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STATE OF THE ART ON THE PREDICTORS OF REDUCED CAPACITY FOR WORK IN BRAZILIAN WORKERS

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ABSTRACT

Work Capacity (WC) is a dynamic process that involves an interrelationship between human resources and work and is influenced by various factors, especially the work environment and working conditions, as well as the worker's lifestyle. Thus, a close and complex relationship between health and work is observed, and health is negatively affected when work activities are performed in inappropriate environments, which can precipitate or aggravate the reduction of WC, which represents a measure of functional aging and an indicator of worker health. This study aimed to evaluate the state of the art on the predictors of reduced work capacity in Brazilian workers. This is a narrative literature review study in which articles were searched in the BVS, Scielo, LILACS, PubMed, and Medline databases from July to December 2020, using the descriptors/keywords: work capacity evaluation, working conditions, and work capacity index. A total of 119 studies were identified, and 29 full articles were selected for reading in full and analysis. The factors associated with reduced WC were older age, female gender, high demand at work, long working hours, more than one employment relationship, presence of musculoskeletal disorders, absence of physical activity, tobacco use, and obesity. The identification and adequate management of the factors associated with the reduction of WC are fundamental for the prevention of functional aging in the working class, allowing the execution of prevention and health promotion actions that favor an active and healthy aging, avoiding the reduction or early loss of WC.

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INTRODUCTION

Labor relations have undergone profound transformations in recent decades with the process of economic globalization and the use of new technologies and managerial methods. These changes bring direct consequences to the worker's health and, consequently, to their work capacity (WC) (Rodrigues *et al.*, 2019). Faced with this new reality, the health of the worker has been the target of studies and concern, because, associated with these changes, changes in the worker's profile are observed as well as the verification of the aging of the world's active population, facts that increase the repercussions on WC (Godinho *et al.*, 2022; Amorim *et al.*, 2014; El Fassi *et al.*, 2013). WC is a dynamic process involving an interrelationship between human resources and work, tending to undergo major changes over time (Rodrigues *et al.*, 2019; Paula *et al.*, 2019); it is a term that emerged from the concept of "stress attrition" with attrition depicting the accumulation of physical and mental burdens of work (Rodrigues *et al.*, 2019). Thus, WC represents a measure of functional aging and an indicator of worker health (Martinez *et al.*, 2016; Alcantara *et al.*, 2019; Teixeira *et al.*, 2019). It refers to the aptitude or ability of a worker to perform his or her duties, taking into account occupational demands and his or her physical and mental health status (Godinho *et al.*, 2022; Rodrigues *et al.*, 2019; Teixeira *et al.*, 2019; Linhares *et al.*, 2019). This ability is influenced by several factors, with emphasis on the environment and working conditions, as well as the lifestyle of the worker (Palma *et al.*, 2019; Barbosa *et al.*, 2019). With this, a close and complex relationship between health and work is observed, with health being negatively affected when work activities are performed in inappropriate environments, which can precipitate or aggravate the reduction of WC (Godinho *et al.*, 2017). It is understood, in view of all these changes, that the search for an adequate work environment and the quality of life of workers should be a constant (Rodrigues *et al.*, 2019; El Fassi *et al.*, 2013). The improvement of functional capacity is effective in promoting a better quality of life, besides reducing and delaying disabilities, avoiding early retirements, as well as reducing health expenses at this stage of life (Godinho *et al.*, 2017; El Fassi *et al.*, 2013; Tuomi *et al.*, 2005). In this context, considering the changes in labor relations and in the epidemiological profile of the working population worldwide and the importance of knowing the state of the art on the predictors of reduced work capacity in Brazilian workers, which may help prevent early functional aging, as well as improve the quality of life of workers through the implementation of preventive measures, this study aims to assess the state of the art on the predictors of reduced work capacity in Brazilian workers.

METHODS

This is a narrative literature review study. Narrative review studies are broad publications, suitable for describing and discussing the development or "state of the art" of a given subject from a theoretical or contextual point of view. They represent the analysis of scientific literature published in books, print and/or electronic journal articles in the author's interpretation and critical analysis. Although their strength of evidence is considered low due to the impossibility of reproducing their methodology, articles of this category are essential for continuing education, because they help in the debate of certain themes by allowing the reader to acquire and update knowledge about a specific content in a short period of time (Rother, 2007). The guiding question of the study was: which factors are negatively associated with the ability to work?. The process of collecting the material was carried out in a non-systematic manner in the period from July to December 2020. The search for articles included a search in electronic databases and a manual search for citations in the publications initially identified. Scientific databases were searched, such as: *VHL* (Virtual Health Library), *Scielo* (Scientific Electronic Library Online), *LILACS* (Latin American and Caribbean Literature on Health Sciences), PubMed, and Medline (International Health Sciences Literature).

