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Cultural adaptation and internal consistency analysis of the MISSCARE Survey for use in Brazil¹

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Objective: The aims of this methodological research were to culturally adapt the MISSCARE Survey instrument to Brazil and analyze the internal consistency of the adapted version. **Method:** The instrument consists of 41 items, presented in two parts. Part A contains 24 items listing elements of missed nursing care. Part B is comprised of 17 items, related to the reasons for not delivering care. The research received ethics committee approval and was undertaken in two phases. The first was the cultural adaptation process, in which a committee of five experts verified the face and content validity, in compliance with the steps recommended in the literature. The second was aimed at analyzing the internal consistency of the instrument, involving 60 nursing team professionals at a public teaching hospital. **Results:** According to the experts, the instrument demonstrated face and content validity. Cronbach's alpha coefficients for parts A and B surpassed 0.70 and were considered appropriate. **Conclusion:** The adapted version of the MISSCARE Survey demonstrated satisfactory face validity and internal consistency for the study sample.

Descriptors: Nursing Care; Validation Studies; Patient Safety.

¹ Paper extracted from Master Thesis "Adaptação cultural e validação inicial do instrumento MISSCARE para o Brasil: contribuição para o mapeamento de riscos para a segurança do paciente hospitalizado" presented to Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, WHO Collaborating Centre for Nursing Research Development, Ribeirão Preto, SP, Brazil.

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Introduction

Unsafe healthcare is a major cause of morbidity and mortality across the globe. Estimates from developed nations suggest that adverse drug events may contribute to 140,000 deaths annually, and about 5% to 10% patients admitted to hospitals acquire an infection. In the United States, researchers reported a 10% prevalence of pressure ulcers in acute-care hospitals, accounting for the death of over 100,000 persons between 1990 and 2001⁽¹⁾.

In Brazil, in a recent study, the errors committed during immediate postoperative nursing care delivery to surgical patients were analyzed at ten hospitals. Errors were classified in terms of organizational, psychosocial/ equipment and severity aspects, at four basic levels: sensory-motor, procedure or service routines, abstraction or knowledge and supervision control. The situations involved included lack of care with drains and infusions during patient transportation, non-observation of patients' clinical conditions, lack of knowledge of resuscitation procedures in case of cardiorespiratory arrest, lack of a laryngoscope at the surgery room where the patient suffered a glottal edema⁽²⁾.

Another study undertaken in three Brazilian hospitals investigated error events in intravenous medication preparation and administration. Based on direct observation of nursing assistants and nursing technicians, findings revealed that, in the preparation phase, missed doses was the most frequent error in two of the hospitals, while wrong doses occurred in all three hospitals. In the medication administration phase, the highest error rate in the three hospitals referred to wrong doses. Error rates ranged between 2.9 and 11%⁽³⁾. The authors discussed the influence of work conditions at those hospitals on the occurrence of these errors. They emphasized that an insufficient number of nursing personnel in Brazilian hospitals frequently entails the extension of work hours and, consequently, a higher workload and staff dissatisfaction.

Assuring patient safety and quality nursing outcomes represents a significant challenge for nurses and is considered as an individual and institutional issue⁽⁴⁾. In 1863, Florence Nightingale already emphasized the importance of patient safety in nursing care delivery. Nevertheless, professional failure and errors are inevitable in organizations. Therefore, learning from errors is essential and is one of the goals of patient safety programs⁽⁵⁾.

Internationally, a consensus exists that several error-related elements affect nursing practice in

hospitals, including the severity and complexity of patients' diseases, the short length of stay, the number of activities nurses delegate to nurse assistants and technicians, reduction of nursing staff, work overload, high turnover rate and long work hours. In addition, there has been an increase in technology and new knowledge. As nurses need to cope with all of these factors within this context and to make appropriate decisions to guarantee better patient care and surveillance, they also need to prevent errors and assure care quality. If staffing levels are inappropriate, these responsibilities may be compromised⁽⁶⁻⁷⁾.

