WORK ABILITY OF HOSPITAL WORKERS: ASSOCIATED FACTORS

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Introduction

- Since the 1980s, researchers have focused on the evaluation of work ability. It has gained importance due to several simultaneously occurring phenomena, such as:
  - demographic transitions,
  - development of new technologies
  - changes in work processes
  - changes in labor relations
  (Ilmarinen, 2006)

- Health care providers face new challenges in an increasing competitive health care market (Plsek & Greenhalgh, 2001).

- Hospital services traditionally demand high physical efforts which are often associated with negative outcomes, including muscleskeletal disorders and eventually reduced work ability (Simon, 2008; Jorge, 2009).
“How good is the worker at present, in the near future, and how able is he/she to do his/her work with respect to the work demands, health and mental resources”

Ilmarinen & Tuomi (2004)
Maintaining Work Ability: a multifactorial challenge

- Individual characteristics: (E.g. sex, age, education, lifestyle;
- Working conditions
- Living conditions
- Available health services
- Health conditions

WHO, 1993
Current situation on nursing employment and working conditions:
✓ Shortage of nurses in industrialized countries (270,000 in USA, 2010)
✓ Continuous inflow of nurses from developing countries to developed countries;

Usual stressors at workplaces (hospitals, clinics)
✓ Exposure to physical, chemical and biological stressors;
✓ Bad postures, excessive workload; repetitive work;
✓ Emotional stressors (violence at workplace, moral abuse, closeness to pain and death, people’s disabilities, quality of patient care, time pressure, perceptions and needs of the client);
✓ Regular shiftwork/nightwork, two jobs;
✓ Irregular and long working times;
✓ Poor payment, low recognition, lack of professional appreciation
Study Rationale

❖ **Research development:**
  - The hospital work is traditionally characterized by high physical demands and the responsibility to ensure the required care to patients;
  - Nursing jobs are characterized by negative outcomes including musculoskeletal disorders and eventually reduced work ability.
  - WAI had not yet been used as a tool in an integrated program to maintaining work ability at hospital workers in Brazil;
  - Few follow-up work ability studies in Brazil (Bellusci, 2003; Marqueze, 2008)
  - Few Brazilian studies focused on hospital workers professionals. Mainly, in nurses.

❖ **Challenges of hospital management:**
  - Hospitals face multiple and complex work demands;
  - Usually lacks integration among health-safety and personnel management actions;
  - Institutional Balance Scorecard does not have as main focus health and safety management;

❖ **The studied hospital:**
  - Construction of a new building
  - Implementation of a new electronic medical records
  - Periodical audits for quality certification
Hospital work: environmental and occupational demands/stressors

- Autonomy
- Deadlines
- Wages
- Participation
- Work
- Responsibilities
- Violence
- Environmental hazards
- Professional development
- Recognition
- Role conflicts
- Family responsibilities
- Work control
- Work demands
- Moral harassment
- Interpersonal relations
- Closeness to death and suffering
Aims

- To evaluate factors associated with wok ability among hospital workers
- To provide guidance for interventions
Methodology

**Study design:**
- Cross sectional study carried out in 2010, inserted in a 5 years cohort study (2008—2012)

**Study population:**
- Hospital Samaritano, São Paulo, Brazil
- Participants: 1,153 workers (76.1% of the total staff)
- Sex: women were 71.2% of participants
- Mean Age: 34.6 years (SD = 8.7 years)
Methodology

Data collection:
- **Socio-demographic characteristics**: gender, age, marital status, familiar income, schooling, raising kids
- **Lifestyles**: BMI, smoking and alcohol consumption, physical activity
- **Occupational/environmental characteristics and work stressors**: working times, work schedules, job title, time on the job, moonlighting, domestic work, work injuries, work-related diseases, psychosocial factors at work (Brazilian version of a short version of Job Content Questionnaire and Effort-Reward Questionnaire), work conditions (WRAPI - Work-related activities that may contribute to osteomuscular symptoms Questionnaire)
- **WAI – Work Ability Index** (adapted Brazilian version, 2009)

Statistical analysis:
- Descriptive analysis
- Linear regression analysis

Ethical:
- Study approved by Ethics Committee of the studied hospital,
- Participation was voluntary and individual results were confidential
Results

Some characteristics and working conditions of the study population
Results

Work ability status

- $n = 1.153$
- Mean = 42.9
- Std. dev. = 4.4
- Median = 46.0
- Min. = 13.0
- Max.: 49.0
Main self-referred medical diagnosis:

<table>
<thead>
<tr>
<th>Disease</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory diseases</td>
<td>14.3</td>
</tr>
<tr>
<td>Back injuries</td>
<td>9.2</td>
</tr>
<tr>
<td>Hipertension</td>
<td>6.1</td>
</tr>
<tr>
<td>Gastritis or duodenal irritation</td>
<td>5.2</td>
</tr>
<tr>
<td>Legs and feet lesions</td>
<td>4.2</td>
</tr>
<tr>
<td>Slight mental disorder or problem</td>
<td>4.0</td>
</tr>
<tr>
<td>Obesity</td>
<td>3.4</td>
</tr>
<tr>
<td>Arms and hands lesions</td>
<td>3.3</td>
</tr>
<tr>
<td>Disorder of the lower back</td>
<td>3.3</td>
</tr>
<tr>
<td>Allergic rash / eczema</td>
<td>3.2</td>
</tr>
<tr>
<td>Disorder of the upper back or cervical spine</td>
<td>2.9</td>
</tr>
<tr>
<td>Injury elsewhere in the body</td>
<td>2.6</td>
</tr>
<tr>
<td>Pain radiating from the back into the leg</td>
<td>2.6</td>
</tr>
</tbody>
</table>
### Associated factors
(univariate analysis)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Univariated</th>
<th>Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographic features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>&lt;0.001</td>
<td>0.008</td>
</tr>
<tr>
<td><strong>Life styles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical activities</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Raising children</td>
<td>0.009</td>
<td>0.002</td>
</tr>
<tr>
<td>Domestic weekly hours</td>
<td>0.018</td>
<td>--</td>
</tr>
<tr>
<td><strong>Work related features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years at this hospital</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Shiftwork</td>
<td>&lt;0.001</td>
<td>0.002</td>
</tr>
<tr>
<td>Violence at work (score)</td>
<td>&lt;0.001</td>
<td>0.006</td>
</tr>
<tr>
<td>Work related injury</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Work related disease</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Years as a hospital worker</td>
<td>0.002</td>
<td>--</td>
</tr>
<tr>
<td>Total weekly hours</td>
<td>0.008</td>
<td>--</td>
</tr>
<tr>
<td>Job strain</td>
<td>&lt;0.001</td>
<td>--</td>
</tr>
<tr>
<td>Demands at work (score)</td>
<td>&lt;0.001</td>
<td>--</td>
</tr>
<tr>
<td>Control at work (score)</td>
<td>&lt;0.001</td>
<td>--</td>
</tr>
<tr>
<td>Social support at work (score)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Effort-reward imbalance (score)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Effort (score)</td>
<td>&lt;0.001</td>
<td>--</td>
</tr>
<tr>
<td>Reward (score)</td>
<td>&lt;0.001</td>
<td>--</td>
</tr>
<tr>
<td>Overcommitment (score)</td>
<td>0.004</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Work conditions (WRAPI score)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Univariated tests = Mann-Whitney, Kruskal-Wallis test, Tukey post-hoc test, Spearman correlation coefficient

Multiple analysis = linear stepwise regression
### RESULTS
Multivariate regression analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>CI&lt;sub&gt;95%&lt;/sub&gt; (β)</th>
<th>p&lt;sup&gt;1&lt;/sup&gt; modelo</th>
<th>r&lt;sup&gt;2&lt;/sup&gt;a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>0.657</td>
<td>[0.175 1.139]</td>
<td>0.008</td>
<td>0.334</td>
</tr>
<tr>
<td>Physical activities</td>
<td>-0.873</td>
<td>[-1.323 -0.423]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Raising children</td>
<td>0.681</td>
<td>[0.250 1.112]</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Years at this hospital</td>
<td>-0.066</td>
<td>[-0.098 -0.035]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Shiftwork (morning)</td>
<td>-0.806</td>
<td>[-1.312 -0.300]</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Violence at work (score)</td>
<td>-0.306</td>
<td>[-0.525 -0.087]</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>Work related injury</td>
<td>-1.541</td>
<td>[-2.389 -0.692]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Work related disease</td>
<td>-3.196</td>
<td>[-3.930 -2.462]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Effort-reward imbalance (score)</td>
<td>-3.504</td>
<td>[-4.807 -2.201]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Social support at work (score)</td>
<td>0.179</td>
<td>[0.093 0.265]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Overcommitment (score)</td>
<td>-0.136</td>
<td>[-0.210 -0.061]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Work conditions (WRAPI score)</td>
<td>-0.016</td>
<td>[-0.022 -0.010]</td>
<td>&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>
Action plans

Comprehensive risk evaluation / WAI and working conditions surveys

Descriptive results

Identification of associated factors

Defining priorities

Integrated actions
Integrated actions

- **WAI was incorporated to the hospital** “Balance scorecard” as an indicator of workers’ health:
  Mainly innovation and learning perspectives.

- **Organization of a technical group:**
  To integrate areas related to health, safety and personnel management.

- **Management of risks using the PDCA steps:**
  To develop a methodology for intervention.

- **Further risk analysis in priority hospital areas:**
  To identify working conditions that require specific interventions.
Technical group: health and wellbeing management at work

- Quality management
- Epidemiology nucleus
- University partnership
- Occupational health and safety
- Social services
- Human resources
On going actions

**Corporate level**
- Study on review of benefits and incentives
- Study on review of staff number

**Workplace level**
- Ergonomic work analysis
- Equipments improvements
- Processes review

**Individual level**
- Incentive actions to physical exercise
- Customize medical care for workers with significant risks associated with chronic diseases

**Research level**
- Improvements on data collection
What we learned...

- Maintaining work ability requires comprehensive intervention
- Integrated use of WAI allowed better monitoring employees’ health outcomes;
- A multi-professional group was important to plan and perform integrated actions;
- Health promotion actions will be easier to be carried out when included in institutional strategic planning;
- Integrated actions achieved better results;
- Evidence the economic impact resulting from WAI decrease provided greater visibility of this issue to the health manager.
- WAI contribute to good business practices;
Conclusions

Several features are independently associated with work ability:

**Individual features** (sex, physical activities, raising children, overcommitment);

**Work related features** (years at this hospital, shiftwork, violence at work, work related injury, work related disease, work conditions - WRAPI);

**Institutional features** (effort-reward imbalance, social support at work)

Maintaining work ability requires comprehensive intervention

Workplace health promotion
Thank you!

And also that every man should eat and drink, and enjoy the good of all his labour, it is the gift of God (Ecclesiastes 3:13)
References


