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

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Summary: Work not only provides sustenance, but also gives a deeper meaning to human life, helping to structure people's identity and subjectivity, filling life time and avoiding emptiness and anxiety. However, despite inclusion policies, the participation of People with Disabilities (PwD) in the job market is still limited, especially for those who use wheelchairs. This is evidenced by data showing a low employment rate among PwD and a 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 the hygiene of adapted bathrooms and the need for pressure relief during the workday, and social issues, such as the 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 co-workers about the needs of PwD, and promoting professional development opportunities for these employees. These measures aim not only to guarantee 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.

Introduction

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

Regarding 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 carry out other activities. Observing the employment rates of PwD in Brazil, it is possible to verify that less than half are included in the job market. According to the 2010 Demographic Census, from the Brazilian Institute of Geography and Statistics (IBGE), there are approximately 45 million Brazilians with some disability (visual, hearing, motor, intellectual, among others), with only just over 20 million PwD are employed, which is equivalent to approximately 44% of this group (IBGE, 2012a). According to the Annual List of Social Information (RAIS), the hiring of PwD between 2011 and 2017 grew only 35%, going from 325,291 to 441,339 people (ENITT, 2019). In 2018, the General Register of Employed and Unemployed Persons (CAGED) indicated a total of 442,007 employed PwD, with an increase of only 668 employed across the entire Brazilian territory (ENITT, 2019).

Although in recent years several affirmative actions have taken place and standards and laws have been instituted regarding the inclusion of PwD at work, it appears that companies still do not have internal policies for inclusion effectively, as it is still juxtaposed with the need to comply with the Law of Quotas and the obligation imposed by inspection. It is possible to observe disparities according to disability. Based on the disability classifications used by IBGE (2012), it is noted that mental/intellectual PwD and motor PwD are those with the lowest rate of activity in relation to visual PwD and auditory PwD. People who do not walk are among the groups that have the greatest restrictions when entering the job market (FRANÇA, 2014).

The common factor among most people who cannot move independently is the need to use a wheelchair. This assistive technology helps with social inclusion, providing more autonomy and independence for people with reduced mobility, as it breaks the mobility limit imposed by the body that cannot walk, being considered as their own legs. Therefore, it is inconceivable to consider that the wheelchair could be the reason for the exclusion of people with motor disabilities from work, given that in Brazil there are several laws and measures that have been implemented to promote accessibility and social inclusion of PwD.

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 job 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 exclusion/inclusion process 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 sector in order to provide greater opportunities for wheelchair users to participate in the job market and, in turn, in socially productive life.

The research is characterized as applied, of a descriptive observational nature, 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 excluded from the formal market", which is part of the institutional macroproject "Development of products and educational actions for wheelchair users: a focus on ergonomics, health and quality of life", from Feevale University, approved by the Research Ethics Committee (CEP) of the aforementioned educational institution.

Thirteen adult wheelchair users who reside in the state of Rio Grande do Sul participated, covering the region of Vale do Sinos, Vale do Paranhana and the Hortências Region. The number of participants was based on Thiry-Cherques (2009), which recommends a minimum of eight and a maximum of fifteen interviews for qualitative research, as it highlights that information saturation is generally reached at this point. Participants were selected for 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 ergonomic demand problems through user participation. The first three stages proposed by the authors were considered:

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

As a data collection instrument, a semi-structured interview was applied. The interviews, carried out during the month of May 2020, took place via individual video calls,

aiming to maintain social distancing due to the Covid-19 pandemic period. Minutes before the video call, the Free and Informed Consent Form (TCLE) was sent via the chat application and explained at the beginning of the video call. Participants returned one copy of the TCLE digitally signed. Permission was requested to record the audio of the interviews for later transcription.

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

Development

The results of this study made it possible to identify 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. Next, the main ergonomic and accessibility demands were addressed, divided into three categories, which were grouped according to their affinity with each other, based on the participants' narratives.

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

Questions about the participation of PwD at work generated numerous narratives highlighting the presence of demands that, from the experience of the participants themselves and/or friends who use wheelchairs, have made it difficult for them to be included in job vacancies offered by companies. Through content analysis, these were grouped into three categories: IDE Physical Space; Physiological IDE, and Social IDE. In order to simplify the presentation of the results, the FDIs of each category will be presented in Table 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: IDEs in companies to include wheelchair users in the job market

(to be continued)

IDES PHYSICAL SPACE		
IDE	**Narratives**	**Proposed Action**
Adapted toilets. Number of participants: 9	*"There wasn't even an adapted bathroom. How were you going to go? Would I have to hold it until you got home?" (UCR for 13 years); "It's not just about taking and hiring a wheelchair user. There must be accessibility in the company. And a wheelchair user needs an accessible bathroom, at the very least." (UCR 11 years ago).*	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 open externally; - the minimum recommended dimension for the internal space is 1.50 m x 1.70 m; - provision of a 180° maneuvering area. - toilet bowl at a height of 46 cm, with horizontal support bars, flush valve 100 cm from the floor; - wall-hung washbasin with a height between 78 and 80 cm on the top surface with a single-lever tap, lever or sensor; - accessories (soap dish, towel rail...) installed between 80 and 120 cm; - be marked with the International Access Symbol - SIA.
Access to the building. Number of participants: 4.	*"I got there, a 30 cm step at the entrance to the building." (UCR for 11 years); "I was always going up two steps, doing a little ramp. [...] the person with a disability arrives, goes and puts the ramp there, very easy. (UCR 13 years ago).*	Topics from NBR 9050/2020 must be met, such as: - circulation on an accessible route must be free of steps and respect a width of 90 cm; - ramps must have a free width of 1.50 m, with guides markings with a height of 5 cm (minimum, if there are no side walls), landings of 1.20 m (minimum) at the beginning and end of each ramp segment, and a transversal 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 the 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, could be a temporary alternative for access for wheelchair users.
Elevator for access to the floors. Number of participants: 3.	*"I found out there was a vacancy [...] I got there: 'Oh, the company doesn't have accessibility'. It was on the second floor and they didn't have an elevator at the company." (UCR for 11 years); "I would have to work [...] in a room alone because it was on the second floor, accessed by stairs." (UCR 14 years ago).*	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 people in wheelchairs to see floor indicators; - 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 button panel; - 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 using a wheelchair; - must be signaled with the SIA.
Adapted workstation. Number of participants: 3.	*"There is very little adaptation for these people. The counter is all high. Suddenly at a cashier, the counter is huge, how can you put a wheelchair user there." (UCR for 13*	Adapt the workstation as recommended by NBR 9050/2020: - tables or work surfaces must be easily located within an accessible route, guarantee adjacent circulation and allow 180° rotation for the person using a wheelchair; - must have a top with a minimum width of 90 cm and a height between 75 and 85 cm from the floor; - free height of at least 73 cm must be ensured under the top and 50 cm free depth, so that the wheelchair user can advance under the

