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Functional capacity associated with work ability in older university staff employed by the state

Capacidade funcional associada à capacidade para o trabalho em servidores idosos universitários

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Abstract

Introduction: The increase in numbers of older adults in the workplace and in the number of years they spend in work prior to retiring has challenged health professionals to provide enable health conditions such that they may undertake occupational activity. **Objective**: To analyze the variables for functional ability, associated with work ability, in older adults who were government employees at a university. **Methods**: A cross-sectional design, with older workers aged 60 years old or over, located in different university centers and departments. A structured sociodemographic questionnaire was used to characterize the sample, and the Work Ability Index was used as an outcome variable for the associations, using the Timed Up and Go test, the handgrip strength test, the walking speed test and the chair sit to stand test. The Chi-squared test and Pearson correlation coefficient were used in the statistical analysis. The association of the factors of functional capacity was based on the odds ratio and 95% confidence interval, calculated using the Logistic Regression Model, as part of the SPSS statistical package for Windows. **Results**: A total of 258 staff participated in the investigation, with men (57.7%) and a lower age range (60 to 62 years old) predominating. Women differed in relation to falls after the age of 60 ($p = 0.007$) and in the last 12 months ($p = 0.017$). The mean Work Ability Index was 39.70 ± 5.64 points and a statistical association was ascertained between performance in the chair sit to stand test (OR = 2.26; $p = 0.043$). Muscle strength ($r = 0.72$; $p < 0.000$)

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and the chair sit to stand test (r = 0.73; p < 0.000) showed excellent correlation with work ability. **Conclusion**: The variables for functional capacity were associated with work ability.

Keywords: Work Capacity Evaluation. Workers. Aging.

Resumo

Introdução*: O aumento e permanência no mundo do trabalho pelos idosos têm desafiado profissionais de saúde em proporcionar condições de saúde para realização da atividade ocupacional.* ***Objetivo****: Analisar as variáveis de capacidade funcional associadas à capacidade para o trabalho em idosos servidores públicos de uma universidade.* ***Métodos****: Delineamento transversal, com trabalhadores idosos de 60 anos ou mais, locados em diferentes centros e setores universitários. Foi utilizado um questionário sociodemográfico estruturado para caracterizar a amostra, o índice de capacidade para o trabalho como variável de desfecho para as associações com Timed Up and Go, força de preensão manual, velocidade de marcha e tese de sentar e levantar da cadeira. Na análise estatística foi utilizado o teste Qui-quadrado e coeficiente de correlação de Pearson. A associação dos fatores da capacidade funcional baseou-se na odds ratio e intervalo de confiança 95%, estimada pelo Modelo de Regressão Logística, por meio do pacote estatístico SPSS para Windows.* ***Resultados****: Participaram da investigação 258 servidores, predominando o sexo masculino (57,7%) e de menor faixa etária (60 a 62 anos). As mulheres diferiram em relação às quedas após 60 anos (p = 0,007) e últimos 12 meses (p = 0,017). O Índice de Capacidade para o Trabalho médio foi de 39,70 ± 5,64 pontos e verificou-se associação estatística com desempenho no teste de sentar e levantar da cadeira (OR = 2,26; p = 0,043). A força muscular (r = 0,72; p < 0,000) e o teste de sentar e levantar (r = 0,73; p < 0,000) apresentaram ótima correlação com capacidade de trabalho.* ***Conclusão****: As variáveis de capacidade funcional estiveram associadas à capacidade de trabalho.*

Palavras-chave: *Avaliação da Capacidade de trabalho. Trabalhador. Envelhecimento.*

Introduction

Nowadays, reaching old age is a reality for the population even in the poorest countries, and is no longer the privilege of the few. However, this continues to be the period in which disease and disability appear, and in which the years lived through with a low quality of life increase the costs on the health system (1 - 3). Aging has been seen as a restriction on sustainable economic growth to the extent that it contributes to reducing the relative size of the workforce, due to the process of retirement (4). One can observe growing proportions of older adults who continue to exercise their occupational activities (5), however, there is a heterogeneity with important differentials according to the forms of insertion (mechanism of entering the job market), participation (economically active age group) and occupation (type of work undertaken). Furthermore, there are distinctions between older adults working in the public and private sectors, by gender, years in education, retirement situation and distribution between departments, as well as by length of time undertaking work activity (4, 5). As a result, the relationship between aging and work has been seen as a challenge for the rehabilitation agenda (6).

The Work Ability Index (WAI) is an instrument developed in Finland for monitoring the aging of workers' functional capacity. It is used as a tool for tracking health decline, as a source of important information, and in programs for preventing ill health and maintaining and promoting health, helping, in its turn, to preserve the worker's health and functionality (7).

The ability to remain in the workplace seems to be strongly determined by physical capacity, one of the components of functionality, with muscular strength and good aerobic performance being evidenced as predictors of remaining in work (8). Among older adults who continue to work, one can observe an increase in oxygen consumption of 25% and consequently an improvement in muscular and in cardiorespiratory performance. The decline in sensory

function and deterioration of functional capacity may explain work accidents and the appearance of diseases (9). In the same way, promoting sociability and mental and emotional well-being is directly linked to improving self-perceived health, and a stronger association has been evidenced as being linked with lower rates of absenteeism (10 - 12).

The identification and stratification of risks in individual groups, the addition of elderly people to the workforce, and scientific interest in investigating conditions which favor the promotion of health among active older adults have driven new research on this topic. From the point of view of functional capacity, a condition responsible for the valorization of the older worker as an individual who is healthy and/or able to continue his/her work activities, the literature and studies remain limited. The aim of this study, therefore, was to analyze the variables for functional capacity associated with work ability in older adults working as state employees at a public university.

Methods

A cross-sectional, observational and exploratory study, with older adults working as state employees at a university in the north of the Brazilian State of Paraná. Following authorization from the Office for Human Resources, the decision was made to include the following in the study: all employees aged 60 years old or over, located in the different centers and departments of the institution, regardless of the type of work activities undertaken, sex, race or social class.

For determining the sample size, the authors used the finite formula based in the calculation of population proportion, considering the population of reference to be the older adults who were economically active and employed in the municipality (IBGE, 2010), adopting a level of confidence of 95%, significance of 0.05, test power of 80%, Z-value = 1.96 and an error estimate at 3%. After undertaking the calculation of the sample size, the authors considered n = 319, with losses added at up to 20% (n = 53). The principle of parsimony was adopted, considering that 1) the population working in the public university would be representative for the municipality; and 2) within the city's higher education institutions there would be discrepancies in the contingent of older adults working in the private and public institutions.

The following were excluded from the study: workers with cognitive alterations detectable by the Mini-Mental State Examination, taking into account the cutoff points proposed by Bertolucci and collaborators (13); older adults who had been away from work for over 15 days in the data collection period; workers who refused to participate; deaths; and those who at the time of contact were found to have retired.

The participants were contacted either by telephone or personally in their workplace and were informed about the study's objectives prior to the study's start. For those who were interested in participating voluntarily, a time was arranged for collecting data. The study was approved by the Committee for Ethics in Research Involving Human Beings, of Londrina State University (ETIC:107/2013), and the participants signed the terms of informed consent.

Prior to beginning the research, a pilot study was undertaken with 30 older adults in work, who did not belong to the final sample, with the aim of adjusting the data collection instruments. At that time, all the researchers involved were trained and the investigation took place in August 2013 – August 2014. A structured sociodemographic and clinical questionnaire was used for characterizing the sample.

The measuring of work ability (WA) was undertaken using the WAI, which includes self-assessment regarding health, which has a predictive character and allows the early diagnosis of loss of WA (14). The Brazilian version was translated, adapted and validated by Tuomi and collaborators (7). This index is made up of seven items (dimensions) with a total of 10 questions. In addition to this, it provides a final score which varies between seven and 49 points for classification of the individuals, independently of educational level and income. According to the score, the WAI can be categorized as "very good", "good", "moderate" and "bad" (15). For the analysis of the associated factors in the present study, the WAI was dichotomized, grouping the categories as "very good-good" and "moderate-bad". The continuous measure was used for the analysis of the correlation.

In order to assess the intensity measure and the regularity of practicing of physical activity in the reference week, the International Physical Activity Questionnaire (IPAQ), adapted for older adults, was used. Patients were requested to recall details regarding physical activity of light, moderate and vigorous intensity, as well as the practice of walking, with the final score

classifying the individual as inactive (or sedentary), minimally active (or insufficiently active), active and very active, in accordance with the recommendations of the IPAQ Coordination Center in Brazil (16).

The measurements of functional capacity were determined by objective variables of mobility, balance and muscular strength, taking the Timed Up and Go, time Sit-to-Stand, Walking Speed and Hand Grip Strength tests into account. In order to assess functional mobility, the researchers used the mean of three measurements from the Timed Up and Go (TUG) test, at the normal speed. In accordance with previous standardization (17), the participants were advised to rise from the chair without supporting their weight on their arms, to walk for 3 m and then to return to the chair.

In addition to this, evaluation of walking speed at 4.6 m was undertaken, as was the Five Time Sit-To-Stand Test (FTSST), which was undertaken at the fastest speed possible. Both measures are associated with decline in functional capacity and the occurrence of falls (18 - 20). In all the tests, a standard chair 45 cm high was used, with a straight back and without arms. The participants were advised that upon standing up, they should keep their arms crossed across the body. Equally, for all of the analyses of the data, these were categorized in accordance with the reference values in the literature (17 - 22).

Hand Grip Strength (HGS) was measured using a Saehan dynamometer (*Saehan Corporation, 973, Yangdeok-Dong, Masan 630-728, Korea*), considered to be an instrument which is appropriate for measuring HGS (21) and easy to apply in field research. For undertaking the measurements, the participant remained in a seated position on a chair with no arms, with their feet resting on the ground, their hips and knees flexed at 90°, their arms held parallel with the body, with the elbows flexed at 90°, and their forearms and wrists in a neutral position. Three maneuvers with maximum grip were undertaken, with verbal encouragement, using the dominant limb, always with one minute's rest between one grip and the next. The results are presented in Kilogram-force (Kgf) as the mean of the three measures obtained, in accordance with the recommendations of Figueiredo and collaborators (22). For exploratory analysis, this measurement was dichotomized in accordance with the value of the median found in the sample.

The data collected were transcribed on a specific form, and were later tabulated by two independent researchers and information mirroring was carried out, seeking to reduce inconsistencies. The files created were compared using the Epi Info® program, version 3.5.1, and discrepant data were corrected after consulting the questionnaires. Characterization was undertaken using measurements of central tendency of the WAI, as well as frequency of the WA classifications.

Data analysis was undertaken using the Pearson Chi-squared test and the Spearman correlation (r), evaluating the variables of the WAI and the functional ability with the groups divided by age range. All variables were subjected to the Kolmogorov-Smirnov test in order to verify the normality of the distribution of the data. The unadjusted analysis of the functional condition, associated with work ability, was based on the odds ratio and 95% confidence interval, estimated using the Logistic Regression Model. In the multivariate analysis, the authors used the statistical criteria of inclusion of the multiple factors, considering a value of $p < 0.20$. Later, associations with $p < 0.05$ in the adjusted analysis, using the backward stepwise method were considered statistically significant. The Statistical Package for the Social Sciences (SPSS) for Windows software (version 20.0, SPSS Inc.©, Chicago, Illinois) was used for the entire statistical analysis of the data.

Results

The target population of the study was made up of 529 workers, aged 60 years old or over and belonging to the institution's workforce, located among the different study centers, support organizations and supplementary. After the exclusion criteria were applied, there remained a total of 258 staff members participating in the research, corresponding to a 74.8% response rate among the older adults who were eligible (n = 345). The analysis of the individuals excluded showed there was no significant difference between the samples in relation to sex ($p = 0.99$), to activity (technical level or lecturer) ($p = 0.48$), age ($p = 0.06$) and educational level ($p = 0.67$). The WAI did not present adherence to normal distribution ($p = 0.0001$) in the Kolmogorov-Smirnov test, determining the use of nonparametric tests for undertaking the analyses.

The predominance of older adult workers who were male was ascertained, with a lower age group

(60 to 62 years old), with the general mean age being 62.89 ± 2.47 years old. Table 1 shows the sample's social and demographic characteristics and requirements for the work. One can observe a difference between men and women in relation to conjugal situation, educational level and requirements for the work. The mean length of service in the university was 26.73 ± 8.85 years and the participants mainly occupied lecturing positions.

