Work 41 (2012) 5746-5748
DOI: 10.3233/WOR-2012-0939-5746
IOS Press

Analysis of the compensatory postures adopted by day caregivers through OWAS-Ovako Working Posture Analysing System

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Abstract. The Ergonomic Work Analysis reports that there are many activities performed by the professional caregivers and that they are exposed to physical and psychological overload. This situation favors the emergence of pain which influences the quality of life in the work place. In this way, the objective of this study was to verify the main postural constraints adopted by caregivers in public day cares. Visits were conducted in 28 day cares aiming at performing an interview to 126 caregivers who have been working for more than 4 years. From the questionnaire it was found that 80% of the participants refer some sort of pain, being 42% in the trunk, 33% in the shoulder and 25% in the lower limbs. The data from OWAS method showed that from the total of 30 postures performed during the work One could see that the main postures adopted by the caregivers were: flexion, lateral inclination and rotation of the trunk and most of the time they are standing. These movements, when bad performed, can lead to injuries in the lower limbs, upper limbs and trunk. It´s necessary more attention to these workers.Thought preventive ergonomic actions to reduce pain symptoms and promote a work in health and safety.

Keywords: Ergonomic Work Analysis,Caregiver, Prevention

1. Introduction

Functional posture is the position adopted by a person during the execution of a specific task, which is determined by the reaction between the dimensions of body segments and the characteristics of different elements in the workplace or to adjust the position adopted by the body furniture, tools, equipment or task being performed.

The objectives of recording postures go from a drawing tool, analyze the movements of the worker to assess the safety limits, evaluate the securities in offices and industries until compare situations before and after ergonomic interventions. But the main purpose of the record in the field postural ergonomic posture is to relate the parameters with the comfort, safety and effectively in the workplace.

For this, there are several ways to record the body posture, they will quantify across devices and equipment for audio-visual media or protocols manual graphing. The OWAS (Ovako Working Postures Analysing System) is one of these methods,

which was published in 1997, is a simple model for the recording and analysis of body postures in occupational situations. It is an analytical study of working postures objective changes in working methods leading to better positions.

In the workplace of the day care act professional caregivers who take turn themselves in the art of take care and teach babies in a critical period of the infant development. There are many studies on adequacy of children's furniture, but few researches describe the adequacy of the caregiver's furniture. The Ergonomic Work Analysis – AET says that there are many activities performed by the professional caregivers and that they are exposed to physical and psychological overload. These activities frequently lead to postural constraints which lead to overload mainly in the upper limbs and trunk bringing a several osteomuscular injuries. In this context, the fact of such workers act in an environment built specific to children that could lead to health, welfare, safety and comfort problems. This situation favors the emergence of pain which influences the quality of life in the work place. In this way, the objective of this study was to verify the main postural constraints adopted by caregivers in public day care by the method of postural analysis Owas.

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2. Methods

Visits were conducted in 28 day cares aiming at performing an interview to 126 caregivers who have been working for more than 4 years. One of the day cares was chosen to perform the AET, take pictures and tape the main compensatory postures of the caregivers during their daily activities. At the end of the study was offered a training of 4 hour of duration aiming at giving ergonomic prevention chronic pain guidelines. The videotapes were analyzed by the method Owas that seeks to analyze the attitudes of workers, and were shown on the computer through the Windows Media Player.

3. Results

From the questionnaire it was found that 80% of the participants refer some sort of pain, being 42% in the trunk, 33% in the shoulder and 25% in the lower limbs. The data from OWAS method showed that from the total of 30 postures performed during the work time such as bathing, changing diapers, putting and taking the baby from the cradle, feeding and stimulating motor development, 7 were classified as category 1, which represents that a correct posture was adopted with upright trunk, without overlapping weight and with extended legs, not requiring intervention. A total of 15 postures classified 2 which mean that the caregivers had an inclined and twisted trunk and holding a load suggesting interventions in the future. Three postures were classified as category 3 due to the fact that the caregiver was kneeling, twisting the trunk and inclining the trunk to hold a baby. One could see that the main postures adopted by the caregivers were: flexion, lateral inclination and rotation of the trunk and most of the time they are standing.

4. Discussion

The osteomuscular injuries related to the work (DORT) can generate different degrees of functional disabilities, which is one of the most serious in the worker health field. The incidence is higher in the young workers; the women are more the most affected, prevailing in the age group between 20 and 39 years old. The time, the posture and the movement are the great importance to ergonomy and they are associated to the pain symptoms both daily life and during the work time, they are determined by the activity in function of the task and by the work position. In many daily activities, the lumbar trunk is kept twisted (axial rotation) which is an important etiologic factor of lumbar pain and degenerative injuries of the discs [1]. While lifting a load the forces are transmitted to the vertebral spine and the discs are under different pressures. [6]If the trunk is flexed, the pressure on the disc is irregular what can lead to spine injuries. Such incorrect posture excessive force has to be done by the dorsal muscles to lift the load and to support the body weight against gravity. Such position leads to an uneven pressure on disc surface that decreases the lesion risks. It must avoid trunk torsions as well because this kind of movement provoke undesirable tensions in the vertebras, the elastic discs are tensioned and the joints and the muscles in the both sides of the spine are under asymmetric load that are detrimental, leading to osteomuscular problems. In discussing work postures, it is essential to consider the view of ergonomics Who is based on adapting work to man and not man for work. The point of view, physiological, orthopedic, is highly recommended

that a workplace that allows alternation of position. This case study would be ideal for monitors had chairs suitable for adults instead of having only chairs for children.

5. Conclusion

The postures adopted in caring the baby lead to the emergence of musculoesqueletal overloading. It would be necessary an adequacy in the furniture and allow guidelines to these professionals, because the activities with the babies lead them to crouch, to rise and to incline many times during the work time. These movements, when bad performed, can lead to injuries in the lower limbs, upper limbs and trunk.

It is necessary that urgent attention is not only the risk of work-related disorders ostemusculares but also the suffering and mental disorders that are common among day caregivers or educators.

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