



PARTICIPATORY ERGONOMICS: PERCEPTION AND AWARENESS OF POSTURAL HABITS AMONG SHOE STORE SALESPERSONS

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ABSTRACT

The aim of this article is to promote improvements in the postural habits of shoe shop salesmen upon observation that their work practices, with emphasis on unsuitable movements and positions, may cause discomfort, pain and other health problems. The study area delimited covers four shops situated in Rio de Janeiro State in the cities of Niterói, Araruama and Cabo Frio. For the purpose of data analysis, a field survey was conducted applying the Nordic Questionnaire about Symptoms of Osteomuscular Problems, and also images were collected of corporal posture in the work environment. Through evaluation of the postures and physical effort, in the context of participative ergonomics, the salesmen identified the ergonomic problems and interacted in the search for solutions, participating in the prescribed physiotherapeutic exercises. The result reveals that the perception of well-being is established when there occurs awareness of the initial physical postural conditioning.

KEYWORDS: participative ergonomics; phenomenology of perception; postural habits; physiotherapy.

1. INTRODUCTION

In the global scenario, according to the World Health Organization (WHO) report, eight out of ten people will experience back pain at some point in their lives. It is speculated that by 2020, lower back pain will be the leading cause of disability. Currently, approximately 80% of the world's population suffers from this symptom, affecting four out of five individuals (SECRETARIA DE PREVIDÊNCIA, 2018).

In Brazil, back pain was the leading cause of work-related absences, with 83.8 thousand cases recorded in 2017 according to the Previdenciary Sickness Benefit data. It's worth mentioning that over the past decade, this condition has consistently topped the list of the most frequent diseases leading to sick leave granted by the National Social Security Institute (INSS) (SECRETARIA DE PREVIDÊNCIA, 2018).

In 2016, Viviane Forte, as the General Coordinator of Inspection and Projects at the Ministry of Labor, emphasized that "in commerce, back pain is common among people working as stock clerks because they lift boxes, perform squatting and lifting movements, and often don't pay attention to their posture" (SECRETARIA DE PREVIDÊNCIA, 2017). Recognizing that such issues are also prevalent among retail workers, specifically salespersons in shoe stores, underscores the relevance of this study to investigate occupational postural habits.

Drawing on Merleau-Ponty's Phenomenology of Perception (1990 and 2006) and aligning with the approach of participatory ergonomics (IMADA, 1991; NORO, 1991), the study emphasizes the significance of the salesperson as an active participant in the process, from perceiving postural habits to raising awareness about problems and potential solutions.

In a broader context, "the experience of perception places us in the presence of the moment when things, truths, and goods are constituted for us; perception gives us a logos in a nascent state, teaching us, free from all dogmatism, the true conditions of its objectivity" (MERLEAU-PONTY, 1990, p. 63).

¹Dorsalgia is the pain located in the dorsal region, commonly known as "back pain." It is also considered any pain located in the thoracic, cervical, and lumbar regions (DICIO, 2019).

Imada (1991) considers ergonomics as an intuitive science that, in addition to organizing workers' knowledge, should value their accumulated experiences. In addition, it emphasizes the importance of supporting and adopting co-authored solutions from workers to increase acceptance and implementation of changes. It should also develop and implement ergonomic action to empower workers to positively intervene in case of future problems within the dynamics of their reality.

Noro (1991), like Imada (1991), emphasizes that participatory ergonomics characterizes the worker as a valuable source to solve problems. Thus, by recognizing their own competencies, their self-esteem as individuals increases, which is the central objective of the study at hand.

2. METHOD

When addressing participatory ergonomics, one observes the previously mentioned positive aspects but also encounters certain difficulties, as highlighted by Tappin (2008). These difficulties include resistance to participation when asked for photographic documentation of work posture, lack of willingness or motivation to participate, increased time and resource demands, maintaining participation levels, and extracting useful information while fearing job compromise.

Out of the seven participants, three allowed photographic documentation of their work posture. Two of them volunteered to test the usability of the stool designed to provide postural support and assist customers in trying on shoes.

The dynamic unfolded over three days, as two participants withdrew, necessitating a return to the field to recruit replacements. The spatial delimitation of the study was determined by proximity to the Center for Retail Studies (CEVAR) in Araruama, encompassing the cities of Cabo Frio and Niterói in the state of Rio de Janeiro.

