SLEEP QUALITY OF WOMEN WITH GYNECOLOGICAL AND BREAST CANCER[1]

Renata Furlani[2]
Maria Filomena Ceolim[3]

Subjective sleep quality has been recognized as a valuable indicator of health and quality of life. This exploratory and descriptive study aimed at describing habitual sleep quality of women suffering from gynecological and breast cancer and comparing habitual versus sleep quality during hospitalization. Twenty-five women admitted in hospital for clinical treatment of cancer completed the Pittsburgh Sleep Quality Index (PSQI) within 72 hours after admission and again just before discharge. Fifty-two percent of subjects reported habitual bad sleep quality, and this proportion increased to 80% of subjects during hospital stay. Subjects indicated the following most frequent causes of night sleep disturbance: need to go to the toilet, waking up early and receiving nursing care during the night. Results point to the importance of including careful assessment of sleep quality and environment in nursing care planning for oncology patients, mainly during hospitalization.

DESCRIPTORS: sleep; neoplasms; nursing; hospitalization

CALIDAD DEL SUEÑO EN MUJERES CON CÁNCER GINECÓLOGO E MAMARIO

Actualmente, la calidad de sueño referida por el propio individuo es reconocida como un indicador de salud y calidad de vida. Esto estudio exploratorio y descriptivo describe la calidad habitual del sueño de mujeres con cáncer ginecológico y mamario y la confronta con la hospitalización. Se desarrolló con 25 mujeres hospitalizadas para tratamiento clínico del cáncer ginecológico. Se colectaron informaciones mediante el Pittsburgh Sleep Quality Index (PSQI) y se verifico que el 52% de los sujetos poseía mala calidad del sueño habitualmente, mientras el 80% hubiera mala calidad en la hospitalización. Las orígenes de las perturbaciones del sueño nocturno apuntadas más frecuentemente fueron: usar el baño, despertarse temprano y ser cuidado por las enfermeras durante la noche. Los resultados muestran la necesidad de que el planeamiento de cuidados de enfermería para mujeres con cáncer ginecólogo incluya la evaluación de la calidad del sueño de las pacientes, inclusive en la hospitalización.

DESCRIPTORES: sueño; neoplasmas; enfermería; hospitalización

QUALIDADE DO SONO DE MULHERES PORTADORAS DE CÂNCER GINECOLÓGICO E MAMÁRIO

A qualidade de sono referida pelo próprio indivíduo é reconhecida atualmente como um indicador de saúde e de qualidade de vida. Este estudo exploratório e descritivo teve por objetivo descrever a qualidade habitual do sono de mulheres com câncer ginecológico e mamário e compará-la à qualidade do sono das mesmas na hospitalização. Participaram 25 mulheres hospitalizadas para tratamento clínico do câncer que responderam ao Índice de Qualidade de Sono de Pittsburgh (PSQI) até 72 horas após a admissão e quando prevista a alta hospitalar. Verificou-se que 52% das mulheres apresentavam má qualidade de sono habitual e que, na hospitalização, esse percentual elevou-se para 80%. Como causas mais freqüentes de perturbação do sono na hospitalização destacaram-se: necessidade de usar o banheiro; despertar precoce; cuidados prestados pela equipe de enfermagem. Os resultados apontam para a necessidade de cuidados oncológicos que englobem a qualidade de sono destes pacientes, sobretudo na hospitalização.

DESCRITORES: sono; neoplasias; enfermagem; hospitalização

INTRODUCTION

*S*elf-reported sleep quality and its impact in the daily lives of healthy or sick people has become one of the main foci of concern for researchers, as sleep is an essential physiological and behavioral process for the adequate functioning of the organism. Knowledge about sleep quality started to be considered an important clinical tool to identify health problems[1], as sleep disorders can be associated with fatigue, mood alterations and reduced pain tolerance[2].

People affected by oncology problems are particularly subject to sleep disorder experiences, mainly when they have to be hospitalized for treatment[3]. It is believed that these patients present greater difficulties to catch sleep and continue sleeping than other clinical or surgical patients, due to the symptoms associated with the disease or the very often aggressive therapeutics used for cancer treatment[2]. Therefore, hospitalization and other changes in the sleep place can precipitate sleep disorders among these patients[3] and exacerbate the damage caused by chronic diseases.

Among neoplastic disorders, gynecological and breast cancer diagnoses represent a real threat to countless women's lives, with negative repercussions on their quality of life. Although sleep disorders are an important theme for patients affected by neoplasms, coping with them still seems to be inadequate in the field of cancer care[4].