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	years); "I went to do a test but the company did not have adaptations to accommodate wheelchair users at the box office." (UCR for 21 years).	table or surface. Furthermore, for workers using a wheelchair to move around the workplace, accessibility of at least 80 cm in width must be guaranteed, or 90 cm when the length of the obstacle is greater than 40 cm.
Parking for wheelchair users. Number of participants: 2.	*"Parking didn't exist [...] so I could 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 13 years ago).*	Reserved parking spaces must be provided for vehicles driven by people with disabilities or reduced mobility. According to NBR 9050/2020: - must have minimum dimensions of 5 m in length and 2.5 m in width; - be located next to accessible routes and connected to attraction centers; - when away from the sidewalk, there must be an additional space of 1.20 m and an access ramp to the sidewalk; - present vertical and horizontal signage in accordance with the standard and be marked with the SIA.
PHYSIOLOGICAL IDE		
IDE	**Narratives**	**Proposed Action**
Sanitized bathrooms for bladder catheterization. Number of participants: 7.	*"We suffer a lot from urinary infections. We have a right because of the survey. [...] a company does not*	Spinal cord injury causes changes in the control of the intestine, bladder and sphincters, making it necessary to carry out the catheterization procedure (intermittent bladder catheterization), which consists of passing a probe through the urethra to empty the bladder. The incidence of contamination during the

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	wants you to be absent all the time." (UCR 11 years ago); "I didn't have a sink in my bathroom. [...] I got an infection." (UCR for 21 years).	Probing in the workplace can be minimized by providing adapted bathrooms in accordance with NBR 9050 (2020), properly sanitized and providing hand hygiene resources, such as soap and 70% alcohol.
Pressure relief alternatives in sitting posture. Number of participants: 5.	*"I worked for two years and a bedsore opened up. [...] we have a very heavy workload to spend the whole day sitting at work." (UCR for 21 years); "Every half hour you have to get up and get up and take the pressure off. Staying, let's say, for about 30 seconds there, taking the pressure off." (UCR 6 years ago).*	Long periods of sitting without postural changes increase the pressure on 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 ischial region than people with preserved motor control, being among the at-risk public. for the development of pressure injuries, which are wounds that develop at the edge of the skin (BARTH et al., 2018). Pressure relief on the chair seat needs to occur regularly at various times during the daily workday, either by suspending the body or using chairs that allow adjustment of the backrest inclination and footrest, enabling a semi-recumbent posture (BARTH, 2017).
Providing time for physiotherapy. Number of participants:	*"A wheelchair user needs physiotherapy, at least twice a week for at least one hour [...] if I run out of physiotherapy, I could atrophy." (UCR 6*	The regular practice of physiotherapy allows people with motor disabilities to live with their disability, providing the body with the ability to overcome barriers and obstacles (OLIVA; PORTELA, 2012). Dialogue must occur between managers and the person with a disability in order to identify the best way to provide opportunities for the employee to practice physiotherapy, which can be carried out with a professional in the field within the company

2.	*years ago).*	itself or provide weekly times for physiotherapy practice. outside the company.
SOCIAL IDE		
IDE	**Narratives**	**Proposed Action**
Knowledge about disability. Number of participants: 7.	*"It's not always just PwD who have difficulties in the workplace, sometimes colleagues don't know how to deal with it, and neither do managers." (UCR 14 years ago).*	Awareness-raising actions are necessary 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 the myths and recognize the potential of people with motor disabilities (VIOLANTE; LEITE, 2011). It is important that the actions involve people with disabilities themselves, making them protagonists and demonstrating their capabilities (NEVES-SILVA et al., 2015).
Job opportunities in any position and salary level. Number of participants: 3.	*"We don't have job opportunities, or when we do, it's only for an entry-level position to earn a minimum wage." (UCR 29 years ago).*	Awareness-raising actions to demystify deficiencies should occur with managers and the Human Resources team, providing recruiters with an inclusive perspective when selecting candidates for vacancies and making them see their potential and not just their limitations. Furthermore, it is necessary to provide conditions for the professional and personal development of employees with disabilities, as occurs with other employees without disabilities (VIOLANTE; LEITE, 2011).

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

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

Conclusions

This research sought to verify the ergonomic and accessibility demands that interfere in the exclusion/inclusion process 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 restrooms, access to the establishment through ramps or elevators, adaptation of the workstation and parking lot; physiological, requiring care with the hygiene of accessible toilets, promoting pressure relief on the ischia during the workday and providing moments for physiotherapy; and social, through awareness-raising actions among company managers and employees to demystify disability, as well as professional and personal development actions for employees with disabilities.

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

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