

## **Musculoskeletal Disorders and Burn out Syndrome and MAPO index in Hospital personnel**

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### **Abstract**

**Background:** Since hospital staff was at risk from a variety of occupational hazards, hospital assessments are needed to diagnose these risks and prevent the development of occupational disorders and diseases. One of the important tasks performed in the departments is to move and carry the patient or to help the patient with a disability or weakness, which leads to diseases such as musculoskeletal disorders.

**Aim:** To determine the index of displacement and helping the patient and the frequency of musculoskeletal disorders and burn out syndrome in personnel.

**Methods:** Hospital personnel in emergency department of private (531) and public (601) hospitals was participated. Using a checklist for the relocation and assistance of the patient, each section will be scored and finally the score will be obtained. The MAPO (Movement and Assistance to the Patient in the Hospital), in turn, includes the ratio of the number of patients with disabilities to the total number of personnel who help with the relocation of patients in the departments. Then, , examine the correlation between musculoskeletal disorders, burn out syndrome and this index. This comparison was between emergency department of private hospital with public hospital. Data analyzed in SPSS software.

**Results:** Department with high Mapo index had personnel with musculoskeletal disorders and burn out syndrome more than other department with low Mapo index ( $P < 0.001$ ). In regression Mapo index was related to them ( $P < 0.001$ ).

**Conclusion:** Mapo index is a marker of determination of musculoskeletal disorders risk in personnel and related to burn out syndrome in them.

**Keywords:** Mapo index , musculoskeletal disorders , burn out syndrome

### **Introduction**

Since hospital staff was at risk from a variety of occupational hazards, assessing hospital departments is essential in order to assess these risks and prevent the occurrence of occupational disorders and diseases.<sup>1-3</sup> One of the important tasks it is done to move and carry the patient or to help the patient with a person who can lead to disturbances such as musculoskeletal disorders in his or her occupation.<sup>4-7</sup>

Indicators for the evaluation of the risk of musculoskeletal disorders; one of the most important indicators is the MAPO's Relocation and Assistance to the Patient.<sup>8-10</sup> To prevent the onset and chronicization of musculoskeletal disorders, their risk assessment is required.<sup>11,12</sup>

The MAPO index (movement and patient assistance in the hospital) includes the ratio of the number of disabled patients to the total number of personnel who help with the relocation of patients in the departments.

Then, the adequacy or inadequacy of the auxiliary devices in the patient's movement is scored in each section. The adequacy of aids to people is also rated. Then, the quality and quantity score in the department, the assessment of the environment, including the patients' room, bathroom and bathroom, and ultimately the level of staff training for helping patients with disabilities and poorly evaluated.

If the final score is more than five, that is, a corrective action is needed in the sector, if it is between 1.51 and 5, in the near future there will be a need for corrective action in the sector and less than it currently needs action.<sup>13,14</sup>

Musculoskeletal disorders are a common cause of chronic pain and absenteeism as well as disability. One of the most important of these is back pain, which can be due to specific or non-specific causes and becomes chronic, which sometimes causes chronic pain and disability. Of course, shoulder, wrist, knee and ankle disorders are also relatively common and can be seen in the staff was relocating to the patient and need to be prevented and controlled.

Since a similar study has not been conducted at the university and this indicator in the hospital should be evaluated, the researcher intends to use the assessment of the relocation index and patient assistance in the hospital, as well as assessing the related disorders in assessing the risks in this regard.

Objective was determination of the index of displacement and helping the patient and the frequency of musculoskeletal disorders and burn out syndrome in personnel.

## Methods

Two emergency departments from private and public hospital were assessed. Personnel in relation to patient movement and assistance were studied.

Personnel with at least one year work duration interred the study and must be without musculoskeletal disorders, mental and psychological problems at the beginning of the job.

After coordination with the authorities, the sections have been identified and the Nordic standard questionnaire has been used to investigate musculoskeletal pain. Using a checklist for the relocation and assistance of the patient, each section will be scored and finally the score will be obtained. In detail, this study, or the determination of the MAPO (relocation and patient assistance in the hospital), includes the ratio of the number of patients with disabilities or low-income patients to the total number of personnel who contribute to the relocation of patients in the departments. (NC / OP , PC / OP)

Subsequently, the adequacy or inadequacy of auxiliary equipment is evaluated in each patient's displacement. (LF) The adequacy of auxiliary equipment for people is also rated. (AF), then Quality Score for wheelchairs (WF) , assessment of the environments including patient rooms (EF), bathroom and bathroom services, and, finally, TF staff training (TF) for helping disabled patients Is evaluated.

If the final score is more than five, that is, a corrective action is needed in the sector, if it is between 1.51 and 5, in the near future there will be a need for corrective action in the sector and less than it currently needs action. Then, using the findings, we will examine the correlation between musculoskeletal disorders and this index.

Musculoskeletal disorders had assessed with health issues of personnel and Nordic questionnaire. Standard interview

had used for burnout syndrome. Comparison was done between emergency department of private with public hospital.

The study is performed and analyzed by SPSS software. The frequency and percentage of the mean and standard deviation are used and for comparing the employees of the sections, the Chi-square test is used.

This was researched with ethical considerations and the 1964 Helsinki by getting consent.

**Results**

In this study Mapo index in emergency department of private hospital was 6.5 and Mapo index in public hospital was 3.4.

Personnel characterization was shown in table 1.

Table1: Personnel characterization

Hospital Variable	Public hospital	Private
Mapo index	3.4	6.5
Age of personnel	34.02±2.1	35.21±1.01
Work duration	14.2±3.2	15.12±2.14
Gender [Man, woman n(%) ]	250(41.5),351(58.4)	210(39.5),321(60.4)
Smoking	10(1.6)	15(2.8)

Musculoskeletal disorders and burn out syndrome were more in private emergency department. Table 2 was shown these disorders. Low back pain, knee disorders and wrist disorders were more in private than public emergency department.

Table 2: Musculoskeletal disorders and burn out syndrome

Hospital Variable	Public hospital N(%)	Private N(%)	Chi-2 Or exact test
Musculoskeletal disorders	48(7.9)	87(16.3)	<0.001
Low back pain	20(3.3)	45(8.4)	<0.001
Discopathy	5(0.8)	8(1.5)	0.07
Shoulder disorders	4(0.6)	7(1.3)	0.12
Wrist disorders	9(1.4)	12(2.2)	0.03
Knee disorders	10(1.6)	15(2.8)	<0.001
Burn out syndrome	11(1.8)	25(4.7)	0.04

With regression of Mapo index and musculoskeletal disorders relation was significant (0.001). Mapo index and burn out syndrome was 0.01 and significant too.

Mapo index in it's subgroups was shown in table 3 and comparison between 2 hospital was done after three times assessment.

Table3: Mapo index in it's subgroups.

Hospital Variable	Public hospital Ratio or value	Private Ratio or value	T-Test
NC/OP(number of non cooperative patient / personnel)	0.5	3	<0.001
PC/OP(number of cooperative patient /	1.2	2.5	<0.001

personnel)			
Lifting factor	2	4	<0.001
Minor aid factor	0.5	1	<0.001
Wheelchair factor	1	2	<0.001
Environmental factor	0.75	1.5	<0.001
Training factor	0.75	2	<0.001

**Discussion**

In this study Mapo index in emergency department of private hospital was more than public hospital. In this study Mapo index in emergency department of private hospital was 6.5 and Mapo index in public hospital was 3.4.

Musculoskeletal disorders and burn out syndrome were more in private emergency department. Low back pain, knee disorders and wrist disorders were more in private than public emergency department.

Mapo index in it's subgroups was shown and comparison between 2 hospital was done after three times assessment. All of the items in Mapo index were more in private emergency department than public.

There was shown that public hospital had better situation for movement and assistance of patients in the hospital. This was related to attention of occupational health in public hospitals in recent years and having personnel with new education in the field of service planning after final examination of the universities.

Musculoskeletal disorders such as low back pain were prevalent in nurses and hospital personnel.

Low back pain had causes such as discopathy and spondylolysis but none specific low back pain was more prevalent than other causes.<sup>1,2</sup> In this study non specific low back pain was more than discopathy.

Chronic low back pain was important because of disability and absenteeism.<sup>3,5</sup>

Chronic low back pain took a long time for example more than three months but chronic pain syndrome took more than six months. People with chronic pain syndrome were at risk of disability and having pain in all life time.<sup>1,5</sup>

Occupational health could help to prevention of related disorders and disability in hospital workers and others who at risk.

Other disorder such as knee disorder and pain was important because it had many risk factors for example in older people was demonstrated osteoarthritis of knee. Prevention in the workplace was important for delaying of this disorder.<sup>2</sup>

Wrist disorders and tenosynovitis in the hand were important in work and performance of workers and prevention of this disorder was related to education of employee in suitable and appropriate using of hands in the workplace.<sup>3,5</sup>

Other researchers studied about movement and assistance of patients in hospital and report their findings.<sup>8,9</sup>

Mapo index had relation to musculoskeletal disorders.<sup>10,11</sup> In this study was demonstrated that musculoskeletal disorders was more in hospital with high Mapo index than hospital with low Mapo index.

Burn out syndrome was important in hospital personnel such as nurses.

Research showed the importance of negative effects of stress on workers.<sup>12</sup>

In this situation this study researched about the burn out syndrome symptom in hospital personnel. These symptoms were loss of idealism, emotional exhaustion and dissatisfaction from this situation. They told worked hard but achieving was less than previous.

If this disorder is not treated, it will have irreparable effects. The patients were burn out from work and avoid contact with people such as hospital personnel from patients in hospital. It was dangerous and Unsuitable.

In this study Hospital with high Mapo index had more personnel with burn out syndrome and it was related to variables in Mapo index such as number of non cooperative and cooperative patients to number of personnel and hardness of hospital work in relation to movement and assistance of hospital patients.

Researcher was recommended larger study with much more hospitals and departments.

### Conclusion

Mapo index is a marker of determination of musculoskeletal disorders risk in personnel and related to burn out syndrome in them. Prevention from these disorders was important in occupational health.

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