As a complement to the field research, the Nordic Musculoskeletal Questionnaire (NMQ) was administered to identify musculoskeletal symptoms and issues among shoe store salespeople. According to Ferrari (2006), NMQ is a key instrument for analyzing musculoskeletal symptoms in an occupational or ergonomic health context.

Additionally, closed-ended questions were formulated based on the Borg Scale for the assessment of subjective effort and perception (BORG cited in IIDA; BUARQUE, 2005, p. 86). Finally, physiotherapy exercises were proposed based on the analysis of the

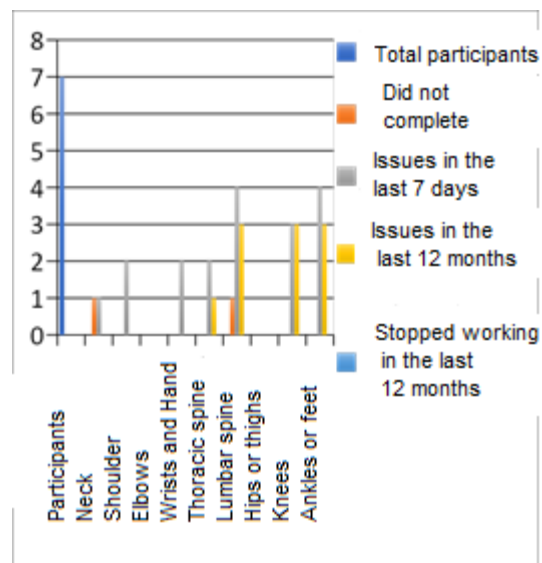
questionnaire, aiming to enhance the well-being of the participants.

3. RESULTS

Regarding the interviewees' data: six are females, with five being single and one married. The average age is 28 years, average weight is 64 kg, and average height is 1.64 m. Only one male salesperson responded to the questionnaire. This participant is 24 years old, has a height of 1.80 m, and weighs 83 kg. Only two female salespersons work in the same store; the rest of the participants are from different stores.

The collection of this data was extracted from the NMQ questionnaire, resulting in Graph 1, as shown below.

Graph 1 - Musculoskeletal symptoms and issues of the interviewees.



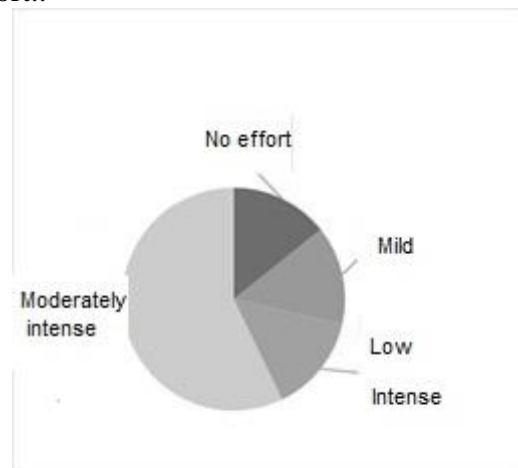
Source: Research Data, 2019.

The graph above indicates that the majority of the interviewees experience pain or discomfort in the lower back, ankles, or feet. To a lesser extent, there are reports of pain in the knee, upper back, wrists and hands, shoulders, and finally, the neck.

These symptoms can be associated with the observation made by Iida and Buarque (2005) regarding the highly fatiguing nature of maintaining a standing posture. Therefore, as it demands static contractions from various muscle groups in the legs, hips, back, and cervical region, it may lead to the occurrence and exacerbation of the localized pains described by the participants.

The same pattern is observed in the Borg Scale, used to assess the subjective perception of effort exerted during working hours (Graph 2). Among the responses, some interviewees mention that the effort can be intensified due to an increase in the number of sales during celebratory periods. One of the interviewees, working in a mall store, emphasizes that the workload is even more intense due to the extra hours worked on Sundays and holidays.

Graph 2 - Intensity of Effort..



Source: Research Data, 2019.

After the questionnaire phase, the interviewees were asked to replicate their everyday work posture to raise awareness of the process itself and facilitate the adoption of a new posture.

Posture is understood as "a position or attitude of the body, the relative arrangement of body parts for a specific activity, or a characteristic way in which someone holds their body" (KISNER; COLBY, 1992, p. 434).

Figures 1 and 2 - Inadequate Posture



Source: Authors (2019).

