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Relationship Between Organizational Leadership Style and Musculoskeletal Injuries Among Workers of an Iranian Process Industry

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Abstract

Background and Objectives: The organizational leadership style can be considered as an important psychosocial factor that may affect workers' health, safety, and productivity. The current study aimed at investigating the relationship between organizational leadership style and musculoskeletal disorders (MSDs) among workers.

Methods: The current descriptive, cross sectional study was conducted on 188 employees, including 10 leaders and 178 followers of an Iranian process industry. Nordic MSDs questionnaire (NMQ) and leadership style questionnaire (MLQ) were used as data collection tools. Statistical analysis was performed with SPSS version 19.

Results: Totally, 71.7% of the participants reported experiencing the symptoms of MSDs during the last 12 months. The highest prevalence of MSDs was in lower back (47.2%), shoulder (34.8%), and neck (32.4%), respectively. Statistical analysis revealed that the mean scores of transformational and laissez faire leadership styles in the two groups of with and without MSDs were significantly different.

Conclusions: MSDs had high prevalence among workers of the studied process industry. Higher rate of MSDs was observed among the workers with higher scores of laissez faire leadership style. In contrast, the employees under transformational leadership style as the dominant management method, reported lower rate of MSDs complaints. As a conclusion, a relationship was observed between the leadership style and MSDs occurrence in the studied industry.

Keywords: Musculoskeletal Disorders (MSDs), Leadership Style, Process Industry

1. Background

Musculoskeletal disorders (MSDs) are considered as a cause of occupational injuries in the developed and developing societies. In the developing societies, however, the problems of job - related injuries are exceedingly serious. The financial loss caused by such disorders is high and influences the individuals and also the organizations (1). In recent years, one of the most serious predicaments that ergonomists are confronted in the workplace all over the world is MSDs. Inappropriate working conditions and lack of an effective work injury prevention program in the developing societies yields a high rate of musculoskeletal complaints (2). Risk factors of MSDs are identified as work - related activities (e.g., repetitive tasks and heavy load lifting), and awkward working postures (e.g., bent back, static postures, etc.). Psychosocial factors (e.g., job stress, job dissatisfaction, and organizational leadership style) are also considered as determinant predictive variables (1, 3).

MSDs are a central issue in the workplace worldwide, since a large number of physician visits are annually due to MSD - induced complaints (4). Furthermore, in the last decade, some research centers announced an estimate on the costs attributable to MSDs symptoms (e.g., the financial impositions related to workers' lost wages, productivity, and compensations) as US$50 billion every year (5). MSDs consequences seem to be an important risk to quality of working life over a vast range of workplaces and industrial

organizations (6).

On the other hand, organizations struggle to retain and enhance their resources continuously to survive and thrive in todays' competitive arena. These resources that are mostly difficult to afford (e.g., human, financial, and technical) play outstanding roles in an organization destiny. Human resources of an organization, however, are known to be more important due to the capability of thinking and planning (7). Hence, the successful organizations are distinguished from the others through applying dynamic and effective leadership (8). Recently, remarkable attention is paid to leadership and it is regarded as the critical factor to lead to organizational effectiveness as much as 45% - 50% (9, 10). It is noteworthy that although leadership is known to be an issue of argument in the 21st century, no certain definition is agreed upon. According to the previous studies, leadership can be defined as a process of affecting people through stimulation, motivation, and recognition of employees to get work performed and achieved the preferred outcomes (10, 11).

Leaders adopt various leadership styles in order to motivate and stimulate the employees (12). The most common organizational leadership styles include:

a) Transformational leadership in which the leader makes a positive relationship with the followers and persuade them going beyond personal needs and working parallel to the values of the organization (13). Transformational leadership may be effective on diverse dimensions of the organization such as making a sense of responsibility among the personnel, decreasing job stress, increasing job satisfaction, and enhancing productivity. In this leadership style, managers believe that workforce goals and desires are as important as the production rate.

b) Transactional leadership through which a mutual leader - fellow relationship is presented. The leader with transactional leadership style is indeed concerned more with the achievement of targets and provides facilities and rewards for employees when completely performing their tasks (12).

c) Laissez fair is a leadership style with a negative relationship between the leader and the followers (14-16). Leaders, with this style, are mostly reluctant to provide feedback to their followers. They do not even try to meet the desires of their followers. The employees, therefore, are unsatisfied and unproductive in their works. The leaders with laissez fair style are mostly possible to be absent, irresponsible, and indifferent when following their personnel requests (17).

Researchers believe that an organization productivity level is highly dependent upon psychosocial factors rather than physical ones. It means that today managers should seriously attempt to afford personnel welfare and communicate with them (18). Management and leadership, therefore, are considered as pivotal pillars playing a key role in promoting the working conditions and more importantly, caring personnel health (19).

An ample of research is conducted to investigate the relationship between workplace psycho - social factors and work - related MSDs (18-21). For instance, in a study conducted by Barzideh et al. (2014), it was concluded that inappropriate psycho - social factors including high level of job stress induced by high job demands as well as low decision latitude may contribute to MSDs among employees (20).

Although, many studies are conducted to examine the effect of management role on different aspects of workers' health, some controversial findings are obtained (22). For example, a complicated picture of relationship between transformational leadership and sickness absence was presented in the study by Nielsen et al., indicating that transformational leaders might enhance the sense of self - sacrifice among some followers due to their inspiring to go to work even while sick, resulting in an increased risk of sickness absence (23).

In the majority of these researches, the job organizational aspects (i.e., management methods, production techniques, personnel participation level, and personnel facilitation and income) are considered as the main factors influencing the occurrence of MSDs (24). In fact, increasing MSDs rate seems to be directly influenced by leaders' behavior as well as the way of making relationship with the personnel (25). Since MSDs are common causes of workers' health complaints in the workplace (26) and also the main causes of work - induced absenteeism and early retirement worldwide (27), the current study aimed at examining the relationship between leadership style and MSDs among the employees of an Iranian process industry.

2. Methods

The current descriptive, cross sectional study was conducted on 188 full - time employees working in a process industry located in Bushehr Province, South of Iran, in 2017. Since the census sampling method was employed, all employees working in different units of the industry participated in the current study. The inclusion criterion was at least three years of job experience in the industry.

Prior to the study, a written consent form was signed by the participants. Data were collected through anonymous questionnaire by interviewing with the individuals at their workplace. The data gathering questionnaire contained three sections as follows:

2.1. Demographic Variable Questionnaire

Participants reported their demographic characteristics including age, job tenure, work system, and employment status.

2.2. Standard Nordic Musculoskeletal Disorders Questionnaire

Participants' musculoskeletal complaints in different body regions were surveyed by the NMQ, which is a standardized internationally accepted questionnaire that contains a body map with binary (yes/no) questions related to different body regions. Participants reported whether they had pain or any other complaints in a certain region of their bodies in the past 12 months. This method was vastly applied to study MSDs complaints in an ample of previous studies (19, 28). The validity and reliability of the Persian version of NMQ were examined and confirmed by Choobineh et al. (29).

2.3. Multifactor Leadership Questionnaire

The questions of MLQ questionnaire are based on three leadership styles (i.e., transformational, transactional, and laissez faire). This questionnaire contains 36 questions answered based on a five - option Likert scale (e.g., always, frequently, sometimes, rarely, and never) designed for two different forms specialized for leaders and followers, which evaluates the leadership style of a leader from the viewpoint of each participant. Each dimension of the three leadership styles was measured through several questions of which a certain score was allocated (20 questions on transformational leadership style, 12 questions on transactional leadership style, and four questions on laissez faire leadership style). No cut off point was presented for the questionnaire used in the current study and higher scores obtained in each section determined the type of leadership style (30). The validity and reliability of the Persian version of MLQ were confirmed in the study by Bagheri et al., in which Chronbach's alpha was 0.9 (31).

Descriptive analysis was performed to illustrate qualitative or quantitative variables. Independent samples *t* test was used to examine the difference between mean scores of leadership styles among the ones with/without MSDs. The significance level was set to 0.05 in all statistical tests. SPSS version 19 was used to analyze the collected data.

