

Relationship between quality of life and work ability among judicial employees

Relação entre qualidade de vida e capacidade para o trabalho em funcionários do poder judiciário

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ABSTRACT | Background: As is known, occupational diseases hamper productivity by impairing not only the work ability, but also all the aspects related with the quality of life of employees. Maintenance of work ability is associated with the state of health needed to perform work activities, which when are properly done lead to satisfactory results for both organizations and workers. **Objective:** To investigate the relationship between quality of life and work ability among judicial employees. **Methods:** Cross-sectional observational study. The sample comprised 88 randomly selected judicial employees from both sexes. The study was conducted at the Court of Justice of Pernambuco, Recife, Brazil. Data collection was performed through questionnaires for sociodemographic variables, quality of life and Work Ability Index. Pearson's correlation was used for data analysis. **Results:** 90.9% of participants had income equivalent to 5 or more times the minimum wage; 73.9% worked up to 6 hours per day; and 52.3% reported regular practice of physical activity. Correlation between work ability and quality of life was stronger for the participants with regular practice of physical activity ($R=0.60$; $p<0.001$) and shorter working time ($R=0.61$; $p<0.001$). On analysis per sex, work ability exhibited significant and moderate correlation with quality of life for both males ($R=0.62$; $p<0.001$) and females ($R=0.40$; $p<0.010$). **Conclusion:** Relative to the analyzed sample of judicial employees positive correlation was found between work ability and overall quality of life, as well as with quality of life physical health, social, psychological and environment domains.

Keywords | quality of life; work capacity evaluation; occupational health; judiciary.

RESUMO | Contexto: Sabe-se que as doenças ocupacionais não prejudicam apenas a produtividade, por meio da diminuição da capacidade para o trabalho, mas também todos os aspectos relacionados à qualidade de vida do funcionário. Assim, a manutenção da capacidade para o trabalho relaciona-se com o estado de saúde para execução das atividades laborais. Essas, quando bem desenvolvidas, geram desfechos positivos para as organizações e os trabalhadores. **Objetivo:** Avaliar a relação entre qualidade de vida e capacidade de trabalho em servidores do Poder Judiciário. **Métodos:** Estudo observacional de corte transversal. Constituída por 88 servidores públicos do Poder Judiciário, de ambos os sexos, aleatorizados. Realizado no Tribunal de Justiça de Pernambuco, cidade do Recife. A coleta de dados ocorreu por meio de questionários, sobre o índice de capacidade para o trabalho, qualidade de vida e variáveis sociodemográficas. Para análise dos dados utilizou-se a correlação de Pearson. **Resultados:** 90,9% dos trabalhadores apresentaram uma renda de 5 ou mais salários mínimos, 73,9% trabalhavam até 6 horas por dia e 52,3% realizavam atividade física regular. Os trabalhadores apresentaram maiores correlações para capacidade do trabalho e qualidade de vida em praticantes de atividade física ($R=0,60$; $p<0,001$) e com menores horas de trabalho ($R=0,61$; $p<0,001$). Quanto ao sexo, ambos, feminino ($R=0,62$; $p<0,001$) e masculino ($R=0,40$; $p<0,010$), demonstraram relação moderada e significativa com qualidade de vida. **Conclusão:** A população de trabalhadores do Poder Judiciário do presente estudo apresentou correlação positiva quanto à capacidade para o trabalho e qualidade de vida geral, bem como nos domínios físico, social, psicológico e ambiental.

Palavras-chave | qualidade de vida; avaliação da capacidade de trabalho; saúde do trabalhador; poder judiciário.

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INTRODUCTION

The world of work underwent considerable organizational and technological changes in the past decades, resulting in transformations of the work processes and relations¹. The resulting new context allows for discussions relating work, workers' health and work ability, which is indispensable as parameter of the state of health of employees, considering aspects of their physical and mental health and working conditions².

According to Lancman, occupational diseases hamper productivity by impairing not only the work ability, but also all the aspects related with the quality of life of employees³. Maintenance of work ability is associated with the state of health required to perform work activities, which when are properly done lead to satisfactory results for both organizations and workers⁴.

Companies are currently making space for promotion of physical, mental and social well-being in the attempt to improve the work ability and quality of life of employees⁵. According to Martinez & Latorre, the physical and mental dimensions of health are associated with work ability independently from occupational and demographic aspects. The result is a directly proportional relationship between better health and better work ability⁶.

