Supervisor Support as Predictor of Reporting of Physical Symptoms and Psychological Distress among Employees’ Isfahan Steel Company

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ABSTRACT

Supervisors have critical role in the provision of support in workplace. The present study examined degree of perceived supervisor support related to experienced physical symptoms and psychological distress among employees of Isfahan Steel Company, Isfahan, Iran. The sample included of 189 employees of the Company in 2011 who completed questionnaires about supervisor support, physical symptoms and psychological distress. The data were analyzed by multivariate (MANOVA) and correlation techniques. The results showed that there was internal significant correlation between supervisor support with physical symptoms and psychological distress (p<0.05). Multivariate analysis indicated that supervisor support predicted significantly about 17% and 19% of the variances of variables of symptoms and psychological distress (C<0.01). Employees perceived less supervisor support tend to report more commonplace illness symptoms and psychological distress, thus require more time for medical actions.

Keywords: Social support, Employees, Somatoform disorders, Mental disorders

INTRODUCTION

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 requirement that are conducive to a more supportive occupational setting as well as have 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 provides employees with an important resource to manage stress [4].

The recent research showed supervisor support can buffer the hazardous effect of work stress on feelings of emotional exhaustion [5]. Supervisor support is a positive correlation with engagement [6], worker well-being [7, 8], job satisfaction [9], fewer physical and psychological symptom [10, 11], reduce the level of tension, impact of stressors and dissatisfaction in the workplace and other forms of psychological and physical distress [12] lower work-family conflict, higher organizational commitment [13]. On the other hand, Low Supervisor support is associated with increased incidence rates of musculoskeletal disorders [14], absenteeism [15], burnout [16-19], neck disorders [20-21] and the negative psychosocial outcomes [22].

When employees perceive high levels of supervisor support, it buffers the effects of work stress on psychological and physical symptoms [23]. Supervisor support provides for employees an important resource to
manage stress [4], enhance performance [24] and buffer the adverse effect of job demands on emotional exhaustion in situations with low decision authority [25]. Ayotte, Margrett and Hicks-Patrick [26] found that supervisor support was directly related to increase self-efficacy and self-regulatory behavior. The researchers indicate that high levels of supervisor support reflecting care and concern for the health of employee leads to a reciprocal relationship in terms of increased safety citizenship behavior. This shows that appropriate social exchanges within an organization may lead to unanticipated benefits in terms of worker safety behaviors that go beyond normal compliance [27]. The high levels of supervisor support may reduce the headache (is pain experienced in the upper of the head), eye strain (refers to sore, heavy or itchy eyes), backache (Musculoskeletal pains that derived 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.

In attention to stated material above, research about supervisor support can have many advantages for organizations and individuals due to increasing employees’ safe behaviors and promoting safety level in workplace. One of the primary obstacles against work stress and physical –psychological problem are supervisor support [28]. However, about the relationship between supervisor support and the reporting of physical and psychological symptoms has not been studied adequately. One of the issues investigated in the present study is the examination of the relationship between supervisor support with the physical and psychological symptoms. Employees encounter with higher work stress tend to report more commonplace illness symptoms, thus require more time for medical actions [29]. Previous studies have mainly focused on particular industries [30, 31], and no attempt has been made to describe the association between supervisor support with the physical and psychological symptoms among Steel industry workers. In addition, less research has focused on psychosocial dimensions of workplace such as supervisor support.

The present study attempted to investigate the likely relationship between supervisor support and physical and psychological symptoms;

**MATERIALS AND METHODS**

In this cross-sectional study, 200 workers in Isfahan Steel Company, Isfahan, Iran during 2012 were selected as research sample by stratified random sampling method and announced writing their consent to complete a self-administered anonymous questionnaire.

Given the likelihood of failure to complete or return questionnaire, almost 200 employees were selected using stratified random sampling and questionnaires were distributed among them. The entry criterion for a person to this study was the employment at the company’s sectors and the selection from among the members of his/her group randomly. The exclusion criterion of the individual was the delivery of incomplete questionnaire and lack of interest in participating in current research. Six members of the sample due to lack of interest in research topic, and 5 members due to incomplete questionnaires (in total 11 people) were excluded of the main sample. Totally 189 completed questionnaires were collected (95% Rate of Return). In order to control the confounding factors, questionnaires were completed by sample members in a quiet environment and away from the noise. Employees writing stated their satisfaction on participating in this research and in order to avoid bias in answering questions in the questionnaire, they were given to ensure that their responses would be confidential.

After translation of scales of supervisor support, physical and psychological symptoms to Persian language, the original English version along with the Persian version were delivered to three psychologists and four health and safety specialists; and also about 22 copies of each of the scales were provided for a sample of employees and they were asked for about the clarity and fluency of questions. After preliminary evaluation of views, the final scales were developed and they were individually presented to employees.

**Measures**

**Scale of Perceived Supervisor Support**

Perceived supervisor support with 15 items of Hayes, Perander, Smeczko and Trask [32] was measured. Questions in the questionnaire are based on the amount and how employees interact with their supervisors. It is based on a Likert style of 5 scores from 1(strongly disagree) to 5 (strongly agree). The scores of participants were obtained by adding their responses to a 15-items questionnaire. Total score was grades of 15-75 that higher scores indicate that employees perceive work environment and their supervisors more supportive. Munteanu [33], in his study, calculated the internal reliability of this scale using Cronbach's alpha 0.90. In current research, the reliability coefficient was obtained using Cronbach's alpha and split-half methods, respectively, 0.80 and 0.78.

**Physical Symptoms Scale**

This scale is a 20 items questionnaire of Barling, Loughlin and Kelloway [34]. It is made based on the frequency of physical symptoms that employees have experienced them in their jobs during the past month [34]. Scoring is based on a likert style of five degrees from 1 (never) to 5 (more than 5 times). Sum of the scores given to items is reported as the total score of physical symptoms for a worker. Munteanu [33], in his research, reported the internal validity of this scale using Cronbach's alpha 0.83. Moreover, she showed that this questionnaire has high validity. In the current study, the reliability coefficient was obtained using Cronbach's alpha and split-half methods, respectively, 0.81 and 0.83.
Table 1. Questionnaire (Adapted from Mantineau (2005))

Incident Reporting Rate
In the last months, how frequently have you experienced these on the job?

Physical Symptoms
- Headache or dizziness
- Persistent fatigue
- Skin rash/burn
- Strain or sprain (e.g. back pain)
- Cut or puncture (open wound)
- Temporary Loss of hearing
- Eye injury
- Electrical shock
- Respiratory injuries (e.g. difficulty breathing)
- Dislocated/fracture bone
- Hernia

Psychological Distress
- Lost much sleep due to work related worries.
- Been unable to concentrate on work related tasks.
- Felt constantly under strain
- Felt incapable of making decisions.
- Been losing confidence in myself
- Been unable to enjoy my normal day-to-day activities.

How much you agree with these following sentences?

Perceived Supervisor Support
- My Supervisor encourages me to express my ideas/opinion about safety at work.
- My supervisor delays responding to safety questions or requests for assistance.
- My supervisor spends time showing me the safest way to do things at work.
- My supervisor avoids making decisions that affect safety on the job.
- My supervisor suggests new way of doing our jobs more safely.
- My supervisor expresses satisfaction when I perform my job safely.
- My supervisor talks about his values and beliefs in the importance of safety.
- My supervisor we receive appropriate rewards for achieving safety targets.
- My supervisor behaves in a way that displays a commitment to a safe workplace.
- My supervisor provides continuous encouragement to do our jobs safely.
- My supervisor would listen to my concerns about safety on the job
- My supervisor shows determination to maintain a safe work environment.
- My supervisor keeps workers informed of safety rules.
- My supervisor involves workers in setting safety goals.
- My supervisor acts on safety suggestions.

Psychological Symptoms Scale
This scale is a tool with 7 items [34]. It is based on the frequency of psychological symptoms that employees have experienced them in their jobs during the past month [34]. Scoring is based on a Likert style of five degrees from 1 (never) to 5 (more than 5 times). Psychological distress scores are from 0 to 28 that high scores indicate more psychological distress experienced by the individual. Munteau [33] reported the internal validity of this scale using Cronbach's alpha 0.83. In addition, she showed that this scale had a good validity. In the current study, the reliability of this tool was calculated using Cronbach’s Alpha and split-half coefficients respectively 0.79 and 0.75.

Questionnaires of perceived supervisor support, physical symptoms and psychological distress are represented in Table 1.

RESULTS

Part I: Demographic characteristics of participants
Almost the majority of participants were male because the main occupational groups were at production line in this study. Ages ranged from 18 to 53 yr; the mean age of the participants was 34 yr (SD=5.58 yrs) and average work experience was 12 yr (SD=3.2 yrs) (Table 2).

