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PROCESS OF EXCLUSION/INCLUSION OF WHEELCHAIR USERS IN THE LABOR MARKET: ERGONOMIC AND ACCESSIBILITY DEMANDS

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Abstract

Work not only provides a livelihood, but also gives a deeper meaning to human life, helping to structure people's identity and subjectivity, filling their time and avoiding emptiness and anxiety. However, despite inclusion policies, the participation of People with Disabilities (PwD) in the labor market is still limited, especially for those who use wheelchairs. This is evidenced by data showing a low employment rate among PwD and the lack of accessibility and adaptation in work environments.

The study investigated the ergonomic and accessibility demands that affect the inclusion of wheelchair users in companies. A series of challenges were identified, including the lack of adaptations in physical spaces, physiological difficulties such as cleaning adapted bathrooms and the need for pressure relief during the workday, and social issues, such as lack of knowledge about disabilities and limited employment opportunities.

To overcome these challenges, actions are proposed such as adapting physical spaces according to accessibility standards, raising awareness among managers and coworkers about the needs of PwD, and promoting professional development opportunities for these employees. These measures aim not only to ensure inclusion in the job market, but also to promote a culture of equality and respect for differences.

Keywords: wheelchair users; accessibility; job market; companies; social inclusion.

1. INTRODUCTION

Work, in addition to being a means of sustenance, provides greater meaning and significance for human existence. According to Tolfo and Piccinini (2007), work is important to create existential meanings, assist in the structuring of people's identity and subjectivity, keeping them busy, helping to fill the time of life, avoiding emptiness and anxiety. For Morin (2001), work allows the relationship between people, in addition to contributing to the development of identity, as their work and production impact on what they think and how they perceive their freedom and independence.

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With regard to People with Disabilities (PwD), Lima et al. (2013) highlight that work gives them the opportunity to leave the condition of social isolation and dependence to create social relationships in different spaces and perform other activities. Observing the employment rates of PwD in Brazil, it is possible to verify that less than half are inserted in the labor market. According to the 2010 Demographic Census of the Brazilian Institute of Geography and Statistics (IBGE), there are approximately 45 million Brazilians with some disability (visual, hearing, motor, intellectual, among others), and only a little more than 20 million people with disabilities are employed, which is equivalent to approximately 44% of this group (IBGE, 2012a). According to the Annual Report on Social Information (RAIS), the hiring of PwD between 2011 and 2017 grew only 35%, from 325,291 to 441,339 people (ENITT, 2019). In 2018, the General Register of Employed and Unemployed People (CAGED) pointed to a total of 442,007 employed PwD, with an increase of only 668 employees throughout the Brazilian territory (ENITT, 2019).

Although in recent years there have been several affirmative actions and instituted norms and laws related to the inclusion of PwD in the workplace, it is verified that companies still do not have internal policies for effective inclusion, as it is still juxtaposed with the need to obey the Quota Law and the obligation imposed by inspection. It is possible to observe disparity according to disability. Based on the disability classifications used by the IBGE (2012), it is noted that mental/intellectual and motor people with disabilities are the ones with the lowest activity rate in relation to visual and auditory people with disabilities. People who do not walk are among the groups that have the greatest restrictions to enter the labor market (FRANÇA, 2014).

The common factor among most people who do not move autonomously is the need to use a wheelchair. This assistive technology helps in social inclusion, providing more autonomy and independence for the person with reduced mobility, since it breaks with the limit of locomotion imposed by the body that cannot walk, being considered as their own legs. Thus, it is inconceivable to consider that wheelchairs may be the reason for the exclusion of people with motor disabilities at work, since in Brazil there are several laws[1] and measures[2] that have been implemented to promote accessibility and social inclusion of people with disabilities.

[1] Among them are: Quota Law No. 8,213/1991; Law No. 10.048/2000; Law No. 10,098/2000; and Brazilian Law for the Inclusion of Persons with Disabilities, no. 13.146/2015.

[2] One of the most important measures was the publication of ABNT NBR No. 9050, instituted since 1985, and the most recent edition was technically revised in 2020 (ABNT, 2020).

According to Iida and Guimarães (2016), several efforts are being made to include PwD in society and train them for work. However, to promote an inclusive labor market for wheelchair users, it is necessary to offer adequate conditions so that people with physical limitations can have comfort and autonomy in the work environment.

In this context, the objective of this study was focused on verifying the ergonomic and accessibility demands that interfere in the process of exclusion/inclusion of wheelchair users in companies. This work is justified by the need to prioritize ergonomic and accessibility demands to be met by the public and private sectors in order to provide greater participation of wheelchair users in the labor market and, in turn, in socially productive life.

The research is characterized as applied, of a descriptive observational character, with qualitative analysis and discussion. It is noteworthy that the present study is part of the thesis entitled "The centrality of work for wheelchair users: the perception of those who are in a condition of exclusion from the formal market", which is inserted in the institutional macroproject "Development of products and educational actions for wheelchair users: a focus on ergonomics, health and quality of life", of Feevale University, approved by the Research Ethics Committee (CEP) of the aforementioned educational institution.

Thirteen adult wheelchair users living in the state of Rio Grande do Sul participated, covering the region of Vale do Sinos, Vale do Paranhana and Região das Hortências. The number of participants was based on Thiry-Cherques (2009) who recommends a minimum of eight and a maximum of fifteen interviews for qualitative research, as he highlights that, generally, at this point information saturation is reached. Participants were selected by convenience.

The method used in the investigative stage is an adaptation of the initial part of the Macroergonomic Design Methodology, proposed by Fogliatto and Guimarães (1999), whose approach seeks to solve problems of ergonomic demand through the participation of users. The first three steps proposed by the authors were considered:

> (i) identification of the user and organized collection of information about their ergonomic demand; (ii) prioritization of ergonomic demand items (IDEs) identified by the user, with the objective of creating a ranking of demanded items; (iii) incorporation of the opinion of specialists (ergonomists, designers, engineers, etc.) with a view to correcting distortions presented in the ranking obtained in (ii), as well as the incorporation of pertinent items of ergonomic demand not identified by the user; [...] (FOGLIATTO; GUIMARÃES, 1999, p. 2).

A semi-structured interview was used as an instrument for data collection. The interviews, carried out during the month of May 2020, took place through individual video calls, in order to maintain social distancing due to the Covid-19 pandemic period. Minutes

before the video call, the Informed Consent Form (ICF) was sent via the chat app and explained at the beginning of the video call. The participants returned one of the copies of the informed consent digitally signed. Permission was requested to record the audio of the interviews for later transcription.

The analysis of the data collected from the interviews occurred by the content analysis method, through categorization. To assist in the categorization of the participants' narratives, the NVIVO 12 Pro software was used. From the categorization, the main IDEs were elaborated for analysis.

2. DEVELOPMENT

The results of this study allowed the identification of a series of factors that interfere in the process of exclusion/inclusion of wheelchair users in companies. To identify the participants, some data were listed that characterize the physical, health and work profile of wheelchair users. Then, the main ergonomic and accessibility demands were addressed, divided into three categories, which were grouped according to affinity with each other, based on the participants' narratives.

Regarding the profile of the participants: ten are male and three female; the age group is between 29 and 56 years old; and the time of use of the wheelchair is from 6 to 29 years, and in most cases, the cause was spinal cord injury. Eleven participants are not in the labor market, since only two participants are formally working. Employees who are in the job market have an employment relationship with a University, whose work environment differs from other market sectors. Of the unemployed participants, nine receive aid from the INSS, which allows them to have income for their subsistence. Only two participants did not present financial income at the time of the interview, but informed that they are looking for work.

The questions about the participation of PWDs in the work generated numerous narratives evidencing the presence of demands that, due to the experience of the participants themselves and/or friends in wheelchairs, have been hindering their inclusion in job vacancies made available by companies. Through content analysis, these were grouped into three categories: Physical Space EDI; Physiological IDE, and Social IDE. In order to simplify the presentation of the results, the SDIs of each category will be presented in Chart 1, together with the number of participants who mentioned the FDI, narratives exemplifying the demand and the proposed action based on the literature.

Table 1: FDI in companies for the inclusion of wheelchair users in the labor market