Table 1 - Sociodemographic characteristics, perception of health and requirements for work of the 258 older adult workers by sex

Variables	Male (N = 149) % (N)	Female (N = 109) % (N)	p-value
Age (per years)			0.581
60-62	30.6 (79)	20.9 (54)	
63-70	27.1 (70)	21.3 (55)	
Conjugal Situation			0.003*
With a partner	8.1 (9)	1.8 (2)	
Without a partner	31.5 (35)	58.6 (65)	
Educational level			0.038*
Primary/Junior High and Senior High	27 (69)	14.8 (38)	
Higher Education	5.5 (14)	8.2 (21)	
Postgraduate study	25.4 (65)	19.1 (49)	
Income			0.873
Up to 4 salaries	24.4 (63)	17.4 (45)	
5 or more salaries	33.3 (86)	24.8 (64)	
Demands of work			0.021*
Mixed	7.8 (20)	1.6 (4)	
Physical	14.3 (37)	13.6 (35)	
Mental	35.7 (92)	21.1 (70)	

Note: * $p < 0.05$.

Among the clinical, anthropometric and lifestyle variables analyzed, the groups differed regarding falls after 60 years of age and in the 12 months prior to the survey ($p < 0.05$) (Table 2). Regular use of medications, hospitalization and being overweight were more prevalent among the males. The analysis of the intensity of physical activity in the reference week demonstrated that the women are more sedentary and that their frequency in the active and very active groups is lower. Significant differences were not found regarding BMI ($p > 0.05$).

Table 2 - Clinical, anthropometric and lifestyle data of the 258 workers by sex

Variables	Male (N = 149) %(N)	Female (N = 109) %(N)	p-value
Number of medications			0.050
None	15.5(40)	6.2(16)	
1 to 4	39.9(103)	33.3(86)	
5 or more	2.3(6)	2.7(7)	
Hospitalization			0.280
Yes	7.8(20)	7.8(20)	
No	50.0 (129)	34.5 (89)	
Falls			
After 60 years old (yes)	14.7(38)	17.4(45)	0.007*
Last 12 months (yes)	9.3(24)	12.0(31)	0.017*
Physical Activity			0.081
Sedentary	4.7(12)	6.2(16)	
Insufficiently Active	20.5(53)	11.2(29)	
Active	30.2(78)	24.4(63)	
Very Active	2.4(6)	0.4(1)	

Note: * $p < 0.05$

The mean of the WAI was 39.70±5.64 points, varying from 18.5 to 49 points. It was observed that the calculation of WA (first dimension) obtained a mean of 8.65 points and the WAI identified that the majority of the employees presented very good ability (30.6%) or good ability (43.8%), followed by a lower frequency of workers classified as having WAI which was moderate (21.7%) and bad (3.1%).

When the correlation between the WAI and the functional ability variables was analyzed, it was observed that performance in the Five Time Sit-to-Stand Test ($r = 0.73$; $p = 0.000$) and the Hand Grip Strength test ($r = 0.72$; $p = 0.000$) presented statistical significance and excellent correlation. These data are presented in Table 3. In Table 4, one can observe that although these same variables presented a statistically significant association in relation to the work ability in the univariate model, only the performance of the lower limbs measured in the Five Time Sit-to-Stand Test (OR = 2.26; $p = 0.043$) remained in the multivariate analysis, adjusted for age and sex.

Table 3 - Correlation of the Work Ability Index and Functional Capacity variables

Variables	Work Ability Index		
	Mean (±SD)	r	p-value
TUG	10.74 (3.26)	-0.11	0.068
Walking Speed	0.98 (0.24)	-0.25	0.692
FTSST	9.80 (2.92)	0.73	0.000*
HGS	34.70 (9.63)	0.72	0.000*

Note: * $p < 0.05$; SD = standard deviation; r = Pearson Correlation; WAI = Work Ability Index; TUG = Timed Up and Go; FTSST = Five Time Sit-to-Stand Teste; HGS = Hand Grip Strength.

Discussion

The present study investigated, in a sample made up exclusively of older adults, the association between the ability for work in staff at a public university and functional capacity. There was no selection or sampling bias, bearing in mind that the analysis of the losses, according to sociodemographic and occupational characteristics, evidenced that there was no difference between the individuals who participated in the study and those who did not. Regarding external validity, the study presents a possibility for generalization of the results as the process of aging in this public university has been affected by the phenomenon observed elsewhere in Brazil (5, 6, 2, 23).

It is important to take into account the context of the institution where the investigation was undertaken. At the time of data collection, the heterogeneity of occupational activities was included in the sample, as the university offers the community teaching, research and extension course activities, as well as the provision of technical services. In a similar manner, it is relevant to note that the majority of the workers' tasks were characterized by intellectual work, with constant use of mental skills. These were defined by the receiving and processing of a wide variety of information, high mental demands posed by the work, pressure from deadlines, a large volume of work and the requirement for a high level of professional qualification. When the demands posed by the work are predominantly physical, they corroborate the literature – indicating the association with functional capacity (24).