In Figures 1 and 2, it is observed that the employees perform customer service with improper postures, which lead to the musculoskeletal symptoms and issues mentioned earlier, therefore being detrimental to health.

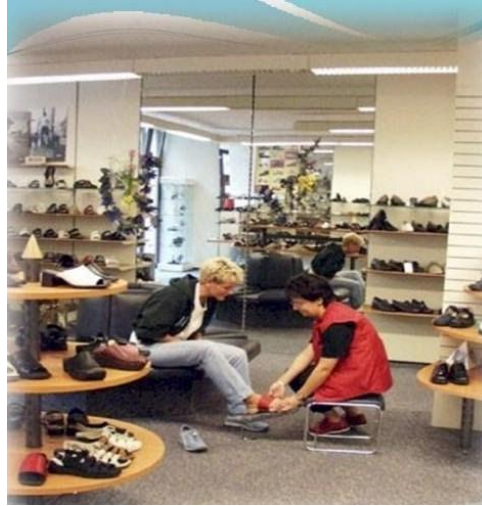
In Figure 1, it is noticeable that the saleswoman places all her body weight on her feet and does not maintain the spine properly aligned. In Figure 2, the saleswoman demonstrates an incorrect way to squat, flexing the trunk in an incorrect manner and overloading the spine.

Figures 3 and 4 - Integration of the stool into work practice.



Source: Authors (2019).

Figure 5 - Proper posture with the assistance of a stool.



Source: Google (2019).

After the realization and awareness of the practice of inadequate work posture, it is suggested, as shown in Figures 3 and 4, the use of a stool approximately 30 cm in height. In shoe stores abroad, the support stool can be seen as a salesperson's working tool (Figure 5), providing more comfort and minimizing musculoskeletal symptoms and issues.

It is known that "habit expresses the power we have to expand our being into the world or to change existence by attaching new instruments to ourselves" (MERLEAU-PONTY, 2006, p. 199). Thus, the habit change through a new instrument - the stool - brings about a renewal of body movements, i.e., less detrimental to posture. It is noticeable that the trunk is more aligned, and the knees are flexed, but with a lesser load on them. With this proposal, it is possible to finish the work shift with a reduction in potential pains and discomfort.

Regarding the use of the support stool, the following questions were formulated: "How could the stool become viable for work?" and "What is the perception of possible changes in work posture with the use of the stool?"

The responses reveal the participants' awareness of the improvement in work posture, with the majority stating that the use of the stool can assist in customer service and provide posture-related benefits. It is worth mentioning that, out of the seven participants, two saleswomen volunteered to participate in this practice.

Perception is considered a judgment by Merleau-Ponty (2006, p. 72), where the perceived object is given as a whole and as a unity, without needing to grasp its intelligible law.

The statements of the participants who did not experience such a practice are presented below.

"[...] to facilitate customer service and posture during it, especially since we're not accustomed to paying attention to posture."

"[...], but I think it would disrupt the flow of the store, although it would alleviate knee pain due to kneeling."

"[...] improves the quality of work and enhances physical well-being."

In accordance with Merleau-Ponty's philosophy (2006), it is evident that the perception of the previous participants is shared by those who experienced the practice of using the stool. The following quotations stand out:

"[...] the stool facilitates customer service, and the salesperson has a posture with a better effect."

"[...] improves posture and provides better customer service."

In light of the above, participants' perceptions reveal similarities in the practice of using the stool between those who experienced it and those who did not.

Finally, a series of physiotherapy exercises was proposed, essential for muscle warm-up and relaxation. These exercises play a crucial role in preventing injuries and muscle discomfort during working hours. Additionally, the use of comfortable clothing and shoes is recommended.

In summary, the proposal aims to provide benefits related to the well-being and physical preparedness of salespeople during their work activities. Emphasis was placed on areas of greater discomfort, such as ankles and feet, trunk flexion, leg stretching, and knee flexion.

5. FINAL CONSIDERATIONS

The journey taken in the field research demonstrates the relevance of addressing two areas of knowledge: participatory ergonomics and the phenomenology of perception. Both prioritize the co-participation of the individual, considering them a key element in the process of awareness, discovery, and change. It enables the salesperson to understand and implement new postural habits in their workday, including physiotherapy exercises for their well-being.

Therefore, this study fulfills its purpose of placing the shoe store salesperson as the agent of their preventive process for postural problems.

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