IDES PHYSICAL SPACE		
IDE	**Narratives**	**Proposed Action**
Adapted toilets. Number of participants: 9	*"There was not even an adapted bathroom. How were you going to go? Would you have to hold on until you got home?"* (UCR for 13 years);*"It's not just you getting and hiring a wheelchair user. There has to be accessibility in the company. And a wheelchair user needs an accessible bathroom, at the very least."* (UCR for 11 years).	The minimum requirements presented by NBR 9050/2020 must be met, such as: - 5% (minimum) of the company's toilets must be adapted and located on accessible routes; - the door must be 80 cm (minimum) wide and with external opening; - the minimum recommended dimension for the internal space is 1.50 m x 1.70 m; - 180° manoeuvring area is available. - toilet at a height of 46 cm, with horizontal support bars, flush valve at 100 cm from the floor; - wall-mounted washbasin with a height between 78 and 80 cm on the upper face with single-lever faucet, lever or sensor; - accessories (soap dish, towel rack...) installed between 80 and 120 cm; - be marked with the International Symbol of Access - SIA.
Access to the building. Number of participants: 4.	*"I got there, a step of 30 cm at the entrance of the building."* (UCR for 11 years); *"I was always climbing two steps, make a little ramp. [...] The person with disabilities arrived, go and put the ramp there, very easy.* (UCR for 13 years).	Topics of NBR 9050/2020 must be met, such as: - circulation on an accessible route must be free of steps and respect the width of 90 cm; - the ramps must have a free width of 1.50 m, with 5 cm high beacon (minimum, if they do not have side walls), landings of 1.20 m (minimum) at the beginning and end of each ramp segment, and transverse slope of 2% on internal ramps and 3% on external ramps; - If there are turnstiles or gates, at least one must be accessible, and in case of a revolving door, an accessible entrance must be provided. In the case of small steps, the construction of a removable ramp, according to the dimensions recommended by NBR 9050/2020, may be a temporary alternative for access to the wheelchair user.
Elevator for access to the floors. Number of participants: 3.	*"I found out that there was a vacancy [...]I got there: 'Oh the company doesn't have accessibility'. It was on the second floor and they didn't They had an elevator in the company."* (UCR for 11 years); *"I would have to work [...] in a room alone because it was on the second floor, access by stairs."* (UCR for 14 years).	Providing elevators is essential to provide access, especially for people with disabilities, to all floors. NBR 9050/2020 requires: - 110x140 cm cabin (minimum); - mirror fixed to the wall opposite the door, to allow the visualization of floor indicators to people in chairs wheeled; - buttonholes between 89 and 135 cm from the floor; - indication of the boarding position and the decks served and indication of use posted next to the buttonhole; - communication device for requesting assistance; - the area in front of the elevator must have a diameter of 1.50 m (minimum) to allow the maneuvering of a person with a wheelchair; - must be flagged with the SIS.

Adapted workstation. Number of participants: 3.	*"The adaptation for these people is very little. The counter is all high. Suddenly at a cashier, the counter is huge, how are you going to put a wheelchair user there."* (UCR for 13 years); *"I went to do a test, but the company did not have the adaptation to receive wheelchair users at the ticket office."* (UCR for 21 years).	Adapt the workstation as recommended by NBR 9050/2020: - desks or work surfaces must be easily located within an accessible route, ensure adjacent circulation and allow 180° rotation to the person in a wheelchair; - must have a top with a minimum width of 90 cm and height between 75 and 85 cm from the floor; - A free height of at least 73 cm under the table top and 50 cm of free depth must be ensured, so that the wheelchair user can advance under the table or surface. In addition, for the circulation of workers with wheelchairs in the work environment, accessibility of at least 80 cm in width must be ensured, or 90 cm when the extension of the obstacle is larger than 40 cm.
Parking for wheelchair users. Number of participants : 2.	*"Parking did not exist [...] so I can get there and stop the car."* (UCR for 21 years); *"How are you going to get out of the car with the chair with a 20 cm high cord?"* (UCR for 13 years).	Reserved parking spaces shall be provided for vehicles driven by persons with disabilities or reduced mobility. According to NBR 9050/2020: - it must have minimum dimensions of 5 m long and 2.5 m wide; - be located next to accessible routes and connected to the poles of attraction; - when away from the sidewalk, it must have an additional space of 1.20 m and a ramp to access the sidewalk; - present vertical and horizontal signage according to the standard and be signaled with the SIA.
PHYSIOLOGICAL IDE		
IDE	**Narratives**	**Proposed Action**
Sanitized bathrooms for urinary catheterization.	*"We suffer a lot from urinary tract infection. We have it right because of the poll. [...] a company does not*	The spinal cord injury generates changes in the control of the bowel, bladder and sphincters, and it is necessary to perform the probing procedure (intermittent bladder catheterization), which consists of passing a probe through the urethra to empty the bladder. The incidence of contamination during the (more)
Number of participants: 7.	*he wants you to be absent all the time."* (UCR for 11 years)*;" I didn't have a sink inside my bathroom. [...] Got infection."* (UCR for 21 years).	probing in the work environment can be minimized by providing adapted bathrooms according to NBR 9050 (2020), properly sanitized and providing hand hygiene resources, such as soap and 70% alcohol.
Alternatives for pressure relief in the sitting posture. Number of participants: 5.	*"I worked for two years and opened a bedsoar. [...] We have a very heavy workload to sit down all day at work."* (UCR for 21 years);*"Every half hour you have to pick up and lift and take the pressure off. Staying, I say,*	The long period of sitting without postural change increases the pressure of the ischial region on the wheelchair seat. Due to the reduction in muscle tone and lack of sensitivity caused by the loss of motor control, wheelchair users have 127.7% more pressure on the sit bone region than people with preserved motor control, being among the public at risk for the development of pressure injuries, which are wounds that develop at the end of the skin (BARTH et al., 2018). Pressure relief on the chair seat needs to occur regularly at various times of the daily workday,
	About 30 seconds there taking the pressure off." (UCR for 6 years).	either by the body suspension maneuver or with chairs that allow adjustment of the inclination of the backrest and footrest, enabling the semi-lying posture (BARTH, 2017).

