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# Health, sleep and lack of time: relations to domestic and paid work in nurses

## Saúde, sono e falta de tempo: relações com o trabalho profissional e doméstico em enfermeiras

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### Keywords

Work hours. Women, working. Sleep. Nurses. Time management. Health.

### Abstract

#### Objective

To assess whether reported morbidity and complaints of lack of time and sleep are associated with the burden of professional work and housework among nurses.

#### Methods

A cross-sectional exploratory study was carried out among female nurses and nurse assistants (N=206) of a public hospital in Rio de Janeiro, Brazil. Data were collected by means of a questionnaire. The prevalence ratio and 95% confidence intervals were estimated.

#### Results

Mean duration of professional work and housework time was 40.4 and 31.6 hours/week, respectively. Long professional working time (over 44 hours/week) were associated with mild emotional disorders (PR=1.37; 95% CI: 1.05-1.80), complaints of lack of time for resting/leisure (PR=1.61; 95% CI: 1.31-1.97), housework (PR=1.48; 95% CI: 1.12-1.97), and childcare (PR=1.99; 95% CI: 1.51-2.63). Long housework time (over 28 hours/week) was associated with lower prevalence of lack of time for childcare (PR=0.62; 95% CI: 0.46-0.84). High housework load was associated with lack of personal time and complaints of varicose veins (PR=1.31; 95% CI: 1.14-1.50 and PR=1.31; 95% CI: 1.08-1.58, respectively). Complaints of varicose veins were also frequent among female nurses with a total work load above 84 hours (PR=1.30; 95% CI: 1.05-1.61), though this group has shown a lower prevalence of arterial hypertension and recurrent headaches (PR=0.35; 95% CI: 0.15-0.83 and PR=0.53; 95% CI: 0.32-0.89, respectively).

#### Conclusions

Results suggest that both professional and home environments are relevant in the evaluation of work overload on nurses' health and their family and social life. It is stressed the need for instruments for analyzing total workload among female populations.

### Resumo

#### Objetivo

Avaliar a associação entre a carga de trabalho profissional e doméstico com doenças e queixas sobre o sono e falta de tempo em enfermeiras.

### Descritores

Jornada de trabalho. Trabalho feminino. Sono. Enfermeiras. Gerenciamento do tempo. Saúde.

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### Métodos

Estudo exploratório transversal com profissionais de enfermagem do sexo feminino (N=206) de um hospital público no Rio de Janeiro, Brasil. Os dados foram obtidos por meio de questionário. Foram estimadas as razões de prevalência e seus intervalos de confiança de 95%.

### Resultados

A duração média das jornadas semanais profissional e doméstica foram de 40,4h e 31,6h, respectivamente. Jornadas profissionais longas (acima de 44h) se associaram ao relato de tensão, ansiedade ou insônia (RP=1,37; IC 95%: 1,05-1,80), à falta de tempo para o descanso/lazer (RP=1,61; IC 95%: 1,31-1,97), o cuidado da casa (RP=1,48; IC 95%: 1,12-1,97) e dos filhos (RP=1,99; IC 95%: 1,51-2,63). Jornadas domésticas longas (acima de 28h) se associaram à menor prevalência de queixas de falta de tempo para os filhos (RP=0,62; IC 95%: 0,46-0,84). A alta sobrecarga doméstica relacionou-se à falta de tempo para si e ao relato de varizes (RP=1,31; IC 95%: 1,14-1,50 e RP=1,31; IC 95%: 1,08-1,58, respectivamente). Este último também foi mais freqüente entre aquelas cuja carga total de trabalho excedeu 84h (RP=1,30; IC 95%: 1,05-1,61), embora tenham apresentado menor prevalência do relato de hipertensão arterial e de dor de cabeça freqüente (RP=0,35; IC 95%: 0,15-0,83 e RP=0,53; IC 95%: 0,32-0,89, respectivamente).

### Conclusões

Os resultados sugerem que há que se valorizar tanto a esfera profissional quanto a doméstica na avaliação da sobrecarga de trabalho sobre a saúde e a vida socio-familiar de enfermeiras. Ressalta-se a demanda por instrumentos de análise que levem em conta as cargas laborais totais que se impõem sobre populações femininas.

## INTRODUCTION

The double work burden – or the simultaneous engagement in a paid job plus housework<sup>13</sup> – is a fundamental aspect to be considered when analyzing the relation between work and health among female workers. Doucet<sup>6</sup> (1995) notes that women with a regular paid job still hold the main role as housekeepers and child caretakers. In a review on the subject Doucet says “no matter what technique is used to measure the household division of labor, the household work still belongs largely to women”.