Although few studies address sleep-related aspects in gynecological cancer patients, the health team is recommended to prioritize both the quality of specific cancer treatment and the impact the disease and its treatment provoke in the patients' quality of life[5], implying sleep quality.

As women with gynecological and breast cancer are subject to a wide range of problems, it is interesting for the hospital environment to be able to favor a restoring sleep. This article aims to describe the habitual sleep quality of women with gynecological and breast cancer and compare it with sleep quality during hospitalization, in order to support the planning of nursing care that attempts to promote good sleep quality for these women, especially during this period.

SUBJECTS AND METHODS

We carried out an exploratory and descriptive study, with a quantitative approach. The research was developed at the Cancer Ward of the Integral Women's Health Care Centre (CAISM) of the Campinas State University Faculty of Medical Sciences (UNICAMP) between March and August 2004.

The study subjects were 25 women with gynecological or breast cancer, whose ages ranged from 25.9 to 77.8 years (mean 51.1 years, ± 12.7 years, median 47.4 years), who attended to the following inclusion criteria: hospitalization for clinical treatment during the data collection period; if submitted to previous hospitalizations, having been discharged for 15 days or more*; over 18 years old; interest and voluntary participation in the study; capable and in physical and emotional conditions to answer the research instruments.

We adopted criteria to suspend subjects' participation: negative evolution of clinical situation, making it impossible to participate in data collection; submission to surgical or similar treatment, which required the use of general anesthetics that would interfere in the sleep cycles and quality; subject's refusal to continue participating.

Data were collected through the following instruments: Identification Card (IC), elaborated for the study; the Pittsburgh Sleep Quality Index (PSQI)[1], in the version used by other authors in Brazil[6]. Both instruments were filled out by the researcher, who filled out the subjects' answers.

The **IC** aimed to record sociodemographic data, housing characteristics and factors related to the disease and to treatments realized earlier and during the current hospitalization. It was applied within 72 hours after the subjects' hospital admission.

The **PSQI** was used to assess subjective sleep quality, sleep habits related to quality and the occurrence of sleep disturbances. The instrument consists of seven components (subjective quality, latency, duration, efficiency and sleep disturbances, sleep medication use and daytime sleepiness), resulting in a score that corresponds to **global subjective sleep quality**. A score of up to five indicates **good sleep quality** while a score of more than five marks **bad sleep quality**[1]. Data collected through the **PSQI** were retrospective, corresponding to a time interval before the date when it was filled out. In this study, each subject answered the instrument twice: within 72 hours after hospitalization, to provide data about sleep quality in the last 15 days, i.e. while they were at home (indicated in this study as **habitual sleep quality**); and as soon as hospital discharge had been scheduled, to supply data about sleep quality during hospitalization

---

* Subjects hospitalized before for less than 15 days were excluded because the research includes comparisons between the periods before and during hospitalization, which would not be possible without this reservation.

(referred to in this study as **sleep quality during hospitalization**). Cronbach's alpha coefficient was used to assess the instrument's internal consistency, observing an intermediary consistency with an alpha coefficient of 0.60 to assess habitual sleep quality, and 0.69 to assess sleep quality during hospitalization.

Data were submitted to descriptive analysis. Next, PSQI data for all subjects were compared between the two study phases. Subjects were grouped according to sleep quality (good or bad), and the two groups were compared in each study phase. Subjects were also grouped according to the clinical evolution of their disease, in two categories: subjects whose **clinical state was maintained** and subjects whose **clinical state worsened**, according to data collected in October 2004. These groups were compared in terms of their sleep quality in the two study phases. Non-parametrical statistical tests were used for inter-phase (McNemar and Wilcoxon) and inter-group (Mann-Whitney, Chi-square and Fisher's Exact) comparisons, at a critical level of 5%.

The research was approved by the Research Commission at CAISM at by the Research Ethics Committee at FCM/ UNICAMP. Subjects who complied with the study inclusion criteria signed the Free and Informed Consent Term, elaborated according to the standards of Resolution 196/96 by the National Health Council.

RESULTS

Twenty-five subjects participated in the study, 48% of whom presented good habitual sleep quality and 52% bad habitual sleep quality. During hospitalization, the proportion of subjects with bad sleep quality increased to 80% of the total.

