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Working ability of a hospital nursing team: a correlational study

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ABSTRACT

Aims: to evaluate the working ability of a hospital nursing team. **Method:** this is a descriptive and cross-sectional study. The subjects of the survey were 144 nursing workers from a federal hospital. Data were collected through the Work Ability Index questionnaire and treated by descriptive and inferential statistical analysis. **Results:** the ability for work was evaluated as low for 3.5% of the workers, moderate for 20.8%, good for 47.2% and excellent for 28.5%. There was a correlation between the ability to work and the role performed in terms of nurses and nursing assistants. **Discussion:** the finding is the same as that found in a previous study carried out with nurses. **Conclusion:** the research hypothesis was refuted by not establishing an association between work capacity and socio-demographic and lifestyle variables.

Descriptors: Nursing Team; Occupational Health; Work Capacity Evaluation.

INTRODUCTION

In the 1980s, with the aging of the Finnish working population, the Finnish Institute of Occupational Health (FIOH) began the first studies on work ability and functional aging, based on the stress-wear model of Rutenfraz and Colquhoun. This model assumes that the wear experienced by the worker is dependent on stressors resulting from the physical and mental loads of the work, the labor environment and equipment, and the characteristics and resources of the worker. This wear can lead to the triggering of physiological, psychological and behavioral responses, with an impact on the health of the individual and on his or her work ability[1,2].

The work ability can be conceptualized as the physical and mental well-being of workers, which enables them to develop their work according to the demands of the occupation and their state of health. In an early study, FIOH found that work ability does not remain satisfactory throughout life, and is affected by several factors related to work and lifestyle[3].

In Brazil, studies on the subject gained in importance in the late 1990s, given the increasing concern related to the demographic transition, which was accentuated by an exacerbated drop in fertility and mortality rates, thus shocking the elderly population[4]. However, there are still few studies that have investigated the relationship between work capacity, aging, and work and lifestyle factors.

According to data from the synthesis of social indicators of 2015, population aging is evident in Brazil and will become more marked in the coming decades. The proportion of elderly people aged 60 years and older rose from 9.7% in 2004 to 13.7% in 2014. The data also show that the level of occupancy of people aged 60 years and over was 29.1%[5].

This context, unlike that of developed countries, is not accompanied by a reduction in social inequalities, economic growth or an improvement in the level of well-being. The aging of the working population will lead to changes in society, with repercussions on the labor market and the profile of public policy demands[6].

In the context of the world of work, the nursing team corresponds to a portion of the contingent of health workers which routinely perform functions that require physical and psychosocial efforts in unhealthy environments, shift schedules, continuous and direct assistance to patients and relatives, and direct experience of pain, suffering and death. These factors, associated with the complexity of the tasks and, often, with other jobs, can generate, over time, wear of the worker's vital capacities, with consequences for the development of occupational tasks[7,8].

Therefore, the work ability should be seen from a framework that takes into account the interaction between work, lifestyle, health conditions and biological aging[1].

In this context, investigating the nursing team's work capacity can contribute to the early identification of the loss of work ability and associated factors and, consequently, to provide for the planning of strategies for health promotion and prevention of injuries, the health maintenance of workers, and possible improvements in the organization and work environment[9].

From this perspective, the objectives of this study were to evaluate the capacity of a hospital's nursing team and to correlate it with the socio-demographic and lifestyle variables of the staff. The hypothesis adopted is that there is an association between these variables.

METHOD

This is an observational, descriptive, quantitative and cross-sectional study developed at a tertiary/quaternary federal teaching hospital located in the city of Rio de Janeiro, Brazil, part of the metropolitan region II of the state of Rio de Janeiro.

The study population consisted of 649 nursing workers, with a 30-hour workweek, developed through a 12 by 60 hours work scale (on-duty), or six hours a day from Monday to Friday (day workers). The defined inclusion criteria were: to be a nurse or nursing assistant, over the age of 35, and to work in the unit observed for at least two years. It should be clarified that, in the hospital investigated, there are no nursing technicians, due to the classification of positions in the Ministry of Health, which only includes nurses and nursing assistants. These criteria made 190 workers eligible to participate in the survey. From this sample, workers on medical leave (n=9) and vacations (n=16) were excluded during the data collection period, from January to March, 2012. The others (n=165) were invited to participate through an approach while at work, in the three day and night shifts. The subjects who agreed to participate received a self--administered questionnaire to respond to, as well as the Free and Informed Consent Form. The return of the completed questionnaire was scheduled, and those who did not return the questionnaire on three consecutive schedules were considered as refusing to participate. Twenty-one professionals refused to participate in the study in this way; the final sample, therefore, was made up of 144 nursing workers.

The self-administered questionnaire consisted of two blocks. The first consisted of an adapted questionnaire incorporating 20 questions used in previous research[10], aimed at the collection of socio-demographic and lifestyle data. The second block corresponded to the *Índice de Capacidade para o Trabalho* (ICT – Work Ability Index) questionnaire proposed by FIOH[2], translated and validated for use in Brazil[11]. It is determined by the answers to the various questions that make up the questionnaire, which take into account the physical and mental demands of work, health status and capabilities. The questionnaire is filled out by the worker him/herself, so the result reveals the worker's perception of his or her work ability. It consists of seven items, each comprising one, two or three questions, and each response is credited with a number of points (score), as shown in Chart 1.