Research on occupational health, particularly those related to stress, tend to consider the home as a “sanctuary” free of risk to health, exactly the opposite to the setting devoted to professional work.<sup>2</sup> This notion is contradicted by those authors who consider both professional and house work load in the analysis of women health. Bjorksten et al<sup>3</sup> (2001), in their study on muscle skeletal disorders among blue-collar workers in Sweden, found worse health conditions among those who were married with young children, as compared to single women without children.

If the role conflict may negatively affect health, physical and/or mental well-being,<sup>8</sup> there may also be beneficial aspects related to having multiple roles: employ-

ment and the responsibility over family affairs may be a source of satisfaction, improving women's self-esteem.<sup>12</sup> Griffin et al<sup>9</sup> (2002) emphasize how these two versants are mediated by professional work and housework, suggesting the existence of a borderline between the advantages and the disadvantages to the individual's health status. For women, these would be the full-time job and the responsibility of raising her children. Besides, Santana et al<sup>17</sup> (2001) mention cultural differences as well as the values attributed to work and family life may also play a role in regard to the relationship between mental distress and work burden in Latin American countries. A study carried out in Brazil by these authors showed positive significant association between psychiatric symptoms and both double work shift and more than 10h of daily work time among women.

In Brazil, nurses often have two jobs<sup>4</sup> amounting to long professional working hours. Studies have confirmed that long working hours are closely related to stress, muscle skeletal disorders<sup>18</sup> and arterial hypertension.<sup>10</sup> It may also be speculated whether dedicating too many hours to work may lead to difficulties concerning time management as to non-professional activities. Brazilian female nurses constitute a peculiar group concerning female work and its impact on health, as they may associate long professional work and housework time. According to Aquino\* (1996), this configures a kind of

\*Aquino, EML. Gênero, trabalho e hipertensão arterial: um estudo de trabalhadoras de enfermagem em Salvador, Bahia [tese de doutorado]. Salvador: Instituto de Saúde Coletiva da Universidade Federal da Bahia; 1996.

“triple work engagement”, which putative effects to health deserve to be investigated.

The present study relies on the assumption that work corresponds to any activity necessary for the maintenance of society,<sup>23</sup> thus, household tasks are given the status of housework. The present study aims at assessing whether reported morbidity and complaints of lack of time and sleep are associated with professional work and housework load in female nurses of a public hospital.

## METHODS

The study was carried out in a 120-bed public hospital which is a maternity and reference center for women, adolescents and children in Rio de Janeiro, Brazil in the year of 2000. Eligible workers were all female nurses and nurse assistants working directly with patient care. All workers meeting this criterion were invited to participate in an individual interview following the research ethical procedures.

Five different work schedules were adopted by the study hospital, with an average working time of 30 hours per week.

- Night-shift: from 7:00 pm to 7:00 am, followed by 60 hours off;
- Day-shift: from 7:00 am to 7:00 pm, followed by 60 hours off;
- 24-hour-shift: from 7:00 am to 7:00 am, followed by 120 hours off;
- Morning working time: from 7:00 am to 1:00 pm, for at least four weekdays;
- Day working time: from 7:00 am to 7:00 pm, for two or three weekdays.

The night, day and 24-hour-shifts follow a continuous period that includes working at weekends; the other two schedules include working only at weekdays.

Data collection was based on an instrument that considered the everyday life of female population, including the hours dedicated to housework as part of the weekly working time. This instrument was chosen as an alternative for the classic occupational health instruments developed for male populations.\* It consisted of a structured questionnaire with open questions, adapted both from the tool described by Aquino\* (1996) and the Work Ability Index questionnaire.<sup>21</sup> The study questionnaire included information on socio-demographic data, professional aspects (time of employment, work schedules, number of jobs, and working hours assessed from a daily recall of the week

before the interview), and housework hours, also assessed from a daily recall of the week before the interview. Related diseases and disorders were also evaluated (arterial hypertension, migraine, high cholesterol, arthritis, repetitive strain injury, varicose veins, gastrointestinal and pulmonary disorders, headache, skin allergies, and any other complaints which have deserved either recent medical care (within a fortnight before data collection) or hospitalization (within a one-year period before data collection). Complaints of either severe psychological distress and mild emotional disorders (such as mild depression, tension, anxiety or insomnia) were also taken in consideration, as well as other minor psychiatric disorders. Minor psychiatric disorders were assessed according to Mari & Williams<sup>15</sup> (1986). Sleep complaints (superficial sleep, difficulty in initiating sleep, difficulty to fall asleep if awoken, drug use, sleepiness) as well as problems with time management for non-professional activities (lack of personal time, lack of time for household tasks, resting/leisure, childcare) were assessed through “yes-no” answers.