3. Results

Some of the participants' demographic characteristics are shown in Table 1. The results are presented separately for the two groups of participants including the leaders and the followers.

The prevalence of MSDs complaints among the studied employees are shown in Table 2. According to the participants' reports, 71.13% of the studied personnel reported MSDs experience during the last 12 months. Moreover, based on the results, the highest prevalence of MSDs were related to lower back (47.2%), shoulders (34.8%), and neck (32.4%), respectively.

Table 3 displays the mean scores of the leadership styles separately for the two groups of leaders and followers in order to represent the results of the viewpoints of the two groups on the existing leadership styles, comparatively. Moreover, the results of independent *t* test on managements' leadership styles indicated a significant difference between the two groups (leaders and followers) in such a way that the transformational leadership style scored the highest by leaders indicating that they knew that their leadership style was transformational. In their views, transactional and laissez faire leadership styles were scored as the second and third reported existing styles, respectively. Interestingly, according to the followers' viewpoints, the laissez faire leadership style was scored the highest while transformational and transactional styles scored as the second and the third reported existing styles.

Independent *t* test was used to investigate the difference between the mean scores of leadership styles in participants with and without MSDs complaints. As shown in Table 4, the difference between mean scores of transformational and laissez faire leadership styles were statistically significant in the individuals with and without reported MSDs in such a way that the prevalence of MSDs was significantly higher among the staff reporting the laissez faire leadership as the existing management style. Conversely, the participants reporting the transformational leadership style as the dominant management method in their organization reported less MSDs complaints.

4. Discussion

The current study aimed at examining the relationship between dominant organizational leadership styles and MSDs occurrence. Based on the findings, age and job tenure were both significantly higher in leaders than the followers. Most of the leaders were married, which was naturally due to their higher mean age compared with that of the followers. Also, the results showed that 71.3% of the participants reported at least one body region MSDs complaints during the last 12 months indicating a relatively high prevalence of MSDs among the participants. The results of such prevalence was reported as 71.7%, 74%, 48.8%, and 59.9% in the studies by Hoboubi et al. (32), Etemadinejad et al. (33), Asyraf et al. (34), and Shan et al. (35), respectively. Variations in the results of these studies can

Table 1. Demographic Characteristics of the Participants in the two Groups of Staff and Managers

Variable	N (%)		Mean (SD)		Maximum - Minimum	
	Followers, (N = 178)	Leaders, (N = 10)	Followers, (N = 178)	Leaders, (N = 10)	Followers, (N = 178)	Leaders, (N = 10)
Education						
Diploma	42 (23.6)	1 (10.0)	-	-	-	-
Associate degree	44 (24.7)	3 (30.0)	-	-	-	-
Bachelor's degree and higher	92 (51.7)	6 (60.0)	-	-	-	-
Marital status						
Married	129 (72.5)	8 (80.0)	-	-	-	-
Single	49 (27.5)	2 (20.0)	-	-	-	-
Employment status						
Permanent	50 (28.1)	1 (10.0)	-	-	-	-
Temporary	128 (71.9)	9 (90.0)	-	-	-	-
Work system						
Shift working	139 (76.4)	7 (70.0)	-	-	-	-
Day working	42 (23.6)	3 (30.0)	-	-	-	-
Age (year)	-	-	31.8 (4.95)	39.9 (5.42)	24 - 49	34 - 47
Job tenure (year)	-	-	6.21 (3.54)	12.4 (5.1)	3 - 23	7 - 24
Daily working time (hour)	-	-	11.78 (0.66)	11.6 (0.84)	10 - 14	10 - 12

Table 2. Prevalence of MSDs Symptoms in Different Body Parts Among the Studied Employees During the Last 12 Months

Body Region	With MSDs, 127 (71.3%)	Without MSDs, 51 (28.7%)
Neck	61 (34.3%)	117 (65.7%)
Shoulder	62 (34.8%)	116 (65.1%)
Elbow	14 (7.8%)	164 (92.2%)
Wrist and hand	41 (23.0%)	137 (77.0%)
Upper back	42 (23.6%)	136 (76.4%)
Lower back	84 (47.2%)	94 (52.8%)
Thigh	41 (23.0%)	137 (77.0%)
Knee	51 (28.7%)	127 (71.3%)
Leg	36 (20.2%)	142 (79.8%)