A study performed at 168 hospitals in the USA analyzed the net effect of nurse practice environments on nurse and patient outcomes after accounting for nurse staffing and education. The authors found that higher percentages of nurses in hospitals with poor care environments reported high burnout levels and dissatisfaction with their jobs. The care environment had a significant effect on the intention to leave the job. The authors also reported that, even after controlling for the effects of the care environment, the odds of nurses reporting high burnout and dissatisfaction increased with each additional patient per nurse in the mean workload at their hospitals. The odds of patients dying in hospitals with an average workload of eight patients per nurse is 1.26 times greater than in hospitals with a mean workloads of four patients per nurse. Finally, the authors reported that each 10% increase in the proportion of nurses with a bachelor of science degree in nursing was associated with a 4% decrease in the risk of death⁽⁸⁾.

Nursing care demands a complex thinking process, which includes making inferences and synthesizing information. Nurses' surroundings have been described as fast and unpredictable, promoting interruptions and errors in nursing care. During their work shifts, nurses constantly shift from one activity to another and manage information from many different sources, often working with two or more tasks at the same time and showing high rates of interruptions in their activities⁽⁹⁾.

In view of the multiple demands and insufficient resources, these professionals feel unable to meet all nursing care actions required and may often choose not to complete them. In those circumstances, nurses may abbreviate, delay or simply omit care⁽⁷⁾.

The omission of nursing care (missed nursing care) phenomenon is defined as any aspect of care that is required by the patient and that is missed (partially or as a whole) or delayed⁽⁷⁾. It was first identified in a qualitative study in the United States, involving 25 focus groups with

nurses, nursing assistants and technicians at two large hospitals. In that study, nine elements of nursing care were regularly missed (walking, repositioning, offering meals, patient education, preparation for discharge, emotional support, hygiene, nursing documentation regarding ingestion/elimination and surveillance). In addition, seven themes were identified, related to the reasons healthcare professionals gave for not providing that care (few employees, scarce time for the nursing intervention, inadequate use of the resources, lack of teamwork, nurses' ineffective delegation of tasks to nursing technicians and assistants, habit and denial)⁽⁶⁻⁷⁾. Based on those studies, the authors developed and tested the *MISSCARE Survey*.

The importance of having a specific instrument to assess the phenomenon of missed nursing care relates to the fact that this type of instrument identifies the acts of omission that may result in negative patient care outcomes. Furthermore, the conditions are revealed in which care is not being provided⁽¹⁰⁾.

We did not find any Brazilian studies on this theme and that adopted the same focus as the authors of the *MISSCARE Survey*. Some elements of nursing care these researchers presented were also identified in Brazilian studies on quality indicators such as infection rates during hospitalization, readmissions, drug administration errors, occurrence of pressure ulcers and non-use of preventive measures⁽¹¹⁻¹²⁾.

Considering that missed care is a universal phenomenon that can be generalized to multiple clinical situations and is likely to cause threats to patient safety, systematic study in various cultural contexts is needed⁽⁷⁾, as well as open recognition, aiming to cope with the problem within a non-punishment culture. This study aimed to perform the cultural adaptation of the *MISSCARE Survey* for Brazil and test the internal consistency of its adapted version.

Method

This methodological study received approval from the Research Ethics Committee at the University of Sao Paulo (USP) at Ribeirão Preto College of Nursing, under protocol 1318/2011. Authorization for the cultural adaptation process of the *MISSCARE Survey* was obtained from the primary author.

The *MISSCARE Survey* is a two-part instrument that consists of 41 items. Part A contains 24 items related to the elements of missed nursing care, with answers ranging from always omitted (1) to never omitted (5).

Part B comprises 17 items, related to the reasons for not providing the care, with choices ranging from significant reason (1) to no reason for omitting care (4). The initial part of the instrument includes questions addressing the participants' demographic characteristics, work conditions and satisfaction. In order to obtain the final score, answers need to be recoded, with higher scores indicating higher levels of missed care. The authors of the original version conducted construct validity, internal consistency and stability (test-retest) tests in two samples of professionals (including 459 subjects in the first phase and 639 in the second). Test results showed that the *MISSCARE Survey* was valid and reliable⁽¹⁰⁾.

