

Organizational Aspects Influencing Adherence to Worksite Exercises at Hospitals

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ABSTRACT

Nursing workers are exposed to several risk factors which contribute to musculoskeletal disorders (WRMD). Workplace exercise is among the measures for controlling WRMD. However, work organization aspects can affect the adherence to exercise programs. Thus, the objective of this study was to identify organizational aspects related to workers' exercise adherence in different hospital sectors. Methods: 135 nursing aides from 3 hospital sectors were invited to take part in the study. Personal, occupational aspects and sick leave information were analyzed together with responses to the Job Content Questionnaire (JCQ). An exercise program was offered over 3 months. Data were analyzed by chi-square tests. Results: Only 1/3 of the workers took part in the exercise program. Most of them (64%/N=24) were from Intensive Care Units. There was no association between exercise adherence and organizational aspects evaluated by the JCQ. There was a difference between exercise adherence and the work sector ($p \leq 0.0001$). Conclusions: Other aspects of work organization not evaluated by the JCQ can influence exercise adherence and should be investigated in future studies. In addition, intervention aiming to improve work conditions needs be conducted in a broader context, in which Ergonomics plays a major role.

Keywords: Intervention, Intensive Care Units, Emergency Wards, General Wards, Demand-Control Model

INTRODUCTION

Nursing aides are exposed to different kinds of occupational risks, such as: physical, biomechanical, psychosocial and organizational. These risks are the consequences of high physical load demanded by nursing itself in addition to the long working hours, work shifts and high levels of psychological tension. These factors, inherent to nursing, require these professionals to work in hospitals in rotating shifts patterns, covering 24-hour shifts (Malinauskienė et al., 2009; Grosh et al., 2006) and to address situations involving human suffering and death (Poissonnet and Veron, 2000).

The main consequences of being exposed to occupational activity are the high levels of absence and work leave, developing chronic pain, an increase in the levels of occupational stress, medical expenses, the number of work accidents, the number of indemnification requests and labor lawsuits, change of professional activity, early retirement (Pompeii et al., 2009; Lambert and Clinton, 2010) and reduction in the quality of care provided to patients (Kawano, 2008).

Different forms of intervention have been proposed to minimize the impact of risk factors on workers' health. Among the measures to promote health and quality of life for nursing professionals is the practice of physical exercise at the work place. In a previous study conducted by our research group (Moreira, 2012), positive results were obtained to reduce symptoms in the lower spine and reduce sensitivity to pain while increasing abdominal muscle strength after doing an exercise program. This physical activity program was proposed to nursing professionals at a general hospital in Brazil in their working hours over a twelve weeks period. Studies conducted by

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other researchers also found benefits for the health and well-being of workers by doing physical activity in the working environment (Andersen et al., 2008; Sjogren et al., 2006; Gundewall et al., 1993).

Doing physical exercise provides a variety of benefits ranging from physical to mental health conditions (King et al., 2007; Forkan et al., 2006; Lim and Taylor, 2005; Harris et al., 1989). Additional benefits can be observed when physical exercise programs are done in the working environment, such as reducing the cost of employees' health, lowering the absence rate and less turnover of workers (Department of Health, 2009, Oldridge, 2008). Therefore, increasing the level of participation in regular physical activities has become a relevant concern for public health in many countries (Proper et al., 2002; Gerbahard et al., 1990; Owen and Lee, 1989). However, adherence to these programs is a key-factor for this intervention to be effective. Nikander et al. (2006) reported that the effectiveness of physical exercise to combat and prevent musculoskeletal pain is proportional to adherence to physical activity. Thus, identifying the factors that can provide a prognosis to adherence to physical exercise is essential for optimizing the implementation of interventions in the working environment.

Dickson et al. (2012) suggested that characteristics of the work organization, such control, demand and social support, be considered in future studies, however for a sample of a healthy population as, according to them, there is a lack of studies in the evaluation of organizational working aspects affecting the adherence of workers to physical exercise programs.

According to NIOSH (2002), work organization is made up of several working aspects and it can be defined from three contexts (1) the external context, those factors that contribute to new organizational practices such as economic development, regulatory and trade policies and technological innovations, (2) the organizational context, which includes alternative employment arrangements, management structures, supervisory practices and production methods and (3) the work context, such as climate, job complexity, temporal characteristics, as well as physical and psychological demands. Taking this into account, by considering the different aspects of work, organizational aspects in particular could potentially work either facilitating or making the effects of interventions to improve the working conditions more difficult. Thus, the objective of this study was to identify organizational aspects related to the workers adherence to exercise in different hospital work sectors.