To search for articles, the following descriptors/keywords were used: evaluation of work capacity, work conditions, work capacity index. These descriptors were used alone or combined (evaluation of work capacity and work conditions; evaluation of work capacity and work capacity index; evaluation of work capacity and work conditions and work capacity index), and the full-text articles published in English and Portuguese were selected. The titles and abstracts of all articles identified in the electronic search were reviewed. Based on this action, those articles that met the demands of the study were selected. The abstracts were compiled and directed according to the objectives for the construction of the article. The database was supplemented with materials indicated by specialists in the theme. Finally, these materials were read in their entirety, categorized, and critically analyzed. Inclusion criteria were: to be research articles about the evaluation of the work capacity that used the Work Capacity Index (WCI) as a data collection instrument, as well as articles that researched working conditions, workers' quality of life, and factors associated with the work capacity. The exclusion criteria were articles that were not scientific articles, that the main theme was not work capacity or that did not use the WCI as an instrument to evaluate WC, and also articles published as editorials, interviews, or with preliminary data.

Development: The literature search resulted in 119 scientific papers that had their titles read and evaluated. Seventy-eight articles were selected for the reading of their abstracts. After this phase, the 29 articles that were consistent with the proposal of this study were selected, analyzed, and read in their entirety. The main reasons for excluding the articles were: duplicate articles found in the different databases searched, articles that were not scientific articles (dissertations, theses), articles that did not present the ability to work as the central theme of the discussion or that did not use WCI in their data collection. It was observed that most of the articles found were studies about ability to work done with health professionals, teachers, and policemen. The selected articles revealed that several factors influence WC, both those associated with the work environment and those related to the worker's health and social life (Amorim *et al.*, 2014; Linhares *et al.*, 2019). It is observed that work environments determine different profiles of illness and that these will suffer influence from the worker's profile and their socioprofessional relationships (Sousa *et al.*, 2019). Among the various factors associated with WC, age stands out, with WCI being inversely proportional to age group (Godinho *et al.*, 2017; Amorim *et al.*, 2014; Kim *et al.*, 2019; Gracino *et al.*, 2018; El Fassi *et al.*, 2013).

According to the study conducted by Teixeira *et al.*, (2019), age is an individual predictive factor of WC, since young adult workers tend to present better health conditions and physical-functional capacity than older ones. Other articles evidence that, as the years go by, subjects are more prone to a functional decline associated with physiological changes proper to the body that, associated with the onset of common diseases at this stage of life, culminate in reduced working capacity (Rodrigues *et al.*, 2019; Teixeira *et al.*, 2019; Linhares *et al.*, 2019). However, another study conducted by Martinez *et al.*, (2017) points to higher age as a protective factor for WC, pointing out that, despite the existence of a relationship between chronological and functional aging, this may be influenced by factors such as experience, ability, and job attachment, which are more prevalent among older workers. More experienced professionals tend to cope better with work-related difficulties (Sousa *et al.*, 2019). Female gender is another factor negatively associated with WC, which can be explained by the fact that most women present double or even triple workday, performing, in addition to professional duties, domestic activities and childcare (Paula *et al.*, 2015; Linhares *et al.*, 2019; Vasconcelos *et al.*, 2011). The double journey for women can entail several factors that decrease their health, such as greater psychological and physical overload of work, insufficient time for leisure, rest, and sleep (Vedovato; Monteiro, 2014). Women are more predisposed to have their WC reduced as a result of the overload of domestic and professional services (Rodrigues *et al.*, 2019). In addition, the female gender has a greater vulnerability to musculoskeletal disorders and physical demands of the job, contributing to a lower WC (Paula *et al.*,