Twelve subjects were classified as good habitual sleep quality, three of whom maintained this classification for sleep quality during hospitalization, while nine subjects started to present bad sleep quality during this period. Among the 13 subjects classified as bad habitual sleep quality, 11 maintained this classification during hospitalization, while two subjects started to present good sleep quality in that phase. In sum, 20 subjects presented bad and five good sleep quality during hospitalization. The proportion of subjects with good habitual sleep quality who started to present bad sleep quality during hospitalization was statistically significant (p = **0.04** in McNemar's test).

Subjects with good and bad habitual sleep quality were homogeneously distributed across

different age ranges in this study and were predominantly between 41 and 60 years old (66.7% of subjects with good and 61.5% of those with bad habitual sleep quality). Education levels were similar among subjects with good and bad habitual sleep quality (median of 4.5 and 5.0 years, respectively), as well as family income, predominantly between one and five minimum wages (91.7% of those with good and 84.6% of those with bad habitual sleep quality).

Median diagnosis time was similar among subjects with good and bad habitual sleep quality, ranging between zero and eight years (median 4.0 years) and between zero and 16 years (median 4.5 years) respectively.

Table 1 shows the subjects' distribution according to why they were hospitalized and their habitual sleep quality.

Table 1 - Subjects' distribution in terms of hospitalization motive and habitual sleep quality. Campinas, 2004

Hospitalization motive	Habitual sleep quality according to PSQI			
	Good quality (n = 12)		Bad quality (n = 13)	
	n	%	N	%
Complications in clinical condition	4	33.3%	5	38.5%
Chemotherapy treatment	4	33.3%	6	46.1%
Tratamento radioterápico	1	6,4%	0	0%
Investigação	3	25%	2	15,4%
Total	**12**	**100%**	**13**	**100%**

Table 2 shows the distribution of disease characteristics (location of primary tumor, presence or absence of metastases, disease staging) and habitual sleep quality.

Table 2 - Subjects' distribution in terms of disease characteristics and habitual sleep quality. Campinas, 2004

Hospitalization motive	Habitual sleep quality according to PSQI			
	Good quality (n = 12)		Bad quality (n = 13)	
	N	%	n	%
Location of primary tumor				
Colon tumor	4	33.4%	5	38.5%
Breast tumor	6	50.0%	5	38.5%
Endometrial tumor	1	8.3%	3	23.0%
No diagnosis	1	8.3%	0	0%
Total	12	100%	13	100%
Presence of metastasis*				
Yes	3	25%	4	30.8%
No	9	75%	9	69.2%
Total	12	100%	13	100%
Staging				
Stage I	2	16.7%	1	7.7%
Stage II	2	16.7%	3	23.1%
Stage III	7	58.3%	8	61.5%
No staging	1	8.3%	1	7.7%
Total	**12**	**100%**	**13**	**100%**

* All metastases were of the diffuse bone type, in combination with other associations (meningeal or pulmonary metastases)

The records of subjects with good habitual sleep quality who had been hospitalized at the Oncology Ward earlier showed that this event had occurred 19.5 (± 31.9) months ago, on the average, against 15.3 (± 28.9) months for those with bad habitual sleep quality.

The sleep patterns implied in habitual sleep quality (nocturnal sleep latency, duration and efficiency) are presented in Table 3.

Table 3 - Habitual nocturnal sleep patterns according to PSQI. Campinas, 2004

| Habitual nocturnal sleep patterns | Habitual sleep quality according to PSQI | | | | | | Mann-Whitney Test |
| | Good sleep quality (n = 12) | | | Bad sleep qualit (n = 13) | | | |
	Mean	sd* (±)	Median	Mean	sd* (±)	Median	p-value**
Latency	1min	4.3min	0min	60min	47.2min	35min	0.0001
Duration	8h	70min	8h	5h28min	137min	6h	0.0046
Efficiency	96.9%	6.2%	100%	68.8%	27.4%	71.4%	0.0011

*sd (±): standard deviation
**: significance level < 0.05

Twenty-five percent of subjects with good and 46.2% of those with bad habitual sleep quality indicated moderate or intense indisposition to develop their daily activities. Daytime sleepiness and sleep medication use were mentioned more frequently by subjects with bad sleep quality (46.2% and 23.1%, respectively) in comparison with patients with good sleep quality (25% and 16.7%, respectively).

Subjects with good sleep quality mentioned the need to use the bathroom (75%) and pain (41.7%) as the main causes of disturbances in their habitual nocturnal sleep. The main causes among patients with bad habitual sleep quality were early awakening (92%) and need to use the bathroom (92%), followed by pain episodes (69.3%) and feeling hot during the night (46.2%).

Table 4 shows the sleep patterns implied in sleep quality during hospitalization (nocturnal sleep latency, duration and efficiency).

Table 4 - Nocturnal sleep patterns during hospitalization according to PSQI. Campinas, 2004

| Nocturnal sleep patterns during hospitalization | Sleep quality during hospitalization according to PSQI | | | | | | Mann-Whitney Test |
| | Good sleep quality (n=5) | | | Bad sleep quality (n=20) | | | |
	Mean	sd* (±)	Median	Mean	sd* (±)	Median	p-value**
Latency	9 min	13min	0min	49min	48min	60min	0.14
Duration	8h12min	27min	8h	5h14min	115min	5h	0.006
Efficiency	98.8%	2.6%	100%	70.1%	23.0%	70.0%	0.006

*sd (±): standard deviation
**: significance level < 0.05

Forty percent of subjects with good and 30% of those with bad sleep quality during hospitalization indicated moderate or intense indisposition to develop daily activities. Intense daytime sleepiness was mentioned by 40% of subjects with good and 55% of patients with bad sleep quality during hospitalization. None of the subjects with good sleep quality during hospitalization used medication to sleep, against 50% in the bad quality group, where patients used this kind of medication between one and three times per week during their stay in hospital.

The following causes of nocturnal sleep disturbances stood out during hospitalization: need to use the bathroom (60% of subjects with good and 65% of those with bad sleep quality); care delivered by the nursing team, mentioned by 60% of subjects with good sleep quality and 55% of those with bad sleep quality. Noise at the nursing ward was indicated by 8.3% of patients with good and 10% of subjects with bad sleep quality during hospitalization. Among subjects with good sleep quality during hospitalization, 8.3% mentioned excessive light at the ward as a nocturnal sleep disturbance factor. Among those with bad sleep quality during hospitalization, 75% indicated early awakening; 45% pain episodes; 30% feeling hot during the night and 20% sleep disturbances provoked by other hospitalized patients in a bad general state or who were agitated at the ward.

Until October 2004, 64% of the study subjects remained under outpatient follow-up at CAISM without and worsening in their clinical condition, while 24% attended periodical consultations and 40% received chemotherapy or radiotherapy treatment. Twenty percent of the other patients needed another hospitalization due to worsening in their clinical status compatible with the disease, and 8% passed away. Eight percent of the subjects did not return to the service until the date under analysis and were not considered in the analysis below.

Although both groups presented bad sleep quality, subjects whose clinical state worsened (28%, including patients who passed away) had obtained global PSQI scores that suggested worse habitual sleep quality (10.3 ± 3.8 points, median 11.0 points), in comparison with patients (64%) who maintained their clinical condition (7.2 ± 4.4 points, median 7.0 points). These results tend towards a statistically significant difference (p = 0.06 on the Mann-Whitney test).

As to PSQI scores during hospitalization, we found that data behaved similarly: subjects with a

worse clinical evolution presented scores that indicated worse sleep quality (11.3 ± 4.8 points, median 14.0 points), in comparison with patients whose clinical condition remained unchanged (8.7 ± 4.5 points, median 8.0 points). The comparison between both groups during this phase did not reveal statistically significant differences.

DISCUSSION

The presence of neoplasms can cause profound changes in people's habitual way of life. Sleep habits and quality are a fundamental part of this life routine[3]. Bad sleep quality was predominant among participants both before and during hospitalization, which highlights the importance of characterizing these subjects' habitual sleep quality, with a view to neither attributing the occurred changes to hospitalization-related events only, nor minimizing the effects of hospitalization on sleep quality. The proportion of women whose sleep quality worsened during hospitalization was statistically significant, which seems to indicate that their stay in hospital contributed to the decrease in their sleep quality.

Hospitalization or other changes in people's habitual environment can precipitate the occurrence of sleep disorders[3], perhaps because they involve adapting to a new environment and breaking with habitual sleep routines[7]. Remaining hospitalized implies long periods of bed rest. Hence, restricted activities during the day and reduced exposure to natural illumination can result in changes in the regularity of the human organism's rhythms, which can negatively affect nocturnal sleep quality[8]. Nevertheless, some participants with bad habitual sleep quality started to present good sleep quality during hospitalization. This may be due to the control of some cancer-related complications.