METHODS

Subjects and work context: A total of 135 nursing aides (nursing auxiliaries and technicians) working in a medium-sized general hospital in Brazil were selected to take part in the study; all participants voluntarily signed a written informed consent to participate in the study. Among these workers, 14 were men and 121 women, with an average age of 34.9 ± 10.5 years. The participants were workers from general nursing wards (63), intensive care units (57) and emergency wards (15) from a total number of 286 nursing aides working at those sectors in a Brazilian medium-sized general hospital, where this number represents 57% of the total number of workers at the hospital.

Instruments and procedures: Initially the workers answered a questionnaire about personal information, as well as data about the place they worked, a history of leave due to musculoskeletal disorders over the last year, and also an adapted and validated translation into Portuguese of the Job Stress Scale (Alves et al., 2004) originally proposed by Karasek and Theorell (1990).

The Job Stress Scale (JSS) assesses aspects of work organization such as demand, control and social support. Psychological demands refer to the working pace, how excessive and difficult it is to be performed, as well as the amount of conflicts existing in working relations. Control is concerned with the margin of decision the worker has regarding two aspects: autonomy to take decisions about his/her own working tasks, including the pace at which these are performed, and the possibility of being creative, using his/her own abilities and being able to develop them, as well as acquiring new skills (Karasek and Theorell, 1990). On the other hand, social support in the working environment refers to collaborators and supervisors and can work either as a shock absorber (higher offer) or booster (lower offer) of the demand effect and health control (Karasek and Theorell, 1990).

After filling in the questionnaire, the workers were invited to participate in a physical activity program offered within the working premises at 3 different times during both working shifts: daytime and night time. This physical exercise program was offered to the workers over 12 weeks. Each session of exercises lasted 30 minutes and consisted of stretching, warming up and strengthening the main muscle chains and relaxing. As a part of a larger study, they were invited to engage in the program on two different occasions over the period of one year. To be considered part of the program, the worker had to attend at least 50% of the sessions.

Data Analysis

Data concerning: last year's leave, sectors they worked in and Job Stress Scale domains were analyzed descriptively and also by statistical association tests (Chi square) in order to check a possible association between the adherence to the exercise program and: organizational working aspects (demand, control and social support), sectors the individuals worked in, and the number of times they had leave over the last year.

RESULTS

From the total number of 135 individuals, 42 (31%) workers participated effectively in the offered exercises program and 93 (69%) of them did not participate. The majority of individuals who adhered to the program, 64% (24) were from ICU wards.

No significant statistical difference was noticed between the adherence to the exercises and the organizational aspects of work, such as demand ($p=0.262$), control ($p=0.520$) and social support ($p=0.457$). The group exercise classification according to the domains: demand, control and social support identified that although there was no significant statistical difference between adherence to exercises and organizational working aspects, the majority of workers, 44% (60), who did not adhere to the program had low control in the work (Table 1).

Table 1. Percentage of individuals classified in the domains: demand, control and social support by group of exercise

	Demand		Control		Social Support	
	high	low	high	low	high	low
Adhered to the exercise	19(14%)	23(17%)	14(10%)	31(23%)	22(16%)	24(17%)
Did not adhere to the exercise	46(34%)	47(34%)	30(22%)	60(44%)	47(34%)	43(31%)

A significant statistical difference was observed between the adherence to the exercises program and the sectors the individuals worked at ($p=0.000$), where the workers from the ICU wards were the ones who mostly participated.

A statistical difference was found between the adherence to the exercise program and previous leave ($p=0.030$), where the individual who did not participate in the exercise program had a major prevalence of previous leave and also they were mostly from the nursing and emergency wards 71% (64).

DISCUSSION

Our study showed that there was no association between adherence to the exercise program and the organizational aspects of work, such as: demand, control and social support. However, there was association between adherence to exercises and working in different sectors.