Procedures for cultural adaptation

The cultural adaptation process of the *MISSCARE Survey* was done according to standard procedures for translation of research instruments⁽¹³⁻¹⁵⁾. To obtain the first Brazilian consensus version, two translators elaborated two independent English-to-Portuguese translations of the instrument. Both were familiar with the study objectives and were fluent in English and Portuguese. One was a nurse with a Ph.D. and prior experience in university teaching. The second held a degree in Foreign Languages and experience as a technical translator in the health field. The researchers (student and advisor) evaluated and compared both translations, obtaining the first Portuguese consensus version.

A committee of five nurses with clinical experience and fluent in English were invited as experts to assess face and content validity, with a view to analyzing whether cultural, conceptual and idiomatic equivalence had been maintained between the first Portuguese consensus version and the original version of the *MISSCARE Survey*. All nurses held a Master's or Doctoral degree in nursing. Three of them worked at Ribeirão Preto College of Nursing: one as a faculty and two as teaching and research assistants. The other two nurses worked at the university hospital and were doctoral candidates. Each expert received an invitation to participate in a meeting with the researchers and signed the free and informed consent form. During that meeting, the committee discussed the points of equivalence that were to be analyzed. The minimum inter-expert agreement level for the two versions was set at 80%. The suggested changes were made, agreed upon by the committee members, resulting in the second Brazilian consensus version.

The back-translation of this consensus version was performed by a translator who had been educated in the

United States, was fluent in Portuguese and English and blinded to the study objectives, as well as to the original version of the instrument. The back-translated version was then forwarded to the original author for validation, and was approved after minor revisions. Thus, the third consensus version was completed.

Three members of the University Hospital nursing team performed the semantic analysis of that version. The team evaluated the items of the *MISSCARE Survey Brazilian* in terms of any changes required in the wording and presentation for the sake of a better understanding by the target population. Thus, a fourth consensus version was obtained and used in the next phase, the pre-test.

The pre-test involved a survey of 60 nursing staff members (14 RN, 38 nursing assistants and eight nursing technicians) from the Ribeirão Preto University Hospital between October 21st and 28th, 2011.

The staff members, randomly selected using the list of professionals working at the institution at that time, were invited to participate, informed about the purpose of the study and, upon their agreement, they signed the free and informed consent form. One of the researchers collected the data during individual appointments, which took place at the hospital on the date and time suggested by the Head of the Nursing Department, in order to avoid any interference in their work activities. The mean time taken to complete the *MISSCARE Survey* was twenty minutes.

Cronbach's alpha coefficient was used for the reliability (internal consistency) analysis of the adapted instrument. Coefficients range between zero and one. The higher the value, the greater the internal consistency of the measure will be. Low internal consistency means that the items measure different attributes or that participants' answers are inconsistent. Coefficients superior to 0.70 are considered acceptable reliability levels⁽¹⁶⁻¹⁷⁾.

Results

The Expert Committee's analysis of the conceptual, semantic, idiomatic, experiential and operational equivalence was aimed at the practical applicability of the

terms used in the *MISSCARE Survey-Brazilian* version. The members evaluated all of the items together. Upon their suggestions, some changes in wording were made, that is, some words were modified, excluded or replaced by new ones. Next, the demographic characteristics of the study sample, work conditions and satisfaction with work are described, according to the information in the *MISSCARE Survey*.

Among the 60 pre-test participants, 42 (70%) fully answered all of the item on the *MISSCARE Survey Brazilian*. Forty-five (75%) of the subjects were female. Regarding their occupation, 38 (63.3%) were nursing assistants, 14 (23.3%) RNs and 8 (13.3%) nursing technicians.

The study population had a secondary education level (60%) and over 10 years on the current job (61.7%). The mean age of the professionals was 40.4 years. Few of the respondents reported working rotating shifts. Most worked 12-hour shifts with an average 40.5 hours per week.

As observed, 91.7% of the professionals spent most of their working time on the unit they were assigned to. Most worked more than 12 hours of overtime (58.3%) per week and had not been absent from work (66.7%) during the three months before data collection.

A majority of staff members did not plan to leave their position or current role in the following year (83.3%). Regarding the number of employees at the workplace, 19 (31.7%) professionals considered the staff number appropriate 75% of the time. Eleven (18.3%) nursing staff, however, felt that staff numbers were never appropriate.

Most participants were satisfied or very satisfied with their current job position (68.3%), as well as with the profession (73.4%). On the other hand, regarding teamwork, only 29 (48.3%) participants were very satisfied or satisfied and 14 (23.4%) reported some level of dissatisfaction.

Table 1 shows the percentages of missed nursing care for part A of the *MISSCARE Survey Brazilian*, with answers ranging from always omitted (1) and never omitted (5). Answers were grouped according to the original study⁽¹⁰⁾ and instructions by the primary author.

Table 1 – Frequency distribution and means of answers regarding missed nursing care on the 24 instrument items, grouped as occasionally, frequently and always. Ribeirão Preto, SP, Brazil, 2011

Items from MISSCARE Survey Brazilian, Part A	f (%)	Mean (SD)
Mudar o decúbito do paciente a cada duas horas	36 (63.2)	2.7 (1.1)
Assistência às necessidades higiênicas dentro de 5 minutos da solicitação	29 (50.9)	2.5 (1.1)
Participação em discussão da equipe interdisciplinar sobre a assistência ao paciente	27 (47.4)	2.6 (1.3)

(continue...)

Table 1 - (continuation)

Items from MISSCARE Survey Brazilian, Part A	f (%)	Mean (SD)
<i>Deambulação três vezes por dia ou conforme prescrito</i>	22 (38.6)	2.4 (1.2)
<i>Atendimento à chamada do paciente é feita dentro de 5 minutos</i>	20 (35.1)	2.3 (1.2)
<i>Ensino ao paciente sobre a doença, exames clínico-laboratoriais e exames diagnósticos</i>	20 (35.1)	2.3 (1.2)
<i>Apoio emocional ao paciente e/ou família</i>	18 (31.6)	2.1 (1.1)
<i>Documentação completa de todos os dados necessários</i>	17 (29.8)	2.0 (1.2)
<i>Alimentar o paciente enquanto a refeição ainda está quente</i>	16 (28.1)	2.1 (1.1)
<i>Administrar os medicamentos dentro de 30 minutos antes ou depois do horário prescrito</i>	16 (28.1)	2.1 (1.2)
<i>Solicitações para administração de medicamentos prescritos "se necessário" são atendidas em 15 minutos</i>	14 (24.6)	2.0 (1.1)
<i>Avaliação da efetividade dos medicamentos administrados</i>	14 (24.6)	1.8 (1.2)
<i>Planejamento e ensino do paciente para alta hospitalar</i>	13 (22.8)	1.9 (1.1)
<i>Reavaliação focada de acordo com a condição do paciente</i>	13 (22.8)	2.0 (1.0)
<i>Cuidados com pele/feridas</i>	13 (22.8)	1.8 (1.1)
<i>Avaliação do paciente a cada turno</i>	12 (21.1)	1.9 (1.1)
<i>Controle do balanço hídrico - entrada e saída</i>	12 (21.1)	1.9 (1.3)
<i>Avaliação dos sinais vitais conforme prescrito</i>	11 (19.3)	1.6 (1.1)
<i>Higiene bucal</i>	11 (19.3)	1.7 (1.0)
<i>Oferecer as refeições para os pacientes que se alimentam sozinhos</i>	10 (17.5)	1.8 (1.1)
<i>Higienização das mãos</i>	10 (17.5)	1.6 (1.1)
<i>Banho/higiene do paciente/cuidados com a pele</i>	9 (15.8)	1.6 (1.1)
<i>Cuidados com punção venosa periférica e central e avaliações de acordo com as normas da instituição</i>	9 (15.8)	1.7 (1.0)
<i>Controle da glicemia capilar conforme prescrito</i>	8 (14.0)	1.6 (1.2)

Turning patient every two hours, assisting with toileting needs within five minutes of request, attend interdisciplinary care conferences whenever held, and ambulation three times per day or as ordered were the four most often omitted elements of nursing care, whereas bedside glucose monitoring as ordered, IV/central line care and assessment according to hospital policy, patient bathing/skin care, and hand washing were the least omitted.

