NEW SOLUTIONS, Vol. 20(4) 497-510, 2010

HOUSEWORK AND RECOVERY FROM WORK AMONG NURSING TEAMS: A GENDER PERSPECTIVE

LAS TAREAS DOMESTICAS Y RECUPERACIÓN DEL TRABAJO ENTRE LOS EQUIPOS DE ENFERMERÍA: UNA PERSPECTIVA DE GÉNERO

LÚCIA ROTENBERG
ROSANE HARTER GRIEP
JOSEANE PESSANHA
LUCIANA GOMES
LUCIANA FERNANDES PORTELA
MARIA DE JESUS MENDES FONSECA

ABSTRACT

The impact on health of work carried out within the household is recognized by several authors in the occupational health field. The purpose of this article is to verify whether and to what extent the need for recovery is related to professional work hours and to housework duties in female nursing workers. Workers (N = 1122) completed a questionnaire with data on household chores and professional work, as well as the Need for Recovery from Work scale. Regression analysis showed that the odds for reporting poor recovery were significantly higher for workers showing long domestic work hours, high total work load (professional plus domestic work hours), and housework overload. No association was found for professional work hours per se. Findings highlight the potential detrimental effects of housework, either by itself or in combination with professional work for the group studied, and can generate discussion on gender equality in both the public and private domains.

RESUMEN

El impacto del trabajo doméstico en la salud es reconocido por varios autores en el campo de salud ocupacional. El propósito de esta investigación es

doi: 10.2190/NS.20.4.g
http://baywood.com

determinar si la necesidad de recuperación de las enfermeras está relacionada con las horas de trabajo profesional y con el trabajo doméstico y, si está relacionada, en qué medida. Las trabajadoras (N = 1122) respondieron a un cuestionario sobre el trabajo doméstico, el trabajo profesional y una escala que mide "la necesidad de recuperarse del trabajo." El análisis de regresión mostró que la probabilidad de reportar recuperación insuficiente es significativamente mayor para las enfermeras que dedican más horas al trabajo doméstico, las que trabajan más horas en total (las horas profesionales más las horas de trabajo doméstico) y las que tienen sobrecarga de trabajo doméstico. No se encontró una asociación con las horas de trabajo profesional *en sí*. Los datos ponen en relieve los posibles efectos perjudiciales del trabajo doméstico por sí mismo y en combinación con el trabajo profesional para este grupo, lo que podría estimular discusión sobre la igualdad de género tanto en el ámbito público como en el privado.

The impact on health of work carried out within the household is recognized by several authors in the workers' health field [e.g., 1]. Although beneficial effects of multiple roles as a source of women's satisfaction and self-esteem have been described [2], it is important to consider that it may be that "such a situation is beneficial up to a certain level but becomes a burden when the workload becomes too high" [3, p. 1070]. The overload derived from the accumulation of work in the public and private spheres can significantly affect women's health, as observed in studies concerning women working as managers [3] and as factory-floor workers [4]. Similar results have been observed for poor women engaged in several occupations in Brazil [5].

In Brazil, there has been a gradual recognition of the relevance of the time dimension of domestic work. Since 2000 the National Household Sample Survey has provided information on the existence and extent of work in household chores, besides information on the work market. In an essay on total work week (extent of work in household chores *plus* work week in the market) for the Brazilian population, Dedecca and collaborators concluded that "job policies cannot be restricted to the work market. It is also necessary to reach the family nucleus organization conditions" [6, p. 65]. Although the family nucleus may be the most resistant to transformations toward equality between men and women [7], the creation of the Special Secretary for Female Policies [8] can be seen as an advance of the Brazilian society in the direction recommended by the World Health Organization to strengthen the "international and national policies for health and work performed both in the public and domestic domains" [9].

Several investigations have analyzed the impact of paid and unpaid work on health and well-being among nursing workers, who are mostly females [10-13]. In a study on female hospital workers (medical doctors, technical and administrative personnel, nurses, scientific personnel, and psychologists), the unpaid work had a stronger influence than age on general health [14].