Part I: Intercorrelations of Study Variables
Table 3 shows the descriptive statistics and intercorrelations of the study variables. Supervisor support was negatively related to physical symptoms ($r=-.33, p<0.01$) and to psychological symptoms ($r=-.23, p<0.05$).
Part III: Multivariate Analysis

To assess the role of supervisor support in predicting reporting rate of physical symptoms and psychological distress were used of the canonical correlation method that is performed with multivariate analysis (Table 4). Accordingly, supervisor support variable predicts almost 22% of variance of reporting rate of physical symptoms and psychological distress ($p < 0.01$).

Univariate analysis of variance on the criterion variables considering predictor variable of supervisor support is presented in Table 5.

As can be seen supervisor support variable predicted about 17% and 19% of the variance of variables of physical symptoms and psychological distress significantly ($p<0.01$).

DISCUSSION

The results of the present study indicated that supervisor support had negative correlations with physical and psychological symptoms. This is in consistent with the findings of the previous studies [7, 12, 14, 35-37] and can be interpreted on the basis of the following possibilities. The importance of supervisor support seems reasonable. Supervisor support is essential to motivating employee to excel and provision of support in workplace. Previous research showed high levels of supervisor support were related to decreased work stress and a greater appreciation of the work [38]. The mechanism behind this relationship is that when worker perceive they have a high level of supervisor support to draw on, they are fewer likely to estimate their environment as stressful, and managing various work demands, therefore less likely to susceptible the psychological and physical symptoms. The supervisor support may prepare the employee to feel better enable to adjust with work demands.

Previous research indicated the availability of support from one's supervisor buffered the negative effects of work stress on health of employees. Employees with the perception of supervisor support realize that their health and safety for supervisory management is more important than the mere production; so they do not spend all my time for doing faster their jobs and do their work with more patience.

On the other side, employees with the perception of work pressure have more job stress and want to do their work rapidly; therefore, at the time of working with organization machinery and perhaps even at the time of their passing involve in more accidents. The perception of employees about the company philosophy and its supervisor of production or safety, after the

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Table 2. Demographic characteristics of the sample members (N=189)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>18 to 29 years</td>
<td>36%</td>
</tr>
<tr>
<td>30 to 41 years</td>
<td>36%</td>
</tr>
<tr>
<td>42 to 53 years</td>
<td>28%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>90%</td>
</tr>
<tr>
<td>Female</td>
<td>10%</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>60%</td>
</tr>
<tr>
<td>Single</td>
<td>40%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Master degree</td>
<td>12%</td>
</tr>
<tr>
<td>University graduates</td>
<td>24%</td>
</tr>
<tr>
<td>High school graduates</td>
<td>60%</td>
</tr>
<tr>
<td>Primary school graduates and lower</td>
<td>4%</td>
</tr>
<tr>
<td>Work experience</td>
<td></td>
</tr>
<tr>
<td>5 years and lower</td>
<td>36%</td>
</tr>
<tr>
<td>6 to 15 years</td>
<td>24%</td>
</tr>
<tr>
<td>16 to 25 years</td>
<td>24%</td>
</tr>
<tr>
<td>26 years and higher</td>
<td>16%</td>
</tr>
<tr>
<td>Shift status</td>
<td></td>
</tr>
<tr>
<td>Shift</td>
<td>64%</td>
</tr>
<tr>
<td>Not shift</td>
<td>36%</td>
</tr>
</tbody>
</table>

Table 3. Mean, standard deviation, internal correlation between variables (N=189)

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physical symptoms</td>
<td>16/93</td>
<td>5/02</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Psychological symptoms</td>
<td>11/1</td>
<td>4/33</td>
<td>0.55**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3. Supervisor support</td>
<td>29/1</td>
<td>2/51</td>
<td>-0.42**</td>
<td>-0.44**</td>
<td>1</td>
</tr>
</tbody>
</table>

*p< 0.05, **p<0/01
Table 4. Multivariate analysis (MANOVA) of the predictor variable of supervisor support based on the criterion variables of physical symptoms and psychological distress and accident

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Noncent. Parameter</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai’s Trace</td>
<td>0.22</td>
<td>6.28</td>
<td>2</td>
<td>186</td>
<td>0.004</td>
<td>0.22</td>
<td>12.55</td>
<td>0.89</td>
</tr>
<tr>
<td>Wilk’s Lambda</td>
<td>0.79</td>
<td>6.28</td>
<td>2</td>
<td>186</td>
<td>0.004</td>
<td>0.22</td>
<td>12.55</td>
<td>0.89</td>
</tr>
<tr>
<td>Hotelling’s Trace</td>
<td>0.27</td>
<td>6.28</td>
<td>2</td>
<td>186</td>
<td>0.004</td>
<td>0.22</td>
<td>12.55</td>
<td>0.89</td>
</tr>
<tr>
<td>Roy’s Largest Root</td>
<td>0.27</td>
<td>6.28</td>
<td>2</td>
<td>186</td>
<td>0.004</td>
<td>0.22</td>
<td>12.55</td>
<td>0.89</td>
</tr>
</tbody>
</table>

* Significant

Table 5. Univariate analysis of variance on scores of incidents reporting rates, physical and psychological symptoms according to predictive variable of job stress

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical symptoms</td>
<td>113.67</td>
<td>1</td>
<td>113.67</td>
<td>9.99</td>
<td>0.003</td>
<td>0.17</td>
<td>0.88</td>
</tr>
<tr>
<td>Psychological distress</td>
<td>111.14</td>
<td>1</td>
<td>111.14</td>
<td>11.34</td>
<td>0.002</td>
<td>0.19</td>
<td>0.92</td>
</tr>
</tbody>
</table>

organization's policy towards safety, was the second important factor in predicting safety performance [39]. The supervisor support is a resource that reduce perceive of stressor in the workplace. Indeed supervisor support combination of assistance and expression sensational support by the supervisor to enhance the well being in employee. Supervisor support provides a psychological and physical resource that influences the psychological state of employee. Supervisors the pivotal role in the provision of work setting supports. Previous research indicated that level of burnout was reduced, if worker feel able to negotiate about work problems with supervisor [40]. The theory of demand-control (DC), describes work stress as developing from the structural or organizational aspects of the work environment and not the individual characteristics [41]. A part of this theory is interaction between the job demands is put on the employee and the management to coordinate those demands [42]. Employees involved in positions with low control, high demands and low supervisor support, are in a higher danger of physical and psychological harm from work stress [43]. Mcclenahan, Giles and Mallett [44] 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. Lack of supervisors support and poor communication may act as stressors, and therefore leading to the perception of work stress [44]. Supervisor support has effects which are beyond the perceived organizational support that only is associated with improved safety communications. Providing essential information and skills about mental health, including occupational stressors, have desired effects on the mental health of employees, at least in the short term [46]. Through providing information for subordinates or transferring attitudes or opinions about safety to them, often supervisors act as a driving force affecting workplace safety [47]. Perceived support of supervisor and co-workers from safety can reduce stress and the perception of stressors in workplace [48]. Supervisor support provides employees with an important resource to manage stress and ultimately reduces the negative effect of work stress impact on physical and psychological symptoms. In order to minimize the occurrence of physical and psychological symptoms, it is important to provide supervisor support for employees [49]. Most organizations spend all their time to design interventions for reducing stress. Although employees will learn ways to deal with stressors, but when they enter the workplace, because of poor relations with supervisors and colleagues, involve in the paradoxical situation that cause learning from interventions becomes pale, and again fall in the same destructive cycle of conflicts. Studies have shown that supervisor support and the quality of communication between the supervisor and employees have a significant impact on learning transfer [50]. Therefore, in organizations should be taught to supervisors and managers how to establish good relations with subordinates. Given the above contents, the mediator role of supervisor support in the relationship between work stress and physical and psychological symptoms include: Identifying important factors in the occurrence of work stress and the better design of human relations in the workplace can mediate the effect of work stress on physical and psychological health of employees. The most effective procedure in which organizations can reduce work stress is modifying the sources of stress and creating a healthy workplace in occupational stress management. Increasing communication through greater opportunities for participation employee in workplace.
and supervisor support training program on stress management in workplace might be effectual way for alleviate work stress, which would ultimately enhance workers’ health.

The present study needs to be replicated in different populations and needs more empirical support. Till then, the findings of the study should be interpreted with caution. Further, the cross-sectional design of the study and participants (i.e., a group of employee) exert some limitations on the generalization of the findings. Finally, the problems and limitations on the use of self-reporting instruments should not be overlooked.

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