The working and health conditions of judicial employees have been scarcely investigated. We could locate three Brazilian studies on this subject⁷. According to the literature, the activities performed by this category of workers are typically characterized by slowness, as a function of ever-increasing demands, the workload being incompatible with the actual number of employees and working conditions^{8,9}. In some situations, workers are subjected to authoritarianism, pressure to produce, rigid administration, lack of motivation for innovation and excessively centralized power¹⁰.

Such work environment is characterized by predominantly static posture — employees spend a considerable part of their working time sitting in front of computers, repetitive movements and repressed intellectual demands⁸. These factors impair the workers' ability to perform their functions and have impact on the development of occupational stress, with consequent effects on their physical health, psychosocial well-being and work environment⁹⁻¹¹.

Therefore, more attention should be paid upon considering the context for the development of studies including

assessment of the work ability index⁴. In addition, there are gaps in the knowledge about the work ability and quality of life of judicial employees.

The aim of the present study was to investigate the relationship between quality of life and work ability among judicial employees.

METHODS

The present cross-sectional observational study followed Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. It was conducted from May through July 2013 at Desembargador Rodolfo Aureliano Courthouse, a unit of the Judicial Court of Pernambuco (Tribunal de Justiça de Pernambuco — TJPE) located in Recife, Pernambuco, Brazil. The study was approved by the ethics committee for research with human beings of Otávio de Freitas Hospital, Recife, ruling no. 14008713.8.0000.5200.

Eligibility criteria were to belong to the target population — judicial employees — and be accessible at the time of the study. Additional inclusion criteria were: to be a TJPE employee allocated to the Desembargador Rodolfo Aureliano Courthouse for a minimum of 4 months; to perform judicial-administrative tasks; and age over 18. Employees on vacation or leave (due to sickness, work accident or other) during the period of data collection were excluded, as also were the ones with disabilities hindering them from reading and/or understanding the applied instruments.

Relative to calculation of the sample size, we could not locate studies with similar populations and methods in the searched databases. Therefore we first performed a pilot study with 27 randomly selected individuals who met the inclusion criteria. The sample size was calculated for linear correlation following Browner et al.¹²; the obtained magnitude was approximately 0.40 (Pearson's correlation coefficient=0.429) pointing to a sample size of 75 participants. With an additional 30% to compensate for possible losses, the sample size was calculated as 98 participants. Analysis was performed with 95% confidence interval, and alpha and beta error of 5% were considered acceptable.

The study sample comprised 88 participants randomly selected by means of a computerized raffle system. First the names of the employees allocated to the investigated unit were sequentially included in a list, then the names were

attributed random numbers. Finally, the employees were invited to participate in the study, and the criteria of eligibility were applied. A total of 122 individuals were initially recruited, but 34 were excluded as per the eligibility criteria (13 on vacation, 6 on leave, 3 did not perform judicial-administrative tasks and 12 were considered as losses, because they refused to respond the questionnaires).

Data collection was performed within the regular working time. After the participants signed an informed consent form, they were allocated to a room to respond the questionnaires. To protect the anonymity of participants, the questionnaires were attributed a numeric code following Costa et al.¹³

We developed a questionnaire with close-ended questions to collect sociodemographic (sex, age, marital status, educational level and economic status) and occupational (length of work at institution, daily working hours) information, in addition to variables such as comorbidities and practice of physical activity.

To determine the quality of the participants we used the abridged version of *World Health Organization Quality of Life (WHOQOL-bref)* developed by the World Health Organization (WHO) and validated for Brazil^{14,15}. This instrument comprises 26 questions, the first two investigate the overall quality of life and satisfaction with health. The other 24 questions are distributed across four domains: physical health, psychological, social relationships and environment. The items in domains are scored from 1 to 5¹⁵. The score of each domain is calculated by adding the scores attributed to the individual items, the total ranging from 0 to 100; the higher the score, the better the quality of life analyzed by the domain. The weighted mean of the scores of the four domains provides the quality of life total score¹⁵.

Finally, we applied the Work Ability Index (WAI) already validated for Brazil. WAI assesses the self-perceived work ability of workers. It comprises 10 items distributed across seven dimensions:

- current work ability;
- current work ability in relation to job demands;
- number of current diseases diagnosed by a physician;
- estimated work impairment due to diseases;
- sick leaves;
- own prognosis on work ability and mental resources.