Availability of moments for physiotherapy. Number of participants: 2.	*"A wheelchair user needs physiotherapy, at least twice a week to have an hour at least [...] If I run out of physiotherapy, I can atrophy."* (UCR for 6 years).	The regular practice of physical therapy enables people with motor disabilities to live with the disability, providing the ability to overcome barriers and obstacles (OLIVA; PORTELA, 2012). There should be a dialogue between managers and the person with disabilities in order to identify the best way to provide the opportunity for the employee to practice physiotherapy, which can be carried out with a professional from the area within the company itself or make weekly schedules available for physical therapy practice outside the company.
IDE SOCIAL		
IDE	**Narratives**	**Proposed Action**
Knowledge about disability. Number of participants: 7.	*"Not always only PwD has some difficulty within the workplace, sometimes colleagues don't know how to deal with it, and neither do managers."* (UCR for 14 years).	Awareness-raising actions are needed in the company so that employers and co-workers acquire knowledge about the peculiarities of motor disabilities that lead to the use of wheelchairs, so that they break with myths and recognize the potential of people with motor disabilities (VIOLANTE; LEITE, 2011). It is important that the actions involve the people with disabilities themselves, making them protagonists and demonstrate their capabilities (NEVES-SILVA et al., 2015).
Opportunities to work in any position and salary level. Number of participants: 3.	*"We don't have an opportunity jo b, or when there is, it's just for an entry-level position to earn a minimum wage."* (UCR for 29 years).	Awareness-raising actions to demystify deficiencies should occur with managers and the Human Resources team, providing an inclusive look at recruiters when selecting candidates for vacancies and making them see their potential and not just their limitations. In addition, it is necessary to provide conditions for the professional and personal development of employees with disabilities, as is the case with employees with disabilities other employees without disabilities (VIOLANTE; LEITE, 2011).

Legend: IDE – Ergonomic Demand Item; UCR – Wheelchair User; NBR – Brazilian Standard; PwD – People with Disabilities. Source: The authors (2022).

The SDIs listed in Chart 1 refer to the common demands of the majority of wheelchair users, as well as the main actions based on the literature, regulatory standards and suggestions of the participants themselves for the solution of the demands. However, the proposed actions will not always be able to meet the specific needs of all wheelchair users, as reported by one participant about the adaptations in the toilet: "I need a stretcher to do the survey. [...] The wheelchair bathroom is not good for me." Managers must be aware that each type of disability has peculiarities and that they need specific adaptations in order to promote greater autonomy of this professional in the work environment. There should be a permanent dialogue between the parties, aiming to provide the best adaptation.

3. CONCLUSIONS

This research sought to verify the ergonomic and accessibility demands that interfere in the process of exclusion/inclusion of wheelchair users in companies. The main demands that interfere with the inclusion of this public in companies are: physical, with the need for accessible adaptation of toilets, access to the establishment through ramps or elevators, adaptation of the workstation and parking; physiological, requiring care with the hygiene of

accessible toilets, promotion of pressure relief on the sitting bones during the workday and availability of moments for physiotherapy; and social, through awareness-raising actions for the company's managers and employees to demystify disability, as well as professional and personal development actions for employees with disabilities.

It is hoped that the actions proposed for the IDEs can guide companies on the main needs to be met to receive a professional wheelchair user. These actions may provide the opportunity to identify people with motor disabilities with the job vacancies offered, minimizing dropouts during selection processes and providing equal rights in competition for vacancies in relation to people with disabilities who do not require the use of wheelchairs.

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