Table 2 shows the percentages of answers regarding reasons for missed nursing care for part B of the *MISSCARE Survey Brazilian*, with answer choices ranging from significant reason (1) to no reason for omitting care (4). Answers were grouped according to instructions by the primary author of the original survey.

Table 2 – Frequency distribution of answers regarding reasons for missed nursing care on the 17 items of the instrument, grouped as significant and moderate. Ribeirão Preto-SP, Brazil, 2011

Factor	Item (Part B)	f (%)	Mean (SD)
	Reasons for Missed Nursing Care		
1. Comunicação	<i>Os membros da equipe não se ajudam entre si</i>	33 (57.9)	2.6 (1.1)
	<i>Distribuição de pacientes por profissional não é equilibrada</i>	29 (50.9)	2.6 (1.0)
	<i>O profissional responsável pelo cuidado estava fora da unidade</i>	25 (43.8)	2.3 (1.1)
	<i>O auxiliar de enfermagem não comunicou a assistência não realizada</i>	24 (42.1)	2.3 (1.1)
	<i>Tensão ou problemas de comunicação dentro da equipe de enfermagem</i>	23 (40.3)	2.3 (1.1)
	<i>Outros profissionais da equipe não forneceram a assistência necessária</i>	21 (36.8)	2.1 (1.1)
	<i>Tensão ou problemas de comunicação com a equipe médica</i>	21 (36.8)	2.2 (1.1)
	<i>Passagem de plantão inadequada</i>	19 (33.3)	2.1 (1.0)
	<i>Tensão ou problemas de comunicação com outros departamentos</i>	19 (33.3)	2.1 (1.1)
2. Recursos Materiais	<i>Materiais/Equipamentos não funcionaram adequadamente</i>	27 (47.4)	2.6 (1.1)
	<i>Medicamentos não estavam disponíveis quando necessários</i>	27 (47.4)	2.5 (1.1)
	<i>Materiais/Equipamentos não estavam disponíveis quando necessário</i>	24 (42.1)	2.4 (1.1)
3. Recursos Laborais	<i>Número inadequado de pessoal</i>	40 (70.1)	3.1 (1.1)
	<i>Número inadequado de pessoal para a assistência ou tarefas administrativas</i>	38 (66.7)	2.9 (1.0)
	<i>Aumento inesperado no volume e/ou na gravidade dos pacientes da unidade</i>	32 (56.2)	2.6 (1.2)
	<i>Situações de urgência dos pacientes</i>	30 (52.7)	2.4 (1.3)
	<i>Grande quantidade de admissões e altas</i>	27 (47.4)	2.5 (1.1)

The respondents identified inappropriate number of staff (Mean=3.1; SD=1.1) as the main reason for missed care, followed by lack of back up support from team members (Mean=2.6; SD=1.1) and unexpected rise in patient volume and/or acuity at the unit (Mean=2.6; SD=1.2).

Regarding internal consistency, Cronbach's alpha coefficients for parts A and B of the instrument equaled 0.964 and 0.924, respectively. Considering the results of part B, the following coefficients were obtained: 0.906 for communication, 0.797 for material resources and 0.785 for working resources.

Discussion

The cultural adaptation process of the Brazilian version of the *MISSCARE Survey* was conducted in compliance with scientific literature. The present study presented the face and content validity and internal consistency of the adapted version. Further studies will be conducted to evaluate additional psychometric properties to permit its use in Brazil.