In Brazil, nursing personnel are considered a peculiar group with regard to working hours: they often have two jobs in nursing, amounting to long professional work hours, to which time devoted to domestic duties is added [15]. A pattern of work overload due to the interaction of professional and domestic work was observed in several stages of the Health and Work in Nursing project, which uses qualitative and quantitative approaches to analyze the relations between health and work at three Brazilian hospitals. In the epidemiologic phase of the research, lower work ability [16-17] has been observed for women compared to men. Additionally, a significant association of poor work ability and the total number of working hours, considering both professional and domestic work, has been observed among females and males [15]. A time-use study showed that female workers prioritized activities of taking care of someone and domestic chores instead of leisure or self-care (appearance, health), especially among those with children under 10 [18]. These results refer to the social construct of "feminine time" as "time for others," as highlighted by Jurczyk [19], based on empirical observations on everyday lives of women and men. In in-depth interviews focusing on the quotidian life of night-working nurses [20], a woman described her life as full of work, as if women (in general) were "addicted to work." In activities that joined workers and researchers for the purpose of discussing results of the epidemiologic study [21], complaints on gender differences in the accomplishment of household duties were manifested by some women, as in the following account: "Consider a couple, both work in the same sector, they come from [night] duty. One gets home, the husband goes to sleep, the woman takes care of the children and the house." Altogether, the results of these studies corroborate the high contribution of household duties to the work overload experienced by nursing workers whatever the instrument and methodology used, as described by other research groups [10, 14, 22].

In order to add new information on this issue, this article deals with a scale for evaluating the need to recover from (professional) work-induced fatigue. The aim of the present article is to analyze whether and to what extent the need for recovery is related to professional working hours as well as to duties performed in the domestic sphere among female nursing workers.

A BRIEF LITERATURE REVIEW ON HOUSEHOLD DUTIES AND RECOVERY FROM WORK

When analyzing the context of household and child-care activities, we must keep in mind that most of those activities have an obligatory character (as they usually cannot be skipped or postponed), thus inhibiting recovery [23].

A recent review on recovery during non-work time revealed the scarcity of research on daily recovery, so that the authors focused on a related construct—the need for recovery [23]. In an overview on this concept, van Veldhoven [24] commented that it was introduced as an attempt to focus on the carryover

of the cumulative effects of work effort to the situation outside work. The need for recovery from work is defined as the need to recuperate from work-induced fatigue, primarily experienced after a day of work [25]. Cross-sectional data showed the need for recovery to be an important predictor of subjective health complaints in bus drivers, construction workers, ambulance workers, and hospital nurses. For hospital nurses, prospective analyses were also reported. Need for recovery appeared to strongly predict subjective health complaints after one year in this particular occupational group [26].

The concept of "need for recovery" has been developed in the framework of job demands and load effects (see Demerouti et al. [23] for an overview). Sluiter et al. [26] assumed a bind between work demands/workload followed by short-term effects of the working day leading to long-term effects on health, so work-related fatigue could act as a link between repeated adverse work demands and the development of work-related stress reactions.

Besides characteristics of the specific work situation, several aspects concerning the home domain have been linked to the recovery process. Some authors observed that recovery opportunities may be inadequate in terms of quantity (time) and/or quality [27]. In a study on need for recovery linked to several work schedules and occupations, Jansen et al. [28] suggested that demanding factors in the home environment in combination with demanding work factors could result in elevated levels of need for recovery from work, and recommended the inclusion of aspects of the work-family interface in future studies.

Nevertheless, expectations of detrimental effects of household chores on the recovery process were not confirmed by Sonnentag and collaborators in several female samples [29-31]. Their results corroborate the ones observed in a nursing sample [32]. Those studies were based on different formulations of recovery during non-work time, such as the Occupational Fatigue Exhaustion Recovery scale [33] and the Recovery Experience Questionnaire as well as diaries completed by workers [34].

In the present study we address the need for recovery from work in a large sample of nursing workers for whom we have detailed information on professional and domestic work.