During hospitalization, most participants received chemotherapy treatment. According to literature, patients who received specific cancer treatments during the last six months are more subject to excessive sleepiness and fatigue[7]. Fatigue, in turn, seems to be related with reduced sleep duration[4]. We found higher levels of sleepiness and daytime indisposition among subjects with bad sleep quality in comparison with the good habitual quality group.

Findings from another study indicate that breast and lung cancer patients were most affected by sleep disturbances when compared with other types of cancer, such as gynecological and skin cancer[7]. Our findings did not show a significant predominance of sleep disturbances in patients with any specific type of tumor.

We found higher incidence levels of diffuse bone metastases in patients with bad habitual sleep quality, in line with another study[4], which reports shorter nocturnal sleep among patients with this type of metastasis, possibly due to the interference of pain episodes.

The time between the previous hospitalization and the current one was shorter among subjects with bad sleep quality, which may suggest that these patients need to be hospitalized more frequently than those with good sleep quality.

With respect to habitual sleep patterns, we found longer latency, lower efficiency and duration of sleep among participants with bad sleep quality in comparison with women with good sleep quality. In another study, the authors refer difficulties to catch sleep and reduced nocturnal sleep efficiency in cancer patients[9].

Cancer patients identify waking up several times during the night as the most common type of insomnia[2,7]. Our findings were similar, showing early awakening and need to use the bathroom as the most frequent causes of nocturnal sleep disturbance among women with bad habitual sleep quality. Patients with good habitual sleep quality, on the other hand, mainly mentioned the need to use the bathroom and pain.

Across the two study phases, the need to use the bathroom during the night appears as the most frequent nocturnal sleep disturbance factor among participants with good and bad sleep quality. A study with cervical cancer patients showed urodynamic alterations, such as reduced storage and bladder emptying capacity and urinary incontinence after surgical treatment (hysterectomy) and radiotherapy[10]. Pain during the night can provoke nocturnal awakening, although difficulties to catch sleep again may be related to how the individual deals with this event[2]. However, cancer pain assessment is an important aspect of care planning for these subjects[11].

Feeling hot also stood out as a sleep disturbance factor among female participants with bad sleep quality. Breast cancer patients complain of heat waves during nocturnal sleep, which may derive from the natural climacterium phenomenon; the

recommended abandonment of hormone therapy or from the support treatment undertaken in treating the neoplasm[12].

A considerable number of cancer patients take medication to sleep[7]. In our study, the proportion of women using this kind of drug was similar to other literature findings and predominant among subjects with bad habitual sleep quality.

Sleep habits during hospitalization followed the same tendency found before this event. However, we found a statistically significant difference between subjects with good and bad sleep quality during hospitalization for sleep duration and efficiency, which were reduced among subjects with bad sleep quality. Being ill is a stressing factor, mainly if hospitalization is needed. It is believed that the predominance of bad-quality sleep parameters during hospitalization, negatively affecting nocturnal sleep stages, lead to the inadequate recovery of hospitalized subjects[13].

During hospitalization, the need to use the bathroom and health care delivery stood out as the origin of nocturnal sleep disturbance in both patient groups. Pain control to reduce nocturnal sleep interruptions; control of illumination levels to maintain a close-to-normal light and dark cycle and care delivery compatible with nocturnal sleep promotion are some practices that need to be consolidated to obtain better nocturnal sleep quality. We found a study in which researchers identified a negative correlation between sleep quality and the number of disturbances, total time spent in the patient's room and patients' participation in their care[14]. Sleep fragmentation deriving from such interventions can negatively affect subjects' perception of their sleep quality, which reinforces the need for nocturnal care planning, with a view to attending to nocturnal rest needs. Nursing care planning and practice for this sake can be considered in future studies.

In this study, 20% of women with bad sleep quality indicated sleep disturbances provoked by other patients in bad general conditions or who were agitated. Sharing the room with other persons in the hospital environment can represent a sleep quality-impairing factor. Controlling the illumination in the room and defining times to sleep depend on a consensus with other people; sleep habits, times to sleep and wake up can be different and health care needs probably vary among these subjects. These variations among people who share the same room could contribute to increased sleep latency and reduced duration during hospitalization.

Daytime sleepiness was more frequent among women with bad sleep quality, and use of medication to sleep was identified in half of the subjects with bad sleep quality during hospitalization. It is believed that subjects with bad sleep quality concentrate factors that corroborate with sleep disturbances and, during hospitalization, culminate in the need to use medication to sleep. Participants with bad sleep quality also highlighted early awakening and feeling hot as nocturnal sleep disturbance factors.