Considering the professionals' demographic characteristics, most staff members were female, nurse assistants, with secondary education level, mean age of 40.4 years, and working 12-hour shifts. These data represent the reality at Brazilian hospitals, where the majority of the nursing staff is female and hold a nurse assistant position. In 2010, the Brazilian nursing workforce was composed by 18.64% of RN, 43.16% of nursing technicians and 38.19% of nurse assistants⁽¹⁸⁾. In comparison with the results obtained in the United States⁽¹⁰⁾, the authors of the original instrument found that most participants were also female (92.16%), worked full-time, possessed ten years of professional experience in nursing on average and the predominant education level was a Bachelor's degree.

Regarding the predominance of 12-hour shifts, this system is generally associated to the worker's need to hold two jobs, which is an important aspect of nursing work in the situation studied.

Studies suggest that the probability of making errors is three times greater when nurses work in shifts of 12 hours or more. A trend towards increased risks exists when nurses work long shifts and working over 40 hours per week significantly increases the chance of errors⁽¹⁹⁾.

Considering workers' satisfaction, most participants were satisfied with the position and the profession, but this was not observed for teamwork performance. These

outcomes are noteworthy, considering that, according to literature, higher levels of teamwork and perceptions of team adequacy lead to greater satisfaction with the current position and also with the profession⁽²⁰⁾.

In another study, in which the relations between missed nursing care and satisfaction were verified, higher perceived levels of missed care corresponded to higher levels of work dissatisfaction. Nursing staff members who reported lower levels of missed care showed greater satisfaction with their work and profession. In the study, it was emphasized that nurses are fully aware of the missed care and that, when there are negative effects, their satisfaction is reduced⁽²¹⁾.

The reliability of the Brazilian version of the *MISSCARE survey*, verified by the internal consistency of its items, obtained by Cronbach's alpha coefficient, showed that the results obtained for parts A and B were satisfactory, with values superior to 0.70. For the three factors of part B, the alpha coefficients were similar to the values obtained for the original version, in which the highest coefficient was found for the communication factor, followed by material resources and working resources. Regarding reliability, Cronbach's alpha coefficients for parts A and B of the instrument equaled 0.964 and 0.924 respectively. Considering the factors of part B, 0.906 was found for communication, 0.797 for material resources and 0.785 for working resources. Therefore, the survey instrument presented good internal consistency, with values superior to 0.70, considered acceptable for reliability.

In the present study, face and content validity outcomes were presented for the adapted version of the *MISSCARE Survey*, as well as the initial evaluation of its internal consistency. Additional studies should evaluate other aspects of the psychometric properties of this instrument.

Conclusion

In this paper, the cultural adaptation process and internal consistency analysis of the *MISSCARE Survey Brazilian* were addressed. The instrument demonstrated content validity according to experts, making it appropriate for application in the Brazilian context. The methods used in this study, however, do not permit the identification of the elements of missed care, nor the reasons given for missing care, which will only be possible at the end of the validation process. Further tests are needed to assess other psychometric properties, including the investigation of reliability through a test-retest.

Using the instrument in hospitals could provide critical information about what is (or is not) occurring in nursing care delivery and provide a means to improve care, using information to guide any changes necessary. The instrument has the power to identify barriers or problematic areas that need to be corrected.

The availability of this tool will enable researchers to study the impact of missed nursing care on healthcare outcomes, such as falls, pressure ulcers and hospital infection, as well as on organizational variables, such as absenteeism rates, turnover and teamwork. The instrument can help to obtain new knowledge in the field of patient safety and develop actions aiming for non-punitive practices that encourage the notification of instances of missed nursing care and a consistent analysis of its causes, with a view to improving healthcare, patient safety and professional satisfaction.

The adaptation and validation of an instrument involves a multiple-stage process and requires satisfactory outcomes with a view to its availability and reliable application. At the end of the validation process, an instrument will be available that permits research to investigate the relationship between the variables measured in the *MISSCARE Survey* and nursing performance indicators.