METHODOLOGY

Characteristics of the Sample and Procedures for Data Collection

Eligible participants were those directly providing patient care—nurses, nursing assistants, and nurses' aides—at three public hospitals in Rio de Janeiro, Brazil. The definition of whether or not workers provided patient care was obtained through hospital information, so that those workers who were engaged in administrative sectors were excluded from the study. Data collection took

place from June 2005 to March 2006. Data were collected during work hours at the hospitals studied, through a comprehensive questionnaire that was divided into two parts. The first part provided detailed information on domestic and professional working hours, including those from a second (or third) job [35]. Trained interviewers recorded this information from participants as a means to increase the accuracy of the data. The second part of the survey was self-administered and included the items concerning the Need for Recovery from Work Scale [25, 36], among other questions related to health. To evaluate the test-retest reliability of the instrument, it was filled out twice (15- to 20-day interval) by nurses and nursing aides/assistants ($N = 80$) from a public hospital whose nursing staff had a similar profile to the target population. Approval to conduct the research was first granted by the Oswaldo Cruz Foundation ethics committee, and then by each hospital.

Definition of the Variables Studied

Four variables were used as exposure variables: professional work hours, domestic work hours, total workload (sum of professional and domestic hours), and housework overload. The number of professional work hours was based on the question: "Now let's recall the hours which you dedicated to professional nursing each day of last week [in all the places]." The estimate of hours spent on housework was based on the question "This last week, how many hours, approximately, did you dedicate to housework?" The interviewers recorded the start and end times for these activities. Test-retest reliability as measured by the intraclass correlation coefficient was 0.68 (95% CI 0.50–0.80) and 0.68 (95% CI 0.49–0.81) for professional and domestic work hours, respectively.

The housework overload considers the number of potential beneficiaries of the domestic work and the level of responsibility of the person in relation to four basic domestic tasks: cleaning, cooking, washing, and ironing [37, 38]. Care activities are not considered separately in the measure of housework overload, as people who benefit from care (children or other people) are included as beneficiaries. It was defined by the total sum of scores related to each task, multiplied by the number of potential beneficiaries (the number of people living in the house). The higher the level of responsibility for each task and/or the number of beneficiaries, the higher the housework overload.

The need for recovery from work was evaluated by means of the Need for Recovery from Work Scale [25, 36], which consists of 11 dichotomized questions, such as: "At the end of a working day I am really feeling worn-out" and "I find it hard to relax at the end of a working day." This scale leads to a score that varies from 0 to 11. Workers were classified into two groups: those who reported good recovery and poor recovery from work. The highest quartile was defined as the cut-off point for defining the poor-recovery group [28, 39]. The scale was adapted to Portuguese from the English version of the Need for

Recovery from Work Scale [25]. The intraclass correlation coefficient was 0.80 (95% CI 0.70-0.87).

Data Analysis

Descriptive analyses of socio-demographic variables as well as other variables related to work were based on the chi-square and Mann-Whitney tests for categorical and continuous variables, respectively (significance at $p < 0.05$). The analysis of the relationship between the exposure variables and the need for recovery from work was performed in two steps. First, potential confounders were screened by bivariate chi-square tests; those with at least a minimum association ($p < 0.10$) were selected for inclusion in the logistic regression models. The following variables were tested as confounders in all analyses: age, family income, education degree, marital status, presence of children up to age 14 at home, work schedule (day/night). For analysis concerning professional work hours and total work load, the following variables were also tested as confounders: professional category, type of contractual employment (permanent versus non-permanent jobs), psychosocial factors at work analyzed by the demand-control and the effort-reward imbalance models. In addition, domestic work hours was examined as a confounder in the association between professional work hours and the need for recovery from work. Similarly, professional work hours was tested as a confounder in the association between variables related to housework (domestic work hours and housework overload) and the need for recovery from work. The second step concerns the generalized linear model with binomial distribution and Poisson link (robust estimator), which was used to test the association between each exposure variable and poor recovery from work, with results presented as prevalence ratios with 95 percent confidence intervals. All statistical procedures were based on significance at $p < 0.05$. Analyses were performed with SPSS (version 18.0) software.

RESULTS

The eligible group comprised 1687 workers. Losses (refusals, sick leaves) amounted to 178 workers; the final database consisted of 1509 workers (1307 women). Data corresponding to workers who showed ambiguous or missing answers to questions related to the studied variables were excluded. The group studied encompassed 1122 workers, whose mean age was about 40 years old.