All the reported disorders and symptoms and complaints that have deserved medical care or hospitalization as well as complaints of sleep problems and lack of time were considered as dependent variables. Independent variables are described below.

A 44-hour-week was used as cutoff as this is the maximum length of regular working hours according to Brazilian legislation.<sup>5</sup> Therefore, the exposed group consisted of female nurses reporting more than 44 hours of work per week.

The analyses of housework load were based on two variables. For the first one, identified as housework hours the value of 28 hours per week (or four hours per day) was taken as a cutoff, so that female nurses whose working hours at home exceeded 28 hours per week comprised the exposed group. The second variable refers to housework overload, which takes in consideration the number of potential beneficiaries of the housework and the person's level of responsibility in relation to four basic household tasks.<sup>20</sup> The higher the level of responsibility for each task and/or the number of beneficiaries, the higher the value of housework overload. These values were organized so as to create two groups (cutoff at the second tertile\*): one with high housework overload (exposed group) and the other with low housework overload (reference group).

The total work load equals to the sum of professional work and housework time, which corresponds to 84

\*Aquino, EML. Gênero, trabalho e hipertensão arterial: um estudo de trabalhadoras de enfermagem em Salvador, Bahia [tese de doutorado]. Salvador: Instituto de Saúde Coletiva da Universidade Federal da Bahia; 1996.

hours per week (12 hours a day); those who exceeded this value were included in the exposed group.

As data on professional work and housework time were based on recall information corresponding to the week before the interview for data collection, data on workers who had been on vacation or on a leave in the two weeks before the interview were excluded from the analysis. The associations between independent and dependent variables were assessed by means of the estimated prevalence ratio and 95% confidence intervals.

## RESULTS

From the eligible 228 workers, there were excluded from the study: six workers (2.6%) due to refusals, 16 (7.0%) due to sick leave, and 28 who had been on vacation or on a leave in the two weeks before the interview. Thus, the study sample comprised 178 workers.

The workers' ages ranged from 17 to 64 years old, with an average of 37.5 years old (SD=7.4). Most of them were married or living with a partner (58.0%), 25.0% were single, 14.8% were separated/divorced and 2.2% were widowed. As their occupation, 23.7% were professional nurses, 68.4% were nursing assistants and 7.9% were hospital services aides. The average time of employment was 12.7 years (SD=5.9). Concerning professional work, the average working hours per week was to 40.4 hours (SD=18.4), but 37.1% worked more than 44 hours per week. Having a second job (usually in the same area) was seen in 41.2% of the workers. The mean time dedicated to housework was 31.6 hours per week (SD=22.5), and exceeded 28 hours per week in 42.7%. The total aver-

age work load was 71.9 hours per week (SD=20.8) and exceeded 84 hours per week in 26.4%.

Long housework hours, as well as high housework overload were more common among married workers, those living with a partner and mothers of young children (up to 10 years old). On the other hand, long professional work hours were more frequently seen among single or divorced/separated women and a high total work load was often associated to mothers of young children. Long housework hours were more common among nursing assistants, as compared to professional nurses. Significant distinctions were not observed when the age of the workers was taken in consideration according to two dichotomous groups (Table 1).

Table 2 presents results of significant associations between independent and dependent variables. Reports of mild emotional disorders (mild depression, tension, anxiety or insomnia) were more frequent in the group of workers reporting more than 44 hours per week of professional work. Complaints of lack of time for house tasks, childcare and resting/leisure were also more frequent among workers in this group as compared to those whose professional work hours were of less than 44 hours per week. Reports on lack of time for childcare were less frequent among workers with long housework hours. High prevalence of varicose veins and complaints of lack of personal time were associated to high housework overload. The prevalence of reports of varicose veins was higher among workers with a high total work load (more than 84 hours per week). On the other hand, reports of hypertension and recurrent headaches were less frequent among these workers. The remaining associations were not statistically significant.