Table 4 - Variables of functional ability associated with ability for work in older adults, adjusted by sex and age, univariate and multivariate analysis using the Logistic Regression Model

Variables	N	%	WAI Excellent-Good		Univariate Analysis			Multivariate Analysis		
			N	%	OR	95%CI	p	OR	95%CI	p
Age range										
60 to 64 years old	195	75.6	51	78.5	1.00	-	-	1.00	-	-
65 to 70 years old	63	24.4	14	21.5	1.240	0.632-2.433	0.532	1.655	0.790-3.466	0.182
Sex										
Male	149	57.8	29	44.6	1.00	-	-	1.00	-	-
Female	109	42.2	36	55.4	0.490	0.277-0.866	0.014*	1.796	0.718-4.489	0.210
Hand Grip Strength										
Greater than 35 Kgf	125	49.6	25	39.1	1.00	-	-	1.00	-	-
Below 35 Kgf	127	50.4	39	60.9	0.564	0.316-1.006	0.052*	1.079	0.424-2.745	0.874
Timed Up and Go										
Less than 8 seconds	40	15.5	11	16.9	1.00	-	-	-	-	-
More than 8 seconds	218	84.5	54	83.1	1.152	0.539-2.461	0.715	-	-	-
Five Time Sit-to-Stand Test										
Less than 13 seconds	226	87.6	51	78.5	1.00	-	-	1.00	-	-
More than 13 seconds	32	12.4	14	21.5	2.669	1.242-5.735	0.12*	2.265	1.003-5.113	0.043**

(To be continued)

(Conclusion)

Table 4 - Variables of functional ability associated with ability for work in older adults, adjusted by sex and age, univariate and multivariate analysis using the Logistic Regression Model

Variables	N	%	WAI Excellent-Good		Univariate Analysis			Multivariate Analysis		
			N	%	OR	95%CI	p	OR	95%CI	p
Walking Speed										
< 0.91 m/s	125	48.4	33	50.8	1.00	-	-	-	-	-
0.91 to 1.26 m/s	105	40.7	26	40.0	1.090	0.601-1.977	0.777	-	-	-
>1.26 m/s	28	10.9	6	9.2	1.315	0.490-3.527	0.586	-	-	-

Note: * $p < 0.20$; ** $p < 0.05$

The length of time the participants had spent in their profession was relatively high in the university. This period of work allows adjustments and adaptations for the work activity, in relation to the functional ability, even faced with chronological aging. The study's sample is favorably differentiated in relation to the general population of older adults, with higher levels of income and education. Although it is the individuals who are in the worst position on the socioeconomic scale who most participate in the job market, as people age, the best chances of remaining active belong to those who are the best qualified and with the highest levels of education (25). Corroborating these findings, the present study evidenced a high prevalence of professionals with postgraduate qualifications, which is to be expected in higher education institutions, especially public ones.

Through the WAI, it was ascertained that most of the study's sample had a good or very good work ability. This favorable profile may be conditioned by the content (or demand) of the work, which is predominantly mental. In workers whose work is physical, loss of ability for the work is more intense as a result of the strain and compromising of the health which results from the demands of the job itself. This data reveals that the WAI could be better designed, in order to monitor losses in ability to work when applied to workers whose work is more mental, as the instrument's construction uses subjective measures, related to the worker's perception regarding his or her health. In this regard, measurements of functional ability may help to improve evaluation of WA.

The values found with better functional ability, for both lower and upper limbs, in the present study, differ from population studies undertaken with older adults in the community (26). The justification for our results may result from the effect of the healthy work, which is manifested mainly through greater independence and physical mobility. If on the one hand, this effect is attributed to the fact that the healthier individuals have greater chances of continuing in work (survival effect) (27), the opposite could also be true.

Among the objective measures of the functional capacity (FC) analyzed, it is important to highlight that upon analyzing the variables for functional capacity and work ability in a generalized manner, the performance of the lower limbs in the Five Time Sit-to-Stand Test at the fastest speed possible, as well as muscular strength, presented a statistical association. The regression analysis indicated the strength of the association between the two variables (functional capacity and WA); however, it was necessary to carry out the correlation analysis in order to calculate the magnitude and the direction of the relationship between the same.