The overall mean observed need for recovery score was 52.4. The poor and good recovery groups were similar as to all studied socio-demographic data. Differences between the groups were observed for the work schedules, the total work load, the domestic work hours, and housework overload (Table 1).

Table 2 presents results of the associations between exposure and dependent variables after controlling for potential confounders. Poor recovery from work

Table 1. Socio-Demography and Work Characteristics for Female Nursing Personnel at Three Public Hospitals in Rio de Janeiro, Brazil[a]

Variables	High need for recovery $N = 292$	Low need for recovery $N = 830$	p-Value
Socio-demography			
Age (mean ± *sd*)	39.7 ± 12.7	39.7 ± 12.7	0.226
Marital status (%)			0.988
Single	34.6	34.2	
Married/live with partner	43.5	44.0	
Divorced/separated/widowed	21.9	21.8	
With children up to 14 years old (%)	29.1	26.7	0.436
Monthly family income in USD (mean ± *sd*)	39.7 ± 12.7	39.7 ± 12.7	0.902
Work variables			
Professional category (%)			0.335
Registered nurses	31.3	27.1	
Nurse assistance/nursing aides	68.6	72.9	
Time on nursing (mean ± *sd*)	39.7 ± 12.7	39.7 ± 12.7	0.513
Engaged on two or more jobs (%)	38.7	36.0	0.415
Work schedules			0.001
Day work	46.0	58.6	
Night work	31.0	21.8	
Day and night work	23.0	19.6	
Type of contractual employment			0.714
Permanent job	51.4	50.1	
Precarious job	48.6	49.9	
Total work load (hours)	67.1 ± 22.0	61.5 ± 21.4	<0.001
Weekly professional work hours (mean ± *sd*)	47.6 ± 19.1	46.1 ± 19.1	0.296
Weekly domestic work hours (mean ± *sd*)	19.5 ± 17.4	15.4 ± 14.4	0.001
Domestic overload (mean ± *sd*)	30.5 ± 19.9	26.7 ± 19.0	0.003

[a]Comparisons between workers who reported high and low need for recovery were based on chi-square and Mann-Whitney tests for categorical and continuous variables, respectively.

Table 2. Crude and Adjusted Prevalence Ratio (PR) and 95 Percent Confidence Intervals for the Association between Professional and Domestic Work and High Need for Recovery from Work among Female Nursing Personnel at Three Public Hospitals in Rio de Janeiro, Brazil

	Crude values		Adjusted values[a] (first model)		Adjusted values (final model considering confounders specifically detected for each exposure variable)	
Variables	Prevalence ratio	95% confidence interval	Prevalence ratio	95% confidence interval	Prevalence ratio	95% confidence interval
Professional work hours	1.003	0.998–1.008	0.998	0.992–1.004	0.999[b]	0.993–1.005
Domestic work hours	1.011	1.006–1.017	1.015	1.009–1.021	1.015[c]	1.009–1.021
Total work load	1.008	1.004–1.012	1.008	1.003–1.012	1.006[d]	1.001–1.011
Housework overload	1.007	1.003–1.012	1.010	1.005–1.016	1.010[c]	1.005–1.016

[a]Adjusted for age, children, marital status, income, education degree, and work schedule (day versus night work).
[b]Also adjusted for professional category, type of contractual employment (permanent versus non-permanent jobs), effort-reward imbalance and domestic work hours.
[c]Also adjusted for professional work hours.
[d]Also adjusted for professional category, type of contractual employment (permanent versus non-permanent jobs), effort-reward imbalance and demand-control ratio.

was more common among workers reporting high total work load, high domestic working hours, and high scores of housework overload. No association was detected in relation to professional work hours. Every hour of domestic chore increase and of total work load corresponded to an increase of 1.5 and 0.6 percent, respectively, in the prevalence of high need of recovery from work. A similar result was observed in relation to housework overload: the prevalence of workers with high need of recovery from work increased by one percentage point to each score increase in housework overload. That is, each increase in the housework overload score (considering the number of potential beneficiaries of the domestic work and the level of responsibility of the person in relation to four basic domestic tasks) corresponded to an increase of 1.0 percent in the prevalence of workers with high need of recovery from work.