When grouped according to the clinical evolution of the disease, the analysis of participants' sleep quality showed that the PSQI scores of subjects whose clinical condition worsened had indicated bad sleep quality in both study phases, in comparison with patients whose clinical state did not change. It is believed that nocturnal sleep conditions interfere in people's sensations throughout the day, which highlights the importance of good nocturnal sleep quality for sick patients, so that they can feel well-disposed during the day and recover from the disease's harmful effects, from treatment or even from some situations that occurred during hospitalization. However, patients may not mention their sleep disorders during hospitalization, which makes it essential that nurses inquire about these difficulties and get to know their habitual sleep patterns.

The bad clinical conditions in which some women are hospitalized or the rapid evolution of the disease impede the development of longer studies with a larger number of subjects. This difficulty was the main study limitation.

FINAL CONSIDERATIONS

People affected by cancer can be vulnerable and depend on the support of relatives or partners during the different stages of coping with the disease. During hospitalization, the nursing team is one of the responsibles for supporting patients in living with the disease.

Although cancer nursing care has evolved a lot since its appearance[15], these findings indicate the need for cancer care that covers aspects related to patients' sleep quality, mainly during hospitalization. Evidence-based knowledge is essential for nurses, who are responsible for patient care, to support their care actions and guide the nursing team about the importance of favoring pleasant nights of sleep to patients, including during hospitalization.

REFERENCES

1. Buysse DJ, Reynolds CF, Monk TH, Hoch CC, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatr Res 1989 May; 28(2):193-213.

2. Engstrom CA, Strohl RA, Rose L, Lewandowski L, Stefanek ME. Sleep alterations in cancer patients. Cancer Nurs 1999 April; 22(2):143-8.

3. Lee K, Cho M, Miaskowiski C, Dodd M. Impaired sleep and rhythms in persons with cancer. Sleep Med Rev 2004 July; 8(3):199-212.

4. Mercadante S, Girelli D, Casuccio A. Sleep disorders in advanced cancer patients: prevalence and factors associated. Support Care Cancer 2004 May; 12(5):355-59.

5. Özyilkan O, Baltali E, Tekuzman G, Firat D. The impact of diagnosis and treatment on the quality of life in breast cancer patients. Neoplasma 1998; 45(1):50-2.

6. Ceolim MF, Menna-Barreto L. Sleep/Wake Cycle and Physical Activity in Healthy Elderly People. Sleep Research Online [periódico online] 2000 July [acesso em 26 jan 2006]; 3(3):87-95 [14 telas]. Disponivel em: http://www.sro.org/2000/Ceolim/87/

7. Davidson JR, Maclean AW, Brundage MD, Schulze K. Sleep disturbance in cancer patients. Soc Sci Med 2002 May; 54(9):1309-21.

8. Ancoli-Israel S, Moore PJ, Jones V. The relationship between fatigue and sleep in cancer patients: a review. Eur J Cancer Care (Engl) 2001 December 10(4):245-55.

9. Owen DC, Parker KP, Mcguire DB. Comparison of subjective sleep quality in patients with cancer and healthy subjects. Oncol Nurs Forum 1999 November-December; 26(10):1649-51.

10. Lin LY, Wu JH, Yang CW, Sheu BC, Lin HH. Impact of radical hysterectomy for cervical cancer on urodynamic findings. Int Urogynecol J 2004 June; 15:418-21.

11. Silva LMH, Zago MMF. O cuidado do paciente oncológico com dor crônica na ótica do enfermeiro. Rev Latino-am Enfermagem 2001 julho-agosto; 9(4):44-9.

12. Savard J, Davidson JR, Ivers H, Quesnel C, Rioux D, Dupéré V, et al. The association between nocturnal hot flashes and sleep in breast cancer survivors. J Pain Symptom Manage 2004 June; 27(6):513-22.

13. Manocchia M, Keller S, Ware JE. Sleep problems, health-related quality of life, work functioning and health care utilization among chronically ill. Qual Life Res 2001 April, 10(4):331-45.

14. Shelly LC. Sleep disturbances in hospitalized patients with cancer. Oncol Nurs Forum 1996 January-February, 1: 109-11.

15. Camargo TC, Souza IEO. Atenção à mulher mastectomizada: discutindo os aspectos oncóticos e a dimensão ontológica da atuação da enfermeira no hospital do câncer III. Rev Latino-am Enfermagem 2003 setembro-outubro; 11(5):614-21.