safety conditions suggest that for mine A, 93.55 % of the unsatisfied workers have gone through at least an injury and/or illness due to work during last six months, while only 6.45 % of the unsatisfied workers have not undergone any injury or illness during this period. 38.24 % of the satisfied workers have poor safety record while 61.76 % of satisfied workers have good safety record. Similarly, for mine B, 95.56 % of workers unsatisfied of management response have poor safety record while only 4.44 % of unsatisfied workers have a good safety record. In comparison, 46.47 % of satisfied workers have poor safety record while 53.53 % of satisfied workers have good safety record.

The observations made for these two mines depict that the more the worker is satisfied with the management behavior and responses made to their complaints regarding every matter (both on the job and off the job), the more positive will be his safety attitude. Hence the hypothesis that “appreciation and acknowledgement by management tend the worker to work safely” can be partially confirmed from these inferences as the question rises that appreciation and acknowledgment should also be given in the form of incentives and financial compensation. Table 6 shows the workers’ counseling regarding safety in both mines.

When mean values of parameters set for workers’ counseling are compared for mine A, it reflects that 75.38% of the total workers are satisfied with their counseling by their superiors and seniors while 24.62% of the total workers are unsatisfied. When safety record

Table 6: Workers' Counseling

	Safety Record			
	Poor		Good	
	Mine A	Mine B	Mine A	Mine B
	(75.38% Satisfied, 24.62 % Unsatisfied)		(63.29 % Satisfied, 36.71 % Unsatisfied)	
Workers' Counseling				
Unsatisfied	87.50	12.50	85	15.00
Satisfied	31.84	68.16	20.00	80.00

Table 7: Fiscal Conditions

	Safety Record			
	Poor		Good	
	Mine A	Mine B	Mine A	Mine B
	(26.15% Satisfied, 73.85 % Unsatisfied)		(35.44 % Satisfied, 64.56 % Unsatisfied)	
Fiscal Conditions				
Unsatisfied	89.58	10.42	90.20	9.80
Satisfied	45.12	54.88	32.14	67.86

Table 8: Incentives

	Safety Record			
	Poor		Good	
	Mine A	Mine B	Mine A	Mine B
	(4.62 % Satisfied, 95.38 % Unsatisfied)		(8.86 % Satisfied, 91.14 % Unsatisfied)	
Incentives				
Unsatisfied	56.45	43.55	87.50	12.50
Satisfied	33.33	66.67	45.71	54.29

of these two classes are compared for mine A, 87.50% of the unsatisfied workers have poor safety record while only 12.50% of this class of workers have good safety record. For the other class i.e. satisfied workers, a sharp declination in the % of poor safety record is observed. Only 31.84 % of total satisfied workers have shown poor safety record during last six months. 68.16% of the satisfied workers for mine A have not been affected by any injury or illness due to work during last six months. For mine B, 63.29% of the total workers are unsatisfied as they think that they are not properly given on the job or off the job training, they have not been provided proper acquaintance with modern technologies and they have not been given any fateful information regarding safety culture and safe work attitude. 37.61% of total workers of this mine are satisfied with these parameters. When means of safety record and workers' counseling are compared of these two groups, 85% of unsatisfied workers have poor safety record while only 15% of unsatisfied workers have good safety record. In contrast, 80% of the satisfied workers have good safety record while only 20% of satisfied workers have poor safety record.

The above analyses clearly reflect that workers satisfied with their counseling by superiors and seniors have a very high% of good safety record and vice versa.

Therefore the hypothesis that "Regular counseling of workers is helpful in prevailing safe work environment" is clearly concluded. Table 7 shows the fiscal conditions of both mine workers.

For mine A, 26.25% of the total workers are satisfied with their fiscal condition while 73.85% are unsatisfied with this. From the unsatisfied workers, 89.58% workers have poor safety record and only 10.42% of this class of workers has good safety record. For the other class of workers i.e. those satisfied with their fiscal conditions, the results are quite different as only 45.12% have poor safety record while 54.88% of satisfied workers have good safety record. For mine B, only 35.44% of the total workers are satisfied with their fiscal conditions while 64.56% are unsatisfied with this. For the first class of these workers, 90.20% have poor safety record while only 9.80% have good safety record. For the unsatisfied workers, same as for mine A, a very low % of workers (only 32.14%) have poor safety record while 67.86% have shown good safety record during last six months.

The analyses made for fiscal conditions clearly support the hypothesis that "Workers fulfilling their fiscal needs perform tasks more safely than those who do not fulfill their fiscal needs". Table 8 shows the incentives paid to the mine workers.

When the mean values of parameters of incentives are calculated and analyzed, only 4.62% of the total workers of mine 'A' are satisfied with the incentives paid to them as a recognition of their services and commitments for the company while 95.38% of total workers are very much disappointed in this regard. For mine B, the conditions are more or less same as only 8.86% of total workers are satisfied with the incentives paid to them while 91.14% of total workers of mine B are unsatisfied with these conditions. For mine A, 56.45% of the unsatisfied workers have poor safety record while 43.55% of unsatisfied workers have good safety record. From the satisfied workers, only 33.33% of satisfied workers have poor safety record while 66.67% of these workers have good safety record. These values suggest that workers satisfied with the incentives paid to them have more positive safety attitude as compared to the unsatisfied workers. For mine B, 87.50% of the unsatisfied workers have poor safety record while only 12.50% have good safety record. From the satisfied workers, 45.71% of workers have poor safety record while in contrast to the unsatisfied group of workers for this mine, 54.29% have good safety record.

These analyses show that incentives play a fair role in workers' mental satisfaction and hence for maintaining a positive safety attitude. As incentives are a form of appreciation and acknowledgment for the worker by the management hence the hypothesis that "Regular counseling of workers is helpful in prevailing safe work environment" is concluded.

Summary and Conclusion: A positive safety attitude depends upon the skills and aptitude of a worker towards safe and standard operating procedure. In this study, focus has been given to find a link between factors affecting mental satisfaction and safety. Analyses made in this paper show that mentally satisfied person are better able to create and maintain a positive safety culture and the parameters of mental satisfaction (in descending order of importance) are incentives, fiscal conditions, social conditions, management response and workers' counseling. So, the management of the companies should focus on these parameters. The main area of concern is that a worker should feel comfortable that his efforts produce reward, progress based promotion and bonuses etc. for him. It is a common observation that workers normally prefer to work for a company rather than for a contractor as they feel that the company will acknowledge their struggle and commitment better than a contractor. The success of management is to make his

worker feel satisfied as far as incentives are concerned. With a sharply inclining inflation rate, every person has been giving priority to meet his financial needs. Therefore, second point of concern for management is fiscal conditions of a worker. If a worker is able to meet financial needs of himself and his family, he will be better able to focus on his work and hence to avoid unsafe conditions. The salary of worker should be attractive to a worker and it should reflect his qualification, experience, aptitude and commitment. In time payment of remuneration also attracts employees. It is also observed that some workers just leave the company for the reason that there is no proper schedule of salary. Third parameter of mental satisfaction is social conditions of a worker (both on the job and off the job). It has been observed that a qualified and experienced worker feels to gain more social facilities than others. He will not feel well if he is given a designation not matching his qualification. The necessities should be provided to every worker which may include a healthy food, a livable shelter, health centers and recreational activities such as indoor and outdoor games and television etc. Tours to historical and/or naturally beautiful places also refresh the mind and creativity of worker. Fourth parameter of mental satisfaction is the attitude of management staff toward a worker. Management should be participative and objective oriented. Today, the philosophy of coercive management has become obsolete. Workers should be encouraged for creativity and innovation. An environment should be provided to the workers where they have least choice for laziness and unsafe attitude. Last parameter of mental satisfaction is workers' counseling. Meetings should be conducted to review the performance of every worker on weekly or monthly basis. Workers should be informed about the advances in technical approach to operating procedures and safety. It is my opinion that on doing a mistake, the worker should be properly informed about the reasons of his mistake and the ways this mistake can be avoided. He should not be discouraged by his seniors and management.

In short, in order to implement, sustain and promote a positive safety culture, it is the responsibility of a management to develop a role model environment where the worker is mentally satisfied.

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