No significant interaction was detected between professional and domestic work hours ($p = 0.646$) or between professional work hours and domestic overload ($p = 0.325$).

DISCUSSION

Both variables directly related to the performing of household duties—domestic work hours and housework overload—were shown to be linked to the need for recovery from work, regardless of the professional work hours and work schedules (regression analysis controlled for these variables). These results strongly suggest that domestic work was related to the need for recovery in the group studied. In addition, the total work load was also shown to be related to the need for recovery, whereas the number of professional work hours per se was not.

Analyses of household chores and child care and their relationship with recovery have shown ambiguous results [40]. Our results (a significant association between housework and the need for recovery) contradict those observed by Sonnentag and Zijlstra [31], who found no link between the amount of time spent on household or care activities and the need for recovery among either German health service employees or a Dutch working population from several occupations. Socioeconomic and cultural differences between the countries studied by those authors (Germany and Holland) and Brazil may have contributed to differences among the studies. In Brazil the number of domestic tasks reaches higher values as compared to those in other countries, which is related to the degree of inequality between men and women for domestic tasks, and also to the limited access to capital goods (microwave ovens, vacuum cleaners, dishwashers) and to substitute (alternate) goods such as frozen foods, for example [41]. In addition, differences in the methods of evaluating the recovery from work may also have played a part. We used the 11-item dichotomized Need for Recovery from Work scale [25, 36] while those authors used different formulations of recovery that used fewer questions.

The nonsignificant association between professional work hours and the need for recovery observed here confirms results from two previous studies [28, 42], both of which observed a significant association only for the male workers. A possible explanation for the lack of an association between the time devoted to professional work and the need for recovery in women may be related to the relative importance attributed to work and family domains, with predominance for the domestic sphere among women, as discussed by some authors [40].

In their overview on recovery and the work-family interface, Amstad and Semmer [40] discuss the balance between work and family, emphasizing that "depending on the importance attributed to each domain and norms governing each partner's contribution, balance may well depart from equality" (p. 129). Considering the roles socially attributed to men and women, gender differences are to be expected in this "balance," a difference that could explain our results. In the present study—on a female sample in a Latin American developing country—the availability of time *in the home domain* could be viewed as essential for recovery, thus explaining why the need for recovery was associated only with variables that included domestic work.

Some limitations of our study are worth mentioning. First, no causal inference can be drawn from the results, due to the cross-sectional design of the investigation. Also, the use of self-reports for assessing professional work hours and domestic tasks may be subject to over- or underestimation. Aspects related to social desirability (systematic error of respondents resulting from the desire to avoid embarrassment, and reply in a manner that will be viewed favorably by others) [43] may also have influenced responses.

The relevance of the time devoted to household duties is related to Dedecca's observation on the social construction of time. According to this author, "in our life, time is not natural, but a process we construct as part of our personal path, inscribed in the sociability conditions in which we dwell" [44, p. 281]. This view is based on the work of Elias [45], who affirms that the decision on the use of time is not autonomous, but the opposite: it is very often imposed by certain determinations of the social or economic organization. Actually, our results are likely to derive from the so-called gender-coded factors, described as "all types of social variables that differ between men and women due to their assigned gender role, like the volume of domestic duties" [14, p. 384]. Considering the predictive value of the need for recovery after work with regards to workers' health and well-being [26], the results confirm the importance of household chores in the work-health relation in females.

The potential detrimental effects of housework either by itself or in combination with professional work suggested here show that policies toward gender equality should not be restricted to the public domain. Results observed here, which are likely to apply to other female workers, deserve to be addressed in practical terms, as for instance in the elaboration of public policies directly related to gender equality, as recommended by the WHO [9].

ACKNOWLEDGMENTS

The authors acknowledge the contribution of the study participants and financial support from National Counsel of Technological and Scientific Development (CNPq) and Rio de Janeiro Research Foundation (FAPERJ). L.R. is an Irving Selikoff International Fellow of the Mount Sinai School of Medicine's International Training Program in Environmental and Occupational Health (ITREOH). Their work was supported in part by Grant 1 D43 TW00640 from the Fogarty International Center of the National Institutes of Health. Authors are grateful to anonymous referees whose comments contributed to the improvement of the manuscript.

REFERENCES

1. L. Artazcoz, V. Escriba-Aguir, and I. Cortés, "Gênero, trabajos y salud en España" (Gender, work and health in Spain), *Gaceta Sanitaria* 18 (Suppl. 2), pp. 24-35, 2004.
2. I. Kawachi, "Social capital and community effects on population and individual health," *Annals of the New York Academy of Sciences,* 896, pp. 120-130, 1999.
3. L. Berntsson, U. Lundberg, and G. Krantz, "Gender differences in work–home interplay and symptoms perception among Swedish white-collar employees," *Journal of Epidemiology and Community Health,* 60(12), pp. 1070-1076, 2006.
4. M.G. Bjorksten, B. Boquist, M. Talback, and C. Edling, "Reported neck and shoulder problems in female industrial workers: the importance of factors at work and at home," *International Journal of Industrial Ergonomics*, 27(3), pp. 159-170, 2001.
5. V. S. Santana, D. P. Loomis, and B. Newman, "Housework, Paid Work and Psychiatric Symptoms," *Revista de Saúde Pública,* 35(1), pp. 16-22, 2001.
6. C. S. Dedecca, C. S. M. F. Ribeiro, and F. J. Ishii, "Gênero e jornada de trabalho: análise das relações entre mercado de trabalho e família" (Gender and work hours: analysis of the relationships between labor market and family), *Trabalho, Educação e Saúde*, 7(1), pp. 65-90, 2009.
7. IPEA (Instituto de Pesquisa Econômica Aplicada). PNAD – Pesquisa Nacional de Amostragem por Domicílio 2007 – Primeiras análises, Vol. 3 (National Household Survey 2007 – First analyses, Vol. 3), Demografia e Gênero, 2008.
8. L. Bandeira, "*Fortalecimento da Secretaria Especial de Políticas para as Mulheres – Avançar na transversalidade de gênero nas políticas públicas" (Strenghtening of the Special Secretariat for Women's Policy- Increase the inclusion of gender in public policies),* Convênio Comissão Econômica para a América Latina e Caribe – CEPAL e Secretaria Especial de Políticas para as Mulheres, 2005.
9. WHO (World Health Organization). *"Gender, Health and Work,"* Department of Gender, Women and Health, 2004.
10. V. Walters, R. Lenton, S. French, J. Eyles, J. Mayr, and B. Newbold, "Paid work, unpaid work and social support: a study of the health of male and female nurses," *Social Science and Medicine*, 43(11), pp. 1627-1636, 1996.
11. R. J. Loudoun and P. L. Bohle, "Work/Non-Work Conflict and Health in Shiftwork: Relationships with Family Status and Social Support," *International Journal of Occupational and Environmental Health,* 3(suppl. 2), pp. S71-S77, 1997.