Table 3. The Comparison of the Mean Scores of Leadership Styles Between the Two Studied Groups

Leadership Styles	Scores of Leadership Styles		P Value[a]
	The Leaders (N = 10), M ± SD	The Followers (N = 178), M ± SD	
Transformational	3.58 (0.50)	2.92 (0.90)	0.002
Transactional	3.2 (0.63)	2.6 (0.69)	0.21
Laissez fair	2.3 (0.48)	3.27 (0.88)	0.001

[a] Independent *t* test between the two groups (the leaders and the followers).

Table 4. Comparison of the Mean Scores of Leadership Styles in the Two Groups of Participants

Leadership Styles	Scores of Leadership Styles		P Value[a]
	With MSDs, M ± SD	Without MSDs, M ± SD	
Transformational	2.66 (0.81)	3.40 (1.00)	0.0001
Transactional	3.01 (0.89)	2.84 (0.95)	0.23
Laissez fair	3.19 (0.86)	2.77 (0.62)	0.001

[a] Independent *t* test between the two groups (with/without MSDs).

be due to the different nature of the industries studied. For instance, the prevalence of MSDs among the employees of manufacturing or healthcare organizations is likely to be higher than that of some organizations such as service or retail industries (36). High rate of MSDs symptoms in the current study indicated that identification and elimination of MSDs contributing risk factors in the workplace should be considered with high priority to improve working conditions.

Moreover, the majority of leaders answered the questionnaires in such a way to show transformational style as their organizational leadership, while laissez faire was the followers' selected leadership style. Moreover, there was statistically significant difference between the ideas of leaders and followers on the type of leadership styles that

they were attributed to. These findings were in line with some previous studies (10, 19).

Additionally, statistical test on the mean scores of transformational and laissez faire leadership styles showed a significant difference between the two groups with and without reported MSDs complaints. The findings of some studies revealed that leadership style was significantly related with job satisfaction (37, 38); therefore, job satisfaction might show an increasing trend among the followers of transformational leadership style, while it might have decreasing trend among the ones experiencing laissez faire (39, 40). The main factors contributing to job dissatisfaction among individuals can be inappropriate supervisor - employee relationships, improper performance evaluation systems, and lack of social support in the workplace (41, 42). Job satisfaction indeed refers to whole positive attitudes of an individual toward his job as well as being interested in tasks and workplace environment (43).

Psychologically, dissatisfying work conditions are accompanied with job stress that may lead to depression, anxiety, isolation, and disgust (44-46). Furthermore, increasing MSDs prevalence among employees seems to be an obvious adverse effect of job stress.

Since few studies are conducted on the effects of leadership styles on MSDs occurrence as one of the most common health outcomes in the developing countries, the current study findings may have a number of important implications for future practices and open up some interesting questions in order to ascertain what other factors are involved in the effect of organizational aspects on MSDs or other health problems. However, as the current study used cross sectional design and self - report questionnaires to gather the required data, the findings should be interpreted with caution. Also, the self - reporting methodology may have some restrictions namely denial, deception, or difficulty in recall. In the current study, the time through which the data had to be recalled was limited since the recall period for reported MSDs complaints was restricted to 12 months. This problem also exists for MLQ data, as the leaders may be reluctant to report abnormal work treatment. Finally, as the participants in the current study were limited to the currently working employees, the workers that left the jobs due to MSDs symptoms were likely to be excluded from the study. Therefore, the data may underestimate MSDs prevalence and the relationship between leadership style and MSDs complaints.

4.1. Conclusion

The prevalence of MSDs was high in the studied process industry. The employees that thought laissez faire leadership style was the dominant leadership style in their workplace reported significantly higher rate of MSDs prevalence, while on the contrary the followers of transformational leadership reported less MSDs complaints. As a conclusion, there was a relationship between the leadership style and MSDs occurrence among the employees of the studied process industry.

Footnote

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