**Table 1** - Distribution of socio-demographic data in exposed and reference groups. Rio de Janeiro, 2000.

Socio-demographic characteristics or variables	Professional work (hours per week)		Housework (hours per week)		Housework overload		Total work load	
	Exposed group	Reference group	Exposed group	Reference group	Exposed group	Reference group	Exposed group	Reference group
	At least 45 hours (N=66) %	Up to 44 hours (N=112) %	At least 29 hours (N=76) %	Up to 28 hours (N=102) %	High (N=72) %	Low (N=150) %	At least 85 hours (N=47) %	Up to 84 hours (N=131) %
Occupation category*								
Nurses	24.6	21.0	13.6	28.5	21.0	28.9	15.9	25.0
Nursing assistants	75.4	79.0	86.4	71.7	79.0	71.1	84.4	75.0
	$\chi^2=0.30$ ; p=0.586		$\chi^2=4.88$ ; p=0.027		$\chi^2=1.39$ ; p=0.239		$\chi^2=1.68$ ; p=0.195	
Age								
Up to 39 years old	63.6	60.7	55.3	65.7	58.3	63.3	59.6	62.6
At least 40 years old	36.7	39.3	44.7	34.3	41.7	36.7	40.4	37.4
	$\chi^2=0.15$ ; p=0.698		$\chi^2=1.99$ ; p=0.158		$\chi^2=0.51$ ; p=0.473		$\chi^2=0.13$ ; p=0.715	
Marital status								
Married or living with a partner	53.2	68.7	81.8	50.5	80.6	57.2	70.7	60.0
Single or separated/divorced	46.8	31.3	18.2	49.5	19.4	42.8	29.3	40.0
	$\chi^2=3.90$ ; p=0.048		$\chi^2=16.42$ ; p<0.0001		$\chi^2=10.79$ ; p=0.001		$\chi^2=1.51$ ; p=0.220	
Children under 10 years old								
Yes	39.3	52.8	74.2	33.7	70.6	36.8	66.7	41.1
No	60.7	47.2	25.8	66.3	29.4	63.2	33.3	58.9
	$\chi^2=2.82$ ; p=0.093		$\chi^2=17.64$ ; p<0.0001		$\chi^2=15.12$ ; p=0.0001		$\chi^2=8.63$ ; p=0.003	

\*Data on hospital services aides were excluded due to the small size of this group (N=18)

**Table 2** - Prevalence ratios (95% CI) of reported conditions, symptoms, and complaints of lack of time and sleep. Rio de Janeiro, 2000.

Variables	Exposed group Reference group	Professional work (hours per week) At least 45 hours Up to 44 hours	Housework (hours per week) At least 29 hours Up to 28 hours	Housework overload High Low	Total work load At least 85 hours Up to 84 hours
Dependent variables					
Mild emotional disorders		1.37 (1.05-1.80)			
Varicose veins				1.31 (1.08-1.58)	1.30 (1.05-1.61)
Arterial hypertension					0.35 (0.15-0.83)
Recurrent headaches					0.53 (0.32-0.89)
Lack of time for house tasks		1.48 (1.12-1.97)			
Lack of time for childcare		1.99 (1.51-2.63)	0.62 (0.46-0.84)		
Lack of time for resting/leisure		1.61 (1.31-1.97)			
Lack of personal time				1.31 (1.14-1.50)	

## DISCUSSION

The analysis of the relations between health and professional work and housework load has indicated both potential risk and protection factors to physical morbidity and to complaints of time management problems.

A higher prevalence of reports on mild emotional disorders (mild depression, tension, anxiety or insomnia) among workers reporting more than 44 hours per week of professional work is in accordance with Shields<sup>18</sup> (1999) finding on depression in Canadian women with working hours of more than 41 hours per week. Considering that three out of the four reports on complaints of lack of time were associated with long working hours, it may be assumed that an excessive dedication to professional activities negatively affects people's availability for leisure and family. The study results corroborate those by Gove<sup>8</sup> (1984) who called them "conflicting roles": a consequence of the present disproportionate demand of female social roles. Conflicts of social roles lead to a condition of wearing and stress which may contribute to the development of health problems.<sup>14</sup> According to Gore & Mangione<sup>7</sup> (1983), professional activities seem to be less compatible with female expectations towards household tasks, as compared to the male workers. In such a context, one could speculate on whether complaints of lack of time to fulfill socially attributed roles (such as cleaning and childcare) might have contributed to the report of emotional disorders. This subject surely deserves more attention and should be assessed, preferably by means of qualitative methods in order to allow the analysis of the subjective experience related to female work.

The average working hours among the sampled nurses is 40.4 hours per week, above the weekly 30-hour system recommended by the Brazilian nurses' unions. It is emphasized that long working hours in this sample are generally associated with the fact of

having a second job. These results are an important peculiarity of the work arrangement in Brazilian hospitals: work schedules in which nurses shall not be on duty for consecutive days, thus favoring the engagement in a second job.