The score for each question is summed, resulting in a final score that can vary from 7 to 49, and which classify the work ability as: low (7-27 points); Moderate (28-36 points); Good (37-43 points); and Great (44-49 points).

The data of the questionnaires were typed twice in an Excel® 2010 worksheet, validated and checked for consistency. For statistical analysis, the Statistical Analysis Software (SAS) 9.1 (9.01.01M3P020206), licensed for Dankook University, website 0038249001 was used. A descriptive analysis was performed, with averages and medians, standard deviation, significance and minimum and maximum values; and inferential analysis, using Spearman's and Fisher's exact tests to correlate ICT with continuous variables (work time, age, displacement and nursing time) and categorical variables (gender, smoking, drinking, marital status, educational level, function, workload, shift, journey, other job, periodicity, domestic tasks, and physical and leisure activities), in this order. The level of significance was set at 0.05.

The research project was approved by the Research Ethics Committee of the Antônio Pedro University Hospital under number 286/11, and the data collection was approved by the nursing board of directors and head

Chart 1. Items covered by the Work Ability Index, number of questions used to evaluate each item and score of the answers. Rio de Janeiro/RJ, 2012.

Item	No. of questions	Response score
1. Work ability compared to the best of all life	1	0-10 points, value indicated in the questionnaire.
2. Work ability in relation to work requirements	2	Number of points weighted according to the nature of the work
3. Current number of diseases diagnosed by a physician	1 (List of 51 diseases)	At least 5 diseases = 1 point; 4 diseases = 2 points; 3 diseases = 3 points; 2 diseases = 4 points; 1 disease = 5 points; No disease = 7 points
4. Estimated loss of work due to illness	1	1-6 points (value circulated in the questionnaire, the worst value will be chosen)
5. Absence from work for illness in the past year	1	1-5 points (value circulated in the questionnaire)
6. Own prognosis on the work ability in two years	1	1-4 or 7 points (value circulated in the question-naire)
7. Mental resources	3	The points of the question are summed and the result is counted as follows: 0-3 = 1 point; 4-6 = 2 points; 7-9 = 3 points; 10-12 = 4 points

Source: Tuomi K, et al.; 1997[2]

of the hospital which was considered in the study. The ethical aspects of the research were respected, according to Resolution MS/CNS 406/2012.

RESULTS

The sample was mainly composed of women (88.2%), married (62.5%), with a higher level of education (50.7%) and who worked as nursing assistants in the hospital (71.5%), and who worked in the daytime system (59.7%). Regarding lifestyle, the majority reported not being a smoker, and practicing physical, leisure and domestic activities regularly; and 42.2% reported having another job in nursing (Table 1).

Table 1. Characterizing variables of the nursing workers participating in the study. Rio de Janeiro/RJ, 2012.

Variable	N	%
Genre		
Female	127	88,2
Male	17	11,8
Function		
Nursing assistant	103	71,5
Nurse	41	28,5
Marital Status		
Married	90	62,5
Single	26	18,1
Divorced	20	13,9
Widowed	8	5,6
Education		
High school	60	41,7
Undergraduation	73	50,7
Specialization	10	6,9
Masters	1	0,7
Smoking		
Yes	13	9,0
No	131	91,0
Drinking		
Yes	47	32,6
No	97	67,4
Physical activity		
Yes	85	59,0
No	59	41,0
Leisure activity		
Yes	133	92,4
No	11	7,6
Household work		
Yes	130	90,3
No	14	9,7

Another job		
Yes	68	47,2
No	76	52,8
Work shift		
Daytime system	86	59,7
Night system	38	26,4
Morning	20	13,9

Source: Research Data, 2012.

The mean age of the interviewees was 46.39 years, with a minimum and maximum age of 35 and 69. The average time of employment was a little over 12 years, and the average time spent on commuting to work was approximately 151 minutes (Table 2).

Table 2. Age, length of service and time spent commuting to work of the participating nursing workers of the study. Rio de Janeiro/RJ, 2012.

Variable	Mean	Standard deviation	Minimum	Maximum
Age in years	46,39	8,51	35	69
Working time in hours	12,34	11,26	2	48
Nursing work time in years	19,64	9,69	2	52
Travel time in minutes	151,25	88,69	4	360

Source: Research Data, 2012.

Regarding the work ability, it was evaluated as low for 3.5% of the workers investigated; moderate for 20.8%; good for 47.2%; and excellent 28.5%. After correlation tests, the p-values (>0.05) did not indicate a relationship between work ability and socio-demographic and lifestyle variables; however, there was a relation with the function exercised, in which the nurse showed less work ability (Table 3).

Table 3. Correlation between work ability and sociodemographic, labor and lifestyle variables. Rio de Janeiro/RJ, 2012.