12. L. F. Portela, L. Rotenberg, and W. Waissmann, "Health, sleep and lack of time: relations to domestic and paid work in nurses," *Revista de Saúde Pública,* 39(5), pp. 802-808, 2005.
13. L. Rotenberg, R.H. Griep, F.M. Fischer, M. J. M. Fonseca, and P. Landsbergis, "Working at night and work ability among nursing personnel: when precarious employment makes the difference," *International Archives of Occupational and Environmental Health*, 82(7), pp. 877-885, 2009.
14. D. Musshauser, A. Bader, B. Wildt, and M. Hochleitner, "The Impact of Socio-demographic Factors vs. Gender Roles on Female Hospital Workers' Health: Do We Need to Shift Emphasis?" *Journal of Occupational Health,* 48, pp. 383-391, 2006.
15. L. Rotenberg, L.F. Portela, B. Banks, R.H. Griep, F.M. Fischer, and P. Landsbergis, "A gender approach to work ability and its relationship to professional and domestic work hours among nursing personnel," *Applied Ergonomics*, 39(5), pp. 646-652, 2008.
16. K. Tuomi, J. Ilmarinen, A. Jahkola, L. Katajarinne, and A. Tulkki, "*Work Ability Index"* (2nd edition), Helsinki: Finnish Institute of Occupational Health, 1998.
17. E. Juhani and J. Ilmarinen, "*Aging Workers in the European Union—Status and Promotion of Work Ability, Employability and Employment,"* Helsinki: Finish Institute of Occupational Health, 1999.
18. F. Ribeiro-Silva and L. Rotenberg, "Tiempo para sí y tiempo para otros en mujeres" (Time for oneself and time for others among women), in: V Congreso Internacional Mujer, Trabajo y Salud, Zacatecas, México, 2008a.
19. K. Jurczyk, "Time in women's everyday lives: Between self-determination and conflicting demands," *Time and Society*, 7(2-3), pp. 283-308, 1998.
20. F. Ribeiro-Silva, R.E.S. Soares, L. Rotenberg, and A.P.Uziel, "Reflexión sobre la cotidianidad del trabajo nocturno de las enfermeras" (Reflection about the everyday nocturnal work of female nurses"), in: V Congreso Internacional Mujer, Trabajo y Salud, Zacatecas, México, 2008b.
21. J. Pessanha. "A restituição dos resultados de pesquisa: em busca do diálogo entre pesquisadores e trabalhadores de enfermagem" (The restitution of research results: searching a dialogue between researchers and nursing workers). Dissertação de Mestrado em Saúde Pública (Master Thesis in Public Health), Rio de Janeiro, Escola Nacional de Saúde Pública, FIOCRUZ, 2009.
22. G. Clissold, P. Smith, and B. Acutt, "The Impact of Unwaged Domestic Work on the Duration and Timing of Sleep of Female Nurses Working Full-Time on Rotating 3-Shift Rosters," *Journal of Human Ergology,* 30(1-2), pp. 345-349, 2001.
23. E. Demerouti, A.B. Bakker, S.A.E. Geurts, and T.W. Taris, "Daily Recovery from Work-Related Effort during Non-Work Time," in: *Current Perspectives on Job-Stress Recovery—Research in Occupational Stress and Well Being* (United Kingdom: Emerald Group Publishing Limited) 7, pp. 85-123, 2009.
24. M. van Veldhoven, "Need for Recovery after Work—an overview of construct, measurement and research," in: *Occupational Health Psychology—European Perspectives on Research, Education and Practice,* United Kingdom: Nottingham University Press 3, pp. 1-25, 2008.
25. J.K. Sluiter, A.J. Van Der Beek, and M.H.W. Frings-Dresen, "The Influence of Work Characteristics on the Need for Recovery and Experienced Health: A Study on Drivers," *Ergonomics,* 42(4), pp. 573-583, 1999.