The lack of association between adherence to the exercise and demand, control and social support could be influenced by other factors related to the process of adherence, such as the workers' physiological, psychological, social and behavioral parameters (Dishman, 1988) that were not the focus of this study. A systematic survey conducted by Dishman et al. (1995) showed different personal factors that can possibly influence adherence to exercises, such as: personal capabilities, behavioral skills, commitment, reinforcement attitudes toward, and beliefs about health and activity; perceived needs and abilities; and outcome expectations interact with biomedical and <https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2093-0>

personality traits, feelings, lifestyle behaviors, and environments to influence a person's disposition to adopt or maintain involvement in physical activity. According to Marcus et al. (1992), the motivation of people to engage in physical exercise, and mainly to keep this behavior, is a complex behavioral process which depends on many factors. It should also be emphasized that in spite of the strong points already extensively studied by the model evaluating demand and control aspects, the scale used to assess organizational aspects of the work (JSS), does not take into consideration other organizational aspects such as structure and context of work (Tummers et al., 2002; Oldham and Hackman, 1981). These aspects can affect the adherence to the exercise program and should be investigated in further studies.

An association between the adherence to the exercise program and the working sector was identified, where the ICU (Intensive Care Unit) sector was associated with the highest adherence to the exercise program. This association strengthens the previous hypotheses that other organizational aspects of the work could have influenced the adherence, such as the fact that different hospital sectors present different organizational characteristics (Tummers et al., 2006). ICUs are sectors with a higher level of standardized tasks (Tummers et al., 2003), lower patient/therapist ratio compared to other sectors and a higher number of supervisors (Silva et al., 2012) in the working environment.

These characteristics can make communication between workers and supervisors easier and it enables higher flexibility for workers to drop out of the exercise program. In addition, as ICUs are closed sectors, this can work as an additional motivation for workers from ICU sectors to participate, as these sectors are characterized for being restricted to avoid contamination of patients under critical conditions compared to other hospital sectors (Silva et al., 2012). Therefore, adherence to the physical activity program can represent an opportunity to leave the sector.

The results also pointed out a relatively low rate of adherence to the exercise program. Andersen (2011) found higher rate of adherence to the exercise program (59%) when compared to the present study (31%). These diverging results between their study and ours could possibly be related to the kind of physical exercise program proposed and the group of workers evaluated. The exercise program proposed by our group was carried out in a training center at the working environment. More strenuous exercises were performed and the exercise sessions were conducted under the supervision of a physiotherapist. These conditions adopted were adopted because they are supported by high scientific evidence for reducing pain (Coury et al., 2009). In addition, our study evaluated nursing aids whilst Andersen (2011) have evaluated office workers. Nursing aides usually follow a routine of work which is unpredictable and uncertain (Luker et al., 1998), which can lead the workers to drop out of the physical exercise programs. Moreover, the majority of those workers who did not adhere to the exercise in the present study was in the group that presented low control at work (44%). Low control is related to lower possibilities to make decisions by the workers (Karasek and Theorell, 1990). Thus, this could also have contributed to the low rate of adherence to the exercise program by the nursing aides in this study.

The relation between the history of medical leave during the previous year and the adherence to the program observed for those workers that did not adhere to the exercise program can also be justified by the distinct aspects of the sectors. The individuals who did not adhere to the program were mostly working at the nursing and emergency wards, which are sectors that have less adequate organizational conditions (Tummers et al., 2002) and therefore favour the development of musculoskeletal injuries, as well as mental disorders.

Another possible justification for this result could be related to the possibility that those workers willing to participate are also more active than those that were reluctant to participate, resulting in a major rate of leave from the latter group. While analyzing the same population, Moreira et al. (2012) also observed a higher record of leave from the group that did not take part in the exercise program. According to the authors, these results were related to the low level of previous physical activity of these individuals, a factor that might have facilitated a higher prevalence of these disorders within this group.

CONCLUSIONS

As a conclusion, we observe that no association was found between the adherence to the exercise and organizational aspects of work (demand, control and social support). However, an association was found between the adherence to the exercise and the sector of work. As the organizational aspects involve different working issues (NIOSH, 2002), and our study assessed only part of these, we emphasize the need for further studies relating working aspects, as well as other organizational issues which could contribute to understanding the adherence of workers to physical exercise <https://openaccess.cms-conferences.org/#!/publications/book/978-1-4951-2093-0>

programs at the working place in order to improve the quality of life of workers and also subsidize more effective intervention programs.

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