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References

1. World Health Organization/World Alliance for Patient Safety. Summary of the evidence on patient safety: implications for research. The Research Priority Setting Working Group of the World Alliance for Patient Safety. Geneva: World Health Organization; 2008.
2. Chianca TCM. Nursing faults in the recovery period of surgical patients. *Rev. Latino-Am. Enfermagem*. 2006;14(6):879-86.
3. Anselmi ML, Peduzzi M, Santos CB. Errors in the administration of intravenous medication in Brazilian hospitals. *J Clin Nurs*. 2007;16(10):1839-47.
4. Caliri MHL. A utilização da pesquisa na prática clínica de enfermagem. Limites e possibilidades [tese de livre-docência]. Ribeirão Preto (SP): Escola de Enfermagem de Ribeirão Preto da Universidade de São Paulo; 2002. 143 p.
5. Cassiani SHB. A segurança do paciente e o paradoxo no uso de medicamentos. *Rev Bras Enferm*. 2005;58(1):95-9.
6. Kalisch BJ. Missed nursing care: a qualitative study. *J Nurs Care Qual*. 2006;21(4):306-13.
7. Kalisch BJ, Landstrom GJ, Hinshaw AS. Missed nursing care: a concept analysis. *J Adv Nurs*. 2009;65(7):1509-17.
8. Aiken LH, Clarke SP, Sloane DM, Lake ET, Cheney T. Effects of hospital care environment on patient mortality and nurse outcomes. *J Nurs Adm*. 2008;38(5):223-9.
9. Kalisch BJ, Aebbersold M. Interruptions and multitasking in nursing care. *Joint Comm J Qual Patient Saf*. 2010;36(3):126-32.
10. Kalisch BJ, Williams RA. Development and psychometric testing of a tool to measure missed nursing care. *J Nurs Adm*. 2009;39(5):211-9.
11. Rotta CSG. Utilização de indicadores de desempenho hospitalar como instrumento gerencial [tese de doutorado]. São Paulo (SP): Faculdade de Saúde Pública da Universidade de São Paulo; 2004.142 p.
12. Gabriel CS, Melo MRAC, Rocha FLR, Bernardes A, Miguelaci T, Silva MLP. Utilização de indicadores de desempenho em serviço de enfermagem de hospital público. *Rev. Latino-Am. Enfermagem* [periódico na Internet]. set-out. 2011 [acesso em: 8 out 2012]; 19(5): [09 telas]. Disponível em: http://www.scielo.br/pdf/rlae/v19n5/pt_24.pdf
13. Guillemin F, Bombardier C, Beaton DE. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *J Clin Epidemiol*. 1993;46(12):1412-32.
14. Echevarria-Guanilo ME, Rossi LA, Dantas RAS, Santos CB. Cross-cultural adaptation of the Burns Specific Pain Anxiety Scale - BSPAS to be used with Brazilian burned patients. *Rev. Latino-Am. Enfermagem*. 2006, 14(4):526-33.
15. Ferrer M, Alonso J, Prieto L, Plaza V, Monsó E, Marrades R, et al. Validity and reliability of the St George's Respiratory Questionnaire after adaptation to a different language and culture: the Spanish example. *Eur Respir J*. 1996;9(6):1160-6.
16. Portney LG, Watkins MP. Foundations of clinical research - applications to practice. 3th. ed. New Jersey: Prentice Hall; 2009. 892 p.
17. Keszei AP, Novak M, Streiner DL. Introduction to health measurement scales. *J Psychosomatic Res*. 2010;68(4):319-23.
18. Luz S. Enfermagem: Quantos Somos X Onde Estamos [internet] 2010 [acesso 15 ago 2012] Disponível em

http://www.portaldafenfermagem.com.br/destaque_read.asp?id=1279

19. Rogers AE, Hwang WT, Scott LD, Aiken LH, Dinges DF. The working hours of hospital staff nurses and patient safety. *Health Aff.* 2004;23(4):202-12.

20. Kalisch BJ, Lee H, Rochman M. Nursing staff teamwork and job satisfaction. *J Nurs Manag.* 2010;18:938-47.

21. Kalisch BJ, Tschannen D. Does missed nursing care predict job satisfaction? *J Healthc Manag.* 2011;56(2):117-33.