26. J.K. Sluiter, E.M. de Croon, T.F. Meijman, and M.H.W. Frings-Dresen, "Need for Recovery from Work Related Fatigue and its Role in the Development and Prediction of Subjective Health Complaints," *Occupational and Environmental Medicine,* 60(suppl. 1), pp. i62-i70, 2003.
27. M.L.M. van Hooff, S.A.E. Geurts, M.A.J. Kompier, and T.W. Taris, "Workdays, in-between Workdays and the Weekend: A Diary Study on Effort and Recovery," *International Archives of Occupational and Environmental Health,* 80(7), pp. 599-613, 2007.
28. N. Jansen, I. Kant, L. van Amelsvoort, F. Nijhuis, and P. van den Brandt, "Need for Recovery from Work: Evaluating Short-Term Effects of Working Hours, Patterns and Schedules," *Ergonomics,* 46(7), pp. 664-680, 2003.
29. S. Sonnentag, "Work, recovery activities, and individual well-being: a diary study," *Journal of Occupational Health Psychology,* 6(3), pp. 196-210, 2001.
30. S. Sonnentag and S.U-V. Bayer, "Switching off mentally: predictors and consequences of psychological detachment from work during off-job time," *Journal of Occupational Health Psychology,* 10(4), pp. 393-414, 2005.
31. S. Sonnentag and F.R.H. Zijlstra, "Job Characteristics and Off-Job Activities as Predictors of Need for Recovery, Well-Being, and Fatigue," *Journal of Applied Psychology,* 91(2), pp. 330-350, 2006.
32. P.C. Winwood, A.H. Winefield, and K. Lushington, "Work-related fatigue and recovery: the contribution of age, domestic responsibilities and shiftwork," *Journal of Advanced Nursing,* 56(4), pp. 438-449, 2006.
33. P.C. Winwood, A.H. Winefield, D. Dawson, and K. Lushington, "Development and validation of a scale to measure work-related fatigue and recovery: the Occupational Fatigue Exhaustion/Recovery Scale (OFER)," *Journal of Occupational and Environmental Medicine,* 47(6), pp. 594-606, 2005.
34. S. Sonnentag and C. Fritz, "The Recovery Experience Questionnaire: Development and Validation of a Measure for Assessing Recuperation and Unwinding from Work," *Journal of Occupational Health Psychology,* 12(3), pp. 204-221, 2007.
35. L.F. Portela, L. Rotenberg, and W. Waissmann, "Self-reported health and sleep complaints among nursing personnel working under 12h night and day shifts," *Chronobiology International,* 21(6) pp. 859-870, 2004.
36. M. Van Veldhoven and S. Broersen, "Measurement Quality and Validity of the 'Need for Recovery Scale'," *Occupational and Environmental Medicine,* 60(suppl. 1), pp. i3-i9, 2003.
37. D. Thierney, P.K. Romito, and K. Messing, "She ate not the bread of idleness: exhaustion is related to domestic and salaried working conditions among 539 Québec hospital workers," *Women's Health*, 16(1), pp. 21-42, 1990.
38. T.M. Araújo, E. Aquino, G. Menezes, C.O. Santos, and L. Aguiar, "Work psychosocial aspects and psychological distress among nurses," *Revista de Saúde Pública,* 37(4), pp. 424-433, 2003.
39. L.G.P.M. Van Amelsvoort, N.W.H. Jansen, G.M.H. Swaen, P.A. van den Brandt, and I. Kant, "Direction of shift rotation among three-shift workers in relation to psychological health and work-family conflict," *Scandinavian Journal of Work, Environment and Health,* 30(2), pp. 149-156, 2004.

40. F.T. Amstad and N.K. Semmer, "Recovery and the Work-Family Interface," in: *Current Perspectives on Job-Stress Recovery—Research in Occupational Stress and Well Being* (United Kingdom: Emerald Group Publishing Limited) 7, pp. 125-166, 2009.
41. S.S. Rizavi and C. Sofer, "Trabalho doméstico e organização do tempo dos casais: uma comparação internacional" (Domestic work and organization of time for couples: an international comparison), in: C. Albertina de Oliveira, S. Bila, B. Cristina, and H. Helena (eds.), *Mercado de Trabalho e Gênero: comparações internacionais*. Rio de Janeiro, Editora FGV, 2008.
42. L. De Raeve, N.W. Jansen, and I. J. Kant, "Health effects of transitions in work schedule, workhours and overtime in a prospective cohort study," *Scandinavian Journal of Work Environment and Health,* 33(2), pp. 105-113, 2007.
43. R.J. Fisher, "Social Desirability Bias and the Validity of Indirect Questioning," *The Journal of Consumer Research,* 20(2), pp. 303-315, 1993.
44. C.S. Dedecca, "Regimes de trabalho, uso do tempo e desigualdade entre homens e mulheres" (Work regimes, use of time and inequality between men and women), *Mercado de Trabalho e Gênero—comparações internacionais* (Brasil: Editora Fundação Getúlio Vargas), pp. 279-297, 2008.
45. N. Elias, "*Sobre o Tempo*" (About Time). Rio de Janeiro: Editora Jorge Zahar, 1998.

Direct reprint requests to:

Lúcia Rotenberg
Av. Brasil, 4365, Manguinhos
Rio de Janeiro, RJ, Brazil
CEP: 21.045-900
Pavilhao Lauro Travassos
e mail: rotenber@ioc.fiocruz.br