Time dedicated to housework (an average of 31.8 hours per week) is similar to that seen for nurses in a public hospital in Bahia,\* Northeastern Brazil; and substantially higher than that found by Tierney et al<sup>20</sup> (1990) for Canadian nurses (19.2 hours per week). Data on a tendency for a longer housework hours among nursing assistants as compared to professional nurses confirms the results obtained by Aquino et al\* (1993), suggesting an influence of the socio-economic status in the involvement of these workers in household activities.

A lower prevalence of complaints of lack of time for childcare can be explained by the fact that looking after children might be a household core. Therefore, in many cases, dedicating more time to household tasks may include more time dedicated to the children.

Housework overload was associated with lack of time for personal matters and seems to indicate that women give priority to household tasks in detriment of her personal interests. In fact, when asked about what they do when they leave the work at the hospital, 52% of female nurses said they engaged in household tasks, and only 22% reported they rested or had some sleep (unpublished data). It is stressed the strong relation between women and their home, regardless their social and political background, as pointed out by Tarkowska<sup>19</sup> (2002) in a study on female work in post-communist Poland. Tarkowska shows the great similarity in the way women workers manage their free time and emphasize that men give priority to leisure activities after work (TV, sports, and others), while women are more likely to turn their free time into a "second work shift".

There is no support in the literature for the higher

\*Aquino, EML. Gênero, trabalho e hipertensão arterial: um estudo de trabalhadoras de enfermagem em Salvador, Bahia [tese de doutorado]. Salvador: Instituto de Saúde Coletiva da Universidade Federal da Bahia; 1996.

frequency of reports on varicose veins among women with high housework load. A lower prevalence of reports on arterial hypertension and recurrent headaches, observed among female workers with a high work load, may be associated to the "healthy worker effect",<sup>24</sup> in which it is assumed that people affected by these problems will not be able to continually work for long hours.

The absence of significant association between working hours and sleep complaints contradicts data from the literature, such as the recent review by van der Hulst<sup>22</sup> (2003). There could be two interpretations for these results: either professional work and housework load are not reflected in sleep complaints or the way data were collected was not sufficiently sensible to evaluate sleep complaints. Considering that data on long working hours mostly refer to physical health parameters, further research on sleep and its relation to working hours is needed.

As an exploratory study, it has privileged the analysis of distinct dependent and independent variables. As far as housework is concerned, the non-superposition of results concerning the two variables – namely, housework overload and housework hours – shows that these variables comprise different aspects of work in a home environment. This is a somewhat sophisticated research category, involving several elements, including subjective ones associated with satisfaction as to time management ability. The study shows its positive aspects when it allows the analysis of housework in a more significant way, despite the relative small number of questions in the questionnaire (only six). As a matter of fact, several epidemiological studies have lacked instruments to allow the observation of the diverse aspects of household activities, normally restricted to the number of children and the total number of householders.

The use of a recall to compute the total number of hours dedicated to housework and professional work allowed a combined analysis of the two types of work that constitute the total work burden. Such approach has resulted in the occurrence a higher prevalence of reported varicose veins, which was not noticed when professional work and housework hours were analyzed individually. The study results reveal the need for

multivariate analysis to account for the interactions between the several elements associated to the variables assessed here.

Among the limitations of the present study, the identification of conditions and symptoms by means of the information reported by the study workers was liable to criticism in the literature. Hernberg<sup>11</sup> (1994), for example, reminds the way reports on depression, hypertension and insomnia are filled with emotional conflicts, which may cause answers to be influenced by the effects of occupational stress. Using the reported morbidity in epidemiological studies is justified for its practical aspects, as a medical diagnosis would demand a clinical evaluation for each subject under study, considering all dependent variables included in the research project. It is also emphasized that, in most cases, specific occupational aspects represent only one of the etiological determinants of diseases. Variables of different natures (age, gender, and use of tobacco and alcohol) may interfere with work conditions or bring about more serious effects as compared to those observed for the work activity only. This surely poses some difficulties for occupational etiology studies in establishing a relationship between work and disease.<sup>16</sup> The present study deals exclusively with a univariate analysis, considering the exposure and the effect, and disregarding aspects of interaction and confounding effects, what may limit the extent of conclusions.

Despite the above mentioned limitations, the study has shown connections between aspects of housework and professional work and worker's health status that deserve to be further investigated. Results suggest that both professional and home environments are relevant to the evaluation of work overload impact on nurses' health and their social and family life. The study results point out to the need of an instrument for analyzing total workload among this female population.

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