Variable	p-valor
Sex	0,3193
Marital status	0,0756
Degree of education	0,4245
Age	0,4095
Smoking	0,4354
Drinking	0,3394
Leisure activity	0,5380
Physical activity	0,2831
Household work	0,3874
Working time	0,0635
Commuting time	0,5918
Nursing time	0,3297
Function exercised	0,0107
Another job	0,4497
Work shift	0,1407
Working hours	0,3428

Source: Research Data, 2012.

DISCUSSION

In this research, socio-demographic data confirm the predominance of women among nursing professionals and nursing assistants compared with the number of male nurses, with percentages similar to those found in a survey conducted by the Federal Nursing Council in 2010. However, it differs in terms of the proportion of unmarried individuals, which in this study was much lower than that found in the national scenario[12].

The ICT assessment pointed to a good work ability in most of the sample studied (47.2%), similar to what was found in an Iranian study involving 228 male nursing professionals. According to the study, 27.6% were in low and moderate conditions for the development of work; 64.0% in good condition and 8.3% in great conditions[13]. Similarly, in a Brazilian study, the calculation of the mean score of the ICT in a sample of 195 nurses of a hospital resulted in evidence of good working ability [3].

The statistical tests applied did not result in evidence of a correlation between ICT and age, in disagreement with that found by FIOH[2] and by a recent study, whose data indicated a statistically significant correlation of the ICT with the age group, showing an inverse linear relationship, that is, the lower the age, the higher the ICT score[13]. This same study also found higher ICT scores for single individuals when compared to those who are married, and for morning shift workers (p <0.05)[13].

Despite the results of this study with respect to gender and its relationship to ICT, the literature points to a higher ICT among men[14,15]. This can be explained in part by the family and domestic demands on women and the inferior wage conditions[16]. Likewise, there is evidence linking older age to lower ICT scores[16], since aging is associated with the impairment of body functions.

Moreover, there was no correlation between ICT and civil status in a study with nurses from the south of Brazil, but there was evidence of a statistical difference between ICT and work shift patterns (p=0.032) in that the scores for professionals working on shift afternoon were higher compared with those operating at night[3].

Unusual working shifts lead workers to physiological, social and psychological constraints, and are harmful because of the desynchronization of biological rhythms, which can trigger physical and psychological disorders. In this sense, night work may be directly related to the reduction in labor performance, since activities are performed during the period in which the body should rest[17].

Furthermore, this study did not present any relationship between ICT and lifestyle habits such as drinking, smoking and practicing physical and leisure activities. This was different from that found in a systematic review which identified negative correlations with work ability and smoking, and a positive correlation between capacity and physical activity[18].

Regarding smoking, it is a risk factor in terms of diseases, especially cardiovascular diseases, such as arterial hypertension and acute myocardial infarction, which affect the work ability, since health is considered an important determinant in the ICT. Likewise, excessive alcohol consumption may affect the ability to work due to physical and mental health impairment, drop in productivity, absenteeism, and increased risk for work-related accidents[1]. It should be noted, however, that the data regarding this variable should be viewed with reservations, since the collection instrument did not raise the number of units of alcohol ingested, the type of alcoholic beverage used, and issues related to alcohol dependence, thereby limiting the analysis.

Regular physical activity, in turn, can be a strategy in terms of health promotion with a positive effect on work performance, since it benefits the body by increasing energy consumption and maintaining aerobic capacity, muscular strength and resistance[1,18].

For the variable function, a correlation with the ICT, in which nurses presented lower working ability when compared to the nursing assistants, was observed. In a study developed in Rio Grande do Sul, a correlation between these variables was also identified. However, technicians and assistants were more likely to have low work ability[19].

Nursing work occurs through the distribution of hierarchical tasks among its different members. The complexity of the tasks requires different skills on the part of each worker in terms of handling instruments, methods and processes. Nurses not only have managerial and supervisory responsibilities,

but also perform actions that involve physical and psychological wear. This situation may have negative effects on nurses' work ability.

Although there is no relationship between the ability for work and the variables under analysis, ICT can be used in health institutions as an individual and/or collective assessment strategy, which allows the identification of factors that compromise function and, consequently, workers' labor ability[1]. The results can provide support for managerial decision making regarding working conditions and the adoption of tools that aim to maintain the well-being of professionals.

CONCLUSION

The results of this study refute the research hypothesis, since they do not show an association between work ability and socio-demographic, lifestyle and labor variables, except for the function performed. The cross-sectional nature of the study design may not have allowed the hypothesized causal relationship to be established; therefore, follow-up studies with the investigated workers are suggested, as well as the inclusion of workers excluded from the sample.

The population studied presented a good work ability, and the adoption of the ICT model by the occupational health service can help to maintain significant scores through measures to promote and preserve work ability, especially in terms of this being a group of workers with an average age of 46 years, a time of life in which a decline in the work ability begins.

The limitations of this study lie in the cross-sectional design and in the non-inclusion of workers on medical leave, which may have generated the "healthy worker effect".

In addition, responses to the questionnaire may have been influenced by workers' fear of repercussions in terms of their performance evaluation, even with the guarantee of confidentiality regarding the identification of the subjects and the data collected by the researcher.

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