The WAI score is calculated by adding the scores of the individual items, and ranges from 7 to 49; on these grounds work ability is categorized as follows:

- 7 to 27, low;
- 28 to 36, moderate;
- 37 to 43, good;
- 44 to 49, optimal².

Data analysis was performed using software Prism 5.0. Sociodemographic variables and WAI scores were subjected to descriptive analysis. For inferential analysis, the normality of the data was investigated by means of the Kolmogorov-Smirnov test. Correlations between sociodemographic variables, *WHOQOL-bref* and WAI scores were analyzed by means of Pearson's coefficient. The significance level was set to 5% ($p < 0.05$).

RESULTS

The sample comprised 88 judicial employees, 48 (54.50%) were female and 40 (45.50%) were male. Table 1 describes the socioeconomic profile of the sample. We call the attention to the daily working hours and practice of physical activity: 73.90% of the participants worked up to 6 hours/day and 52.30% reported to regular physical activity.

About 94.30% of the participants cared by institutional physicians did not have a clinical diagnosis of repetitive strain injury (RSI) or work-related musculoskeletal disorders (WMSDs). According to the WAI scores, 67.04% had good to optimal work ability. The remainder of the information on the occupational profile of the sample is described in Table 2.

Analysis of the mean WAI and quality of life scores evidenced wider variation for the *WHOQOL-bref* domains and overall quality of life. The mean WAI total score was 37.59 ± 4.5 , which corresponds to good work ability. Positive correlation was found between WAI and quality of life ($R = 0.534$). All the correlations described in Table 3 were statistically significant ($p < 0.05$).

Table 4 shows significant differences in the correlation between work ability and quality of life as a function of variables sex, practice or not of physical activity and 6-hour daily worktime.

DISCUSSION

The main findings in the present study concern WHOQOL-*bref* domains, which exhibited significant correlation with work ability, particularly the physical health domain, which exhibited the most evident and moderate correlation, followed by the psychological domain. These findings denote a relationship between work ability and physical capacity and mental well-being. Similarly, Costa et al.¹³ investigated the correlation between work ability and quality of life among industrial workers and found that

Table 1. Sample distribution per socioeconomic profile, Recife, 2013 (N=88).

Variable	n	%
Sex		
Female	48	54.5
Male	40	45.5
Marital status		
Married/with partner	39	44.3
Single	42	47.7
Divorced	5	5.7
Widowed	2	2.3
Age range (years)		
<30	24	27.3
30-39	33	37.5
40-49	16	18.2
≥50	15	17.0
Educational level		
Up to complete secondary school	5	5.7
Incomplete higher education	10	11.4
Complete higher education	70	79.5
Master/graduate education	3	3.4
Economic status		
Less than 5 times the minimum wage	8	9.1
5-10 times the minimum wage	68	77.3
≥10 times the minimum wage	12	13.6

WAI exhibited the strongest and significant correlation with domain physical health, followed by the psychological domain. These authors suggest that good perceived work ability might be expressed by occupational and non-occupational factors, including good physical capacity and emotional well-being.

The mean WAI score (37.59) in the present study was lower than the ones reported by other authors. In Monteiro

Table 2. Sample distribution per occupational profile and work ability index, Recife, 2013 (N=88).

Variable	n	%
Mean daily working time		
6 hours	65	73.9
8 hours	15	17.0
More than 8 hours	8	9.1
Length of work at institution		
Up to 1 year	11	13.4
More than 1 and less than 5 years	28	34.1
5 to 10 years	16	19.5
More than 10 years	27	32.9
Other professional occupation		
Yes	9	10.2
No	79	89.8
Regular physical activity		
Yes	46	52.3
No	42	47.7
Medical diagnosis of RSI/WMSDs		
Yes	5	5.7
No	83	94.3
Work Ability Index		
Low	3	3.4
Moderate	30	34.1
Good	50	56.8
Optimal	5	5.7

RSI: repetitive strain injury; WMSDs: work-related musculoskeletal disorders.

and Fernandes¹⁶ study with employees from an information technology and telecommunications company, the mean WAI score was 42.68. In another study performed with electricity sector workers, the mean WAI score was 41.80¹⁷. In turn, in the study by Costa et al.¹³ the mean score was 40.27, which was lower than the ones for Brazilian administrative employees. Relative to a sample of nurses from a hospital complex, the mean score was 33.30, corresponding to moderate work ability¹⁸. However, to establish analogies between different groups of workers, the populations

should be standardized and analyzed cautiously, because differences in the work content, working conditions and individual perceptions might cause divergences vis-à-vis work ability¹⁷.

The mean total score on WHOQOL-*bref* was 70.64, which indicates that the participants perceived their quality of life and general health as good. In their study Nunes and Mascarenhas¹⁹ found similar scores, with a mean of 74.87; the study population was composed of administrative employees with income over five times the equivalent

Table 3. Coefficient of correlation between Work Ability Index and quality of life and its domains among judicial employees, Recife, 2013 (N=88).

Variable	Mean±SD	Median	Q1	Q3	Minimum	Maximum	R
WAI	37.59±4.50	38.00	35.50	41.00	20.50	44.00	---
Quality of life	70.64±10.38	70.26	62.90	77.87	32.92	94.42	0.534 ^a
Physical health domain	75.37±13.10	75.00	67.86	85.71	28.57	100.00	0.595 ^a
Psychological domain	72.63±11.46	70.83	66.67	83.33	33.33	100.00	0.452 ^a
Social domain	72.16±15.52	75.00	66.67	83.33	16.67	100.00	0.380 ^a
Environment domain	62.39±10.99	62.50	56.25	68.75	34.38	87.50	0.302 ^a

WAI: Work Ability Index; SD: standard deviation; Q1: first quartile; Q3: third quartile; R: Pearson's linear correlation coefficient; ^a: significant correlation ($p \leq 0.05$).

Table 4. Correlation between Work Ability Index (WAI) according to variables sex, physical activity and working hours and quality of life among judicial employees, Recife, 2013 (N=88).

WAI	QoL	Physical D	Psychological D	Social D	Environment D
	Pearson's correlation coefficient R (p value)				
Sex					
Female	0.62 (0.001)***	0.62 (0.001)***	0.57 (0.001)***	0.35 (0.001)***	0.35 (0.013)**
Male	0.40 (0.010)**	0.55 (0.001)***	0.29 (0.061)	0.18 (0.264)	0.23 (0.143)
Physical activity					
Yes	0.60 (0.001)***	0.66 (0.001)***	0.61 (0.001)***	0.56 (0.001)***	0.84 (0.016)*
No	0.57 (0.001)***	0.52 (0.001)***	0.51 (0.002)**	0.40 (0.047)*	0.79 (0.097)
Working time					
6 hours	0.61 (0.001)***	0.64 (0.001)***	0.47 (0.001)***	0.50 (0.001)***	0.33 (0.006)
8 hours	0.25 (0.365)	0.37 (0.165)	0.37 (0.174)	0.00 (0.998)	0.13 (0.630)
>8 hours	0.59 (0.123)	0.28 (0.502)	0.42 (0.295)	0.53 (0.173)	0.70 (0.053)

WAI: Work Ability Index; QoL: quality of life; D: domain; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

of the minimum wage. However, the fact that the sample comprised civil servants enjoying financial stability and salaries equivalent to more than 5 times the minimum wage might have had a positive influence on the results obtained. When speaking of quality of life we allude to a scale that follows a positive direction, i.e., the higher the score the better the aspect thus assessed, while there are no cutoff points to define quality of life as good or bad. Kawakame and Miyadahira¹⁸ observe that quality of life depends on the expectations and life plan of each individual. The participants in our study who reported to practice regular physical activity exhibited higher scores on all the quality of life domains, in which context its correlation with domain environment stood out ($R=0.84$; $p=0.016$). This finding is reinforced by the results of other studies which found positive correlation between regular physical activity and quality of life among adults^{20,21}.

The results corresponding to the physical health and psychological domains are similar to the ones obtained for other populations, which suggests a certain direction for possible interventions aiming at maintaining and improving the outcomes relating to these domains. Beltrame²² analyzed employees from a metallurgical company and found association between work ability and quality of life, albeit with low level of statistical significance. The correlations found mostly concerned the physical health ($R=0.19$) and psychological ($R=0.20$) domains, which shows that the better individuals are from the physical point of view, also the better their mental state and work ability. Martins²³ analyzed 158 nurses who worked in direct patient care under a shift regimen, and found that the quality of life profile linearly increased in parallel to work ability.

Domain environment was attributed the poorest scores; this domain addresses aspects relating to lack, insufficiency, inadequacy and dissatisfaction with leisure, money, information, work environment, health services and transport¹⁸. One of the main problems relative to the working conditions of judges and judicial employees is the precarious conditions of materials, equipment and physical space in which work is performed⁸. In a study conducted at a labor court, among other factors Aragão²⁴ detected a precarious physical space, insufficient materials, deficient information flow and incompatibility between number of employees and workload. These findings evidence a relationship between environmental precariousness and working conditions, which

might account for the lower scores attributed to domain environment in the present study.

The relationship between work ability and factors associated with life satisfaction is justified according to the results of the systematic review performed by Van den Berg et al.²⁵. In the present study this relationship could be detected through the correlation between quality of life and WAI. Lacaze et al.²⁰ observe that there is a relationship between quality of life and work ability that involves factors such as income and physical activity. In our study, the correlation was significant and moderate for both sexes, and was associated with regular physical activity and shorter working time (6 hours/day).

The results relative to WAI indicated that work ability was good to optimal for 67.04% of the sample. This rate is lower than the one obtained for federal judicial employees: Bellusci and Fischer⁵ assessed work ability among employees from a federal regional court, and found that 87.5% of the men and 78% of the women exhibited good to optimal work ability. This discrepancy might be explained by differences in the function-related demands to which federal and state judicial employees are exposed. The increase in the human and material resources at courts notwithstanding, employees cannot complete the existing cases before new ones come in²⁶, resulting in accumulation of the workload, which is attended by a higher stress burden¹¹.

On analysis per sex, the average score on WAI for women was 37.56, corresponding to good work ability. This finding agrees with the ones reported by Costa et al.¹³ for female workers at a medium-sized industrial company in São Paulo, and by Monteiro and Fernandes¹⁶ at an information and telecommunications company. In the present study, there was not significant correlation between the WAI scores for both sexes, this result being similar to the one obtained by Santana et al.⁷ for employees at the Labor Court of Pernambuco. The reason is that in these settings the job demands and tasks do not differ as a function of sex. Variable sex exhibited correlation with overall quality of life, WHOQOL-bref domains, practice of physical activity and working time. By comparison to other populations, the results for the female employees differed ($R=0.62$; $p=0.001$), because women tend to exhibit poorer quality of life than men, as a function of their susceptibility to mental suffering in situations involving health and social relations. Within this context, the women with children stand out as a result of the demands inherent to this condition^{13,18,19,21}.

Physical activity exhibited positive relationship with work ability and quality of life, with moderate correlation with the physical health, psychological and social domains, and strong correlation with the environment domain. In their study with electricity sector workers, Martinez and Latorre¹⁷ found a positive relationship between practice of physical activity and work ability, which was justified by the position profile, which demands adequate maintenance of the physical work ability. In turn, Rafonne and Hennington²⁷ found low work ability and negative relationship with physical activity in a sample of nurses; however, these findings might be accounted for by the low percentage of physically active participants (28%). Still within this context, work ability tends to be better preserved among individuals who perform mental work compared to the ones who perform predominantly physical work⁶. Studies considering this variable should thus investigate different populations.

The relationship between working time and WAI was positive and moderate ($R=0.61$; $p=0.001$) for the employees (73.9%) who worked 6 hours per day. This finding had correlation with the physical ($R=0.64$; $p=0.001$) and psychological ($R=0.47$; $p=0.001$) domains of quality of life. These results corroborate the ones of other studies, such as the one by Metzner and Fischer²⁸, who found a directly proportional relationship between 12-hour working time and work ability showing that long working hours might have negative impact on work ability.

Our study had some limitations, as e.g., its cross-sectional and observational design, which does not allow excluding what in occupational epidemiology is known as “healthy worker effect”, with consequent underestimation of the hazards posed by the work process⁵. Therefore, it would be interesting to establish whether the indicators of morbidity and mortality are better among workers compared to the overall population^{5,27}. Nevertheless, we stress that we sought to contribute to fill in some of the many gaps in the knowledge on the relationship between work ability and quality of life among a definite population of workers.

CONCLUSION

In the analyzed population work ability was associated with overall quality of life, as well as with quality of life domains physical health, psychological, social relations and environment. Within this context, work ability was directly related with practice of physical activity and shorter working hours.

Our results are useful for the development of intervention actions targeting subjects quality of life and work ability index. We suggest performing periodical and longitudinal monitoring of quality of life and work ability in different populations.

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