2015). Another study conducted by Martinez *et al.*, 2010, adds that the higher risk presented by the female gender for WC loss is also associated with the worse salary conditions to which they are subjected compared to men. High work demands are another element that is negatively related to WC, with health risks and WC reduction being directly proportional to the intensity and frequency of demands in the work environment (Martinez *et al.*, 2016; Santos *et al.*, 2018). The earlier, more frequent, and more intense the worker's exposure to intense demands in the work environment, the greater the risk of early functional aging (Martinez *et al.*, 2017). When the workload is greater than the worker's physical, cognitive, and psychological capacities, this is reflected in illness, fatigue, absences from work, incidence of musculoskeletal disorders, and mental disorders that culminate in the loss of functional capacity (Alcântara *et al.*, 2019; Vedovato; Monteiro, 2014). Therefore, jobs with high levels of demand constitute sources of stress, generating major impacts on the health of workers, being negatively associated with WC (Santos; Araújo, 2018; Masson *et al.*, 2015). A study conducted by Petersen and Marziale (2017) in Manaus, Brazil, states that high demands in the work environment of nursing professionals increase by two times the chance of reduced WCI. Extensive work hours is another factor that, associated with work overload, can cause situations of work stress and diseases that lead to progressive WC reduction (Teixeira *et al.*, 2019). Working overtime after strenuous work shifts contributes to the development of chronic diseases, in addition to leading to the exhaustion of professionals' mental and physical resources (Rodrigues *et al.*, 2019). A study conducted with military police officers in Salvador - BA evidenced that the group classified with low work capacity carried out a working day longer than 8h per day (Barreto; Lins-Kustere; Carvalho, 2019). Long working hours lead to excessive use of the workforce, generating greater wear and tear on the professional, which results in higher risk of illness, reduced quality of life, and a lower WC (Rodrigues *et al.*, 2019).

The presence of musculoskeletal symptoms as well as illnesses such as depression and other psychological disorders, which reflect the health status of the worker, also relate to a reduced WC (El Fassi *et al.*, 2013; Paula *et al.*, 2015; Alcântara *et al.*, 2019; Linhares *et al.*, 2019; Duran; Cocco, 2004; Godinho *et al.*, 2016). The presence of chronic diseases, especially those related to musculoskeletal alterations, is configured as a determining factor of incapacity to work, increasing absenteeism at work (Rodrigues *et al.*, 2019; Gracino *et al.*, 2018). Some studies have also referred to length of service as a risk factor associated with reduced WC (Godinho *et al.*, 2017; Amorim *et al.*, 2014; Gracino *et al.*, 2018; Martinez *et al.*, 2017; Vedovato; Monteiro, 2014; Santos; Araújo, 2018), with a study showing a decrease in the WCI of 0.12 points for each year of work among medical professionals (Gracino *et al.*, 2018). Having more than one employment relationship was also pointed out by some authors as a factor contributing to a lower WCI (Godinho *et al.*, 2017; Rodrigues *et al.*, 2019; Santos *et al.*, 2018; Ferracciu *et al.*, 2015). The search for other work activities occurs among some workers as a way to supplement income, due to low wages, but also due to the search for an activity that brings them appreciation and professional recognition (Vasconcelos *et al.*, 2011; Ferracciu *et al.*, 2015). Studies that have analyzed aspects of lifestyle have associated some behaviors, such as lack of physical activity, with reduced WC (Godinho *et al.*, 2017; Gracino *et al.*, 2018; Martinez *et al.*, 2010; Duran; Cocco, 2004; Godinho *et al.*, 2016) since doing this is associated with better physical conditioning, in addition to better health perception and self-esteem, reducing emotional reactions to stress and thus acting as a predictor of good ability to work (Martinez; Latorre; Fischer, 2010). Smoking is another factor negatively associated with WC, as it reduces physical capacity and increases the risk of cardiovascular and pulmonary diseases besides being associated with worse self-assessment of health status by the worker (Amorim *et al.*, 2014; Gracino *et al.*, 2018; Martinez *et al.*, 2010; Duran; Cocco, 2004; Hilleshein *et al.*, 2011). Obesity is also considered a risk factor for WC loss, due to its negative impact on cardiorespiratory and musculoskeletal capacity, leading to increased incidence and morbidity from chronic diseases (Godinho *et al.*, 2017; Martinez; Latorre; Fischer, 2010; Barreto; Lins-Kustere; Carvalho,

2019). A study conducted with military police officers in Salvador showed a much higher prevalence of obesity among those officers identified with low TC (25.5%), when compared to those with moderate, good, and great WC (7.8%) (Barreto; Lins-Kustere; Carvalho, 2019).

FINAL CONSIDERATIONS

Among the factors associated with reduced WC, the following are observed: older age, female gender, high demand at work, long working hours, presence of musculoskeletal disorders, absence of physical activity, tobacco consumption, nutritional disorders such as obesity, or other diseases that reflect the health status of the individual. Reduced WC is a growing and worrisome public health problem in the context of workers' health, and the identification of factors associated with reduced WC is fundamental for the promotion of workers' quality of life and the prevention of their functional aging. The adequate management of these factors reflects in higher job satisfaction and, consequently, higher productivity. This study is expected to contribute to a reflection on the need for policies that promote the well-being of the worker through prevention and health promotion actions that favor an active and healthy aging, avoiding the reduction or early loss of working capacity.

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