

## ORIGINAL PAPER

## MISSED NURSING CARE MEASURED BY MISSCARE SURVEY – THE FIRST PILOT STUDY IN THE CZECH REPUBLIC AND SLOVAKIA

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**Aim:** The aims of the pilot study were a) to compare the amount, type, and reasons for missed nursing care in the Czech Republic and Slovakia; and b) to investigate the psychometric properties of the Slovak and Czech versions of the *MISSCARE Survey*. **Design:** Cross-sectional study. **Methods:** For measurement of missed nursing care *The Missed Nursing Care (MISSCARE) Survey* was used. The sample consisted of 226 hospital nurses in the Czech Republic and Slovakia. **Results:** The internal consistency of Part A measured by Cronbach alpha was 0.939 for the Czech version and 0.945 for the Slovak version of the *MISSCARE Survey*. The average score for missed nursing care was  $1.64 \pm 0.51$  for the Czech Republic, and  $1.99 \pm 0.83$  for Slovakia. Shortfalls in labor resources were cited as the chief reason for missed nursing care in the countries surveyed. **Conclusion:** Psychometric testing showed that the Czech and Slovak versions of the *MISSCARE Survey* are reliable and valid tools, and can be used for measuring missed nursing care.

**Keywords:** hospital, *MISSCARE Survey*, missed nursing care, nurses, psychometric properties, unfinished nursing care.**Introduction**

Recently, missed nursing care has started to be recognized as a significant hidden problem in nursing work. According to Kalisch and Williams (2009), this phenomenon refers to any aspect of required care that is omitted in part or in whole, or delayed (Kalisch, Williams, 2009). Missed nursing care is not the only term used to describe the phenomenon of failure to provide aspects of standard required nursing care. There are several other terms used in the literature, such as “unfinished care”, “rationed nursing care”, “nursing care rationing”, or “care left undone”.

The issue of missed care in medicine has been investigated before. Despite general agreement among the majority of professionals that health care expenditure should be taken into account, there is considerable debate concerning the acceptability, under any circumstances, of rationing health care (Ubel, Goold, 1998). Another issue in this debate arises from divergence of opinion over whether healthcare expenditure can be kept within bounds by eliminating waste rather than by rationing care.

Furthermore, there is a failure to agree on what constitutes rationed health care. Members of the public may share identical views on the services that should be provided to patients, but strongly disagree about the suitability of rationing (Ubel, Goold, 1998). The components of appropriate care are covered in the six objectives for improvement: care that is safe, efficient, effective, equitable, patient centered, and timely (VanFosson, Jones, Yoder, 2016).

Several conceptual analyses and conceptual frameworks have been published in terms of rationed/missed/unfinished nursing care (Schubert et al., 2007; Lucero, Lake, Aiken, 2009; Kalisch, Landstrom, Hinshaw, 2009; Hessels et al., 2015; Bail, Grealish, 2016).

The work of Lucero, Lake, Aiken, (2009) was guided by the Process of Care and Outcomes Model. This conceptual framework has its roots in Donabedian’s quality paradigm (1966) and the Quality Health Outcomes Model (Mitchell, Ferketich, Jennings, 1998). Donabedian emphasized the linear relationship between doing things properly (i.e. processes) and achieving the desired results (i.e. outcomes), while in their paper, Lucero, Lake, Aiken (2009) investigated nursing care quality by analyzing necessary activities left undone by nurses. The Process of Care and Outcomes Model posits a temporal relationship between patient-related

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factors, the care environment, the process of care, and the outcomes achieved. The first three factors have a direct impact on outcomes (Lucero, Lake, Aiken, 2009).

Another well-known model of the phenomenon is the Missed Nursing Care Model (Kalisch, Landstrom, Hinshaw, 2009). This model shows the concept's causes and consequences. Determinants such as labor resources, material resources, and communication/teamwork interact with the nursing process, and are filtered by nurses' internal processes. The consequences are risks to patient safety. In further research, Kalisch, Tschannen, Lee (2011) presented a conceptual framework examining three concepts: structure (e.g., patient care unit, hospital, individual characteