

The Role of the Supervisors' Commitment on Workers Health and Safety and Decreased Psychological Distress

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Background: Researchers have mentioned that supervisor support for safety may predict occupational accidents and psychological distress in the workplace.

Objectives: The present study examined the role of supervisor support on employees' health and safety and psychological distress leading to physical illness symptoms.

Materials and Methods: 189 employees of Isfahan Steel Company were randomly selected to complete questionnaires about supervisor support, physical symptoms and psychological distress. The data were analyzed by correlation and regression analysis.

Results: The results showed that there was a significant internal correlation between supervisor support with physical symptoms and psychological distress ($P < 0.05$). Regression analysis indicated that supervisor support significantly reduced the effect of psychological distress to physical symptoms ($P < 0.05$).

Conclusions: Lack of supervisor support can result in psychological distress leading to symptoms experienced by the employees.

Keywords: Social support; mental disorders; somatoform disorders.

1. Background

The steel industry has one of the highest incidents of fatal and non-fatal accidents/injuries every year. As a high risk industry, there is a need to investigate factors that affect the occurrence of these accidents to be able to protect workers (1). Supervisors play a critical role in supporting the professional standard, expectations, and requirements that are conducive to a more supportive occupational setting while they have a critical role in the provision of workplace support (2). Supervisor support is defined as workers' general views about the degree to which their supervisors value their contribution and care about their well-being (3). Supervisor support has a positive correlation with engagement (4), organizational commitment (5), worker well-being (6, 7), job satisfaction (8), physical and psychological health (9, 10) and also, reduces the level of tension, impact of stressors and dissatisfaction and other forms of psychological and physical distress such as work-family conflict among workers in the workplace (11). On the other hand, low supervisor support is associated with increased incidence rates of

musculoskeletal disorders (12), absenteeism (13), burnout (14-17), neck disorders (18, 19) and negative psychosocial outcomes (20). High levels of supervisor support may reduce headache (is pain experienced in the upper region of the head) eye strain (refers to sore, heavy or itchy eyes), backache (musculoskeletal pains that occur in the upper back, influenced by the impact of daily stressors such as work stress), sleep disturbance, fatigue (lack of energy or tiredness) and gastrointestinal problems (12, 13). Regarding factors stated above, research about supervisor support could have many advantages for organizations and individuals as it increases employees' safety behaviors and promotes safety in the workplace. Previous research has shown that employees, who encounter higher psychological distress, tend to report more commonplace illness symptoms (21). One of the primary obstacles against physical and psychological problems among workers can be supervisor support (22).

2. Objectives

The objective of this study was to examine the role of

Implication for health policy/practice/research/medical education:

The relationship between supervisor support, physical symptoms and psychological distress includes identifying important factors in the perception of support, and the better design of human relations in the workplace can affect physical and psychological health of employees. The most effective procedure in which organizations can reduce psychological distress is modifying the sources of support and creating a healthy workplace as part of occupational safety management. Increasing communication through greater opportunities for participation of employees in a workplace and supervisor support training programs on relations management in a workplace might be effectual waysto alleviate psychological distress, which would ultimately enhance workers health.

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supervisor support on employees' health and safety and psychological distress leading to physical illness symptoms.

3. Materials and Methods

3.1. Participants and Sampling

This cross-sectional study was administrated between Jan and Feb 2012. 189 workers from various departments of Isfahan Steel Company were selected by a stratified random sampling method and were encouraged to take part in the study. The adequacy of sample size was investigated using the SPSS software (version 15), following the procedure recommended by Molavi(23). The mean age of participants was 34 ± 5.58 years, 90% (170 participants) were male and 10% (19 participants) were female, 40% were single and 60% married. Average work experience was 12 ± 3.2 years. In terms of education level, 4% of the respondents reported having only basic education, 60% reported high school diploma, 24% reported University degree and 12% Master's degree.

3.2. Measures

Validated instruments were used for data collection on supervisor support for safety, physical symptoms and psychological distress. At first, all questionnaires were translated from English into Persian and independently back-translated into English by a second translator. The few discrepancies between the original English and the back-translated version resulted in adjustment in the Persian translation based on direct discussion between the translators. Next, psychometric characteristics of instruments were examined. Linguistic validation was performed by three experts from the psychology department and five experts from the health and safety departments. Thus, the questionnaires were piloted and finalized with an advisory group of workers to ensure that the scale items were comprehensible and appropriate for the context. Moreover, conceptual analysis was confirmed by a linguistic validity of all instruments. The questionnaires were distributed to workers with the help of union steward. Participants were assured of confidentiality and informed consent in written format was acquired. Perceived Supervisor Support (PSS) was used to assess workers' perception about how much they thought their supervisor valued their contribution and cared about their well-being and safety; we used 15 items from Hayes, Perander, Smecko and Trask (24). PSS was specially developed for research on perceived support regarding safety and has been shown to have satisfactory reliability and validity across various occupational samples as well as various industrial samples (5, 7, 24, 25). Sample items included "My supervisor en-

courages me to express my ideas and opinions about safety at work", "My supervisor spends time showing me the safest way to do things at work". Respondents indicated the extent of agreement with each statement on a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). Evidence for the reliability of the PSS, as administered to relevant Iranian populations, in this research, by Alpha Coefficient is 0.80 and by Split-half is 0.78. The validity coefficients of questions and rating scales of PSS are between 0.23 and 0.77 while all the validity coefficients are significant at $p < 0.0001$.

Psychological Distress and Physical Symptoms were measured with 19 items of Barling, Loughlin and Kelloway (26). These scales were made based on the frequency of physical symptoms and psychological distress that employees had experienced in their jobs during the past one year. Participants responded using a 5-point response scale that ranged from one (never) to five (more than five times). Higher scores in these scales indicated more obvious symptoms. Two samples of the questions in this scale were: "how frequently have you experienced headache or dizziness on the job?" and "how frequently have you felt constantly under strain". Prior studies surveying many industries and organizations provide evidence for high internal reliability and validity of the scale (1, 25, 26). Internal consistencies (Cronbach's α) of this study in Iran were 0.81 and 0.79, which was excellent for these scales.

3.3. Statistical Analysis

In order to test the mediating role of supervisor support on the relationship between psychological distress and physical symptoms multiple regression analysis was performed separately for each of the three-variable systems in the model. According to Baron and Kenny, the following four conditions must be met to establish mediation: (a) The predictor variable must be related to the potential mediator, (b) the predictor must be related to the criterion variable and when the criterion variable is regressed on both the predictor and mediator variables, (c) the mediator must be related to the criterion variable, and (d) the previously significant relationship between the predictor and criterion variables is attenuated (27). All these requirements were examined and, in addition, the Sobel test (28) was used to test size and significance of the mediation effect. Data were analyzed using the SPSS 15 software and a P value less than 0.05 was considered statistically significant.

4. Results

Table 1 shows the descriptive statistics and internal correlations of the study variables. Supervisor support was negatively related to physical symptoms ($r = -0.42$, $p < 0.01$) and to psychological distress ($r = -0.44$, $p < 0.01$). Psychological distress was positively related to physical symptoms ($r = .55$, $p < 0.01$).

Table 1. Mean, Standard Deviation and Internal Correlations Between Variables

Variables (n = 189)	Correlations			Mean ± SD
	1	2	3	
1) Physical symptoms	1			16.93 ± 5.02
2) Psychological distress	0.55 ^a	1		11.1 ± 4.33
3) Supervisor support	-0.42 ^a	-0.44 ^a	1	29.1 ± 2.51

^a P < 0.01

We used the approach proposed by Baron and Kenny (27) for testing mediation. In addition, in order to estimate significance and size of the indirect effect, we employed the Sobel test (28). Regression analyses were used to test the hypotheses about the mediating role of supervisor support. The regression analysis results are shown

in Table 2.

Physical symptoms (first step) regressed on psychological distress; psychological distress was found to significantly predict physical symptoms ($\beta = 0.55$, $P < 0.01$). Physical symptoms (second step) regressed on supervisor support; supervisor support was found to significantly predict physical symptoms ($\beta = -0.42$, $P < 0.01$). The effect of psychological distress on physical symptoms was reduced (although it was still significant) after supervisor support was entered in the equation ($\beta = -0.26$, $p < 0.05$). This result was consistent with the presence of a partial mediation effect. The significance of the mediation effect was further confirmed by the significance of the Sobel test for physical symptoms ($z = -2.24$, $p < 0.05$). Hence, the analysis provided support for the hypothesis of the mediating role of supervisor support on the relationship between psychological distress and physical symptoms.

Table 2. Results of Mediation Analysis for Physical Symptoms (n = 189)

Baron and Kenny, 1986, Steps	B ^a	SE	β^b	T ^c	Z ^d	P value
Direct and total effects						
Step 1: Physical Symptoms Regressed on Psychological Distresses (b path)	0.51	1.12	0.55	5.01		0.0001
Step 2: Physical Symptoms Regressed on Supervisor Support (a path)	-0.63	0.20	-0.42	-3.16		0.003
Step 3: Physical Symptoms Regressed on Psychological Distresses, Controlling for Supervisor Support (b' path)	0.19	0.14	-0.26	-2.12		0.042
Indirect effect and significance using distribution						
Sobel					-2.24	0.031

^a unstandardized regression coefficient

^b standardized regression coefficient

^c student test

^d test size of the mediation effect

5. Discussion

The present results indicated that supervisor support has a mediating role on the relation between psychological distress and physical symptoms. Therefore, it can be an obstacle against the effect of psychological distress to physical symptoms among workers. These results are consistent with the findings of previous studies (29-31). For example, McHugh and Lawlor investigated the effect social support on athletes and concluded that social support had effects in regulating psychological health and consequently in the experience of physical symptoms (30). Lakkis et al. showed a significant association between psychological distress and lack of support (31). A significant excessive increase in risk for general psychological distress was observed when workers had low social support at work (29). Supervisor support provides a psychological resource that influences the mental state of employees (32). Previous research indicated that level of burnout and distress was reduced, if workers felt able to negotiate about work problems with the supervisor (33). McClenahan et al. concluded that high demands and low control and low supervisor support accounted for

26%, 6%, and 8% of the variance in job satisfaction, psychological distress and burnout, respectively (14). Also, lack of supervisor's support and poor communication may act as stressors, and therefore lead to the perception of psychological distress (34). Probst and Estrada concluded that under-reporting incidents were higher in working environments with poorer organizational safety climate or where supervisor safety enforcement was inconsistent (20). When employees perceive that supervisors are supportive, concerned, and interested in their safety and well-being, they are more likely to realize that their organizations value their safety as well (21).

This research has potential implications for design of coping strategies in work environments. Most organizations spend all their time designing interventions for reducing psychological and physical distresses; although employees learn ways to deal with distresses, yet when they enter the workplace, because of poor relations with supervisors and colleagues, involvement in the paradoxical situation that cause learning from interventions becomes pale, and again they fall in the same destructive cycle of conflicts. Studies have shown that supervisor support and the qual-

ity of communication between the supervisor and employees has a significant impact on learning transfer (35). Therefore, in organizations, supervisors and managers should be taught important factors involved in the perception of support and how better design of human relations in the workplace can affect physical and psychological health of employees. Increasing communication through greater opportunities for employee participation in the workplace and supervisor training programs on relations in the workplace might be effectual ways for alleviation of psychological distress, which would ultimately enhance workers' health. The observed higher injury frequency for employees with lower supportive perceptions could be remedied if supervisors of an organization openly and convincingly demonstrate concern for workers' well-being and safety. This could be done by providing the right work equipment, job enrichment processes, skill-training opportunities, visiting workplaces to alert workers of dangerous situations, and explicitly expressing concern for their safety and well-being. Bonus and incentive schemes could be instituted as actions to motivate occupational safety and to establish good relations with subordinates. In summary, the results of current study showed that supervisor support mediates the effect of employees' psychological distress to physical illness symptoms. Therefore, improving the perception of supervisor support can be useful in decreasing psychological distress and physical symptoms. The present study needs to be replicated in different populations and needs more empirical support. Until then, the findings of the study should be interpreted with caution. The main limitation of this study was the use of self-reporting measures. Replies may be distorted by willful and wrong answers. In order to counter this threat, participants were assured that the questionnaires are anonymous and confidential. Another limitation of this study was its location. It is recommended for this research to be conducted in other organizations with more diverse groups of employees (In terms of gender and education level); and their results should be compared with the results of the present study.

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Authors' Contribution

All authors had equal roles in design, work, statistical analysis and manuscript writing.

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