It was observed that the measurements of muscular strength and performance of lower limbs (FTSST) presented an association in the univariate analysis, but that only the FTSST remained in the multivariate analysis, independently of age or sex. The correlation analysis indicates a linear relationship for FTSST, HGS and WAI. According to Luis and Diaz (28), the measurements of performance which require speed are affected more strongly, and these data reveal divergence with previous studies, as they always place older adults in risk groups for loss of WA, strength and mobility.

As a result, it is relevant to monitor the aspects of functional capacity of older adult workers, as these may reveal the strain faced by the worker, regardless of the type of demands posed by the work. Furthermore, the evaluation of WA can contribute to estimating the

ability for the work, as independent older adults, in relation to walking, mobility and good muscular strength can continue to carry out their work activities. It was observed that the measures for measurement used in the present study are directly related to the activities performed in the work, such as walking, standing up, sitting and holding objects. The importance of adding measurements of physical performance becomes more relevant when the target of investigation is older adults, as, in accordance with the studies of Dale and collaborators (29), in young, recently-contracted workers, hand grip strength was not useful for identifying workers at risk of developing musculoskeletal diseases and inability for the work. However, we emphasize the need for evaluative measures adjusted to the workers' chronological conditions.

Although the study design does not allow one to prove causality, one can speculate that the active participation of the older adults in the work affects their work ability, as well as their functional capacity and, consequently, could influence their state of health. This assertion is in line with studies which indicate variables which are relevant to the physical functions as one of the causal or explanatory factors for the standard of work ability and of health status, regardless of age (6, 8, 2, 29, 30).

Due to the greater susceptibility to conditions which reduce work ability, in old age, it is frequent to find association with impairment in the body functions, difficulties in performing work activities and restrictions in social participation (31). The predictive determinants for work ability result from a dynamic process between the individual's resources in relation to his or her work, and undergo modifications due to health conditions, lifestyle, social and behavioral aspects, aging and the work environment (32). This can be observed in the study of Kettunen and collaborators (33), evaluating the effects of an intervention during 12 months of physical exercise. The authors report success in improving ability for work in the long term in a group of healthy individuals. As a result, the need is emphasized for implementing health promotion actions as both an individual and collective measure.

Considering the present study's results and limitations, and within an understanding of work ability which results from the interrelationships between the workers' resources and the requirements of the work, some suggestions are presented. The implementation of actions investigating the functional ability conditions in occupational health programs, as well as the traditional clinical measures, are important indicators for monitoring the worker's health, in particular older adults. The state of functional ability, and ability for the work, must be monitored so as to identify changes at an early stage and implement corrective measures, both at the individual and the collective level. We also suggest projects for promoting physical activities, preventing falls in the workplace and adjustments to the intensity of the mental work, for the study participants.

The literature presents study designs through which older adults are frequently compared to young people, and frequently considered to be the group at higher risk. Brazilian studies (27 - 29) on capacity for work have cross-sectional designs which assess the prevalence and factors associated with inability, and people who are long-lived are positioned in the groups considered to be at risk for loss of WA, as they compare different age groups. The present study evaluates work ability with a specific sample of older adults. Comparisons with other studies must consider these methodological differences.

Considering the context for which it was designed, and the fact that studies on older adults' work ability in Brazil remain at an early stage, it is suggested that further investigations be carried out, if possible with designs which make it possible to establish causal directions and/or to assess the results of measures for promoting work ability. Work ability has been shown to be an interesting and challenging topic for research. The closeness between the conceptual model of WA and the contemporary theoretical framework of functionality and disability has contributed to a better understanding of this topic. This investigation's data, therefore, reinforces the urgency and the need to include this outcome in the agenda of rehabilitation professionals.

Conclusion

It was ascertained that the variables for functional capacity (strength and mobility) analyzed were significantly associated with work ability. Therefore, the better the functional capacity is, the better is the work ability index. Older adults with good health conditions and physical independence maintain good outlooks on life and may take on relevant roles in society. Investments in encouraging the practicing

of physical activity, monitoring functional capacity and adjusting the demands posed by the work are essential as strategies for preparation, even in phases prior to chronological aging. Considering the limitations in the literature, we point to new scientific advances in the discussion of the topic, with designs founded on a populational basis, regarding different types of employment, length and type of retirement, and regarding the relation between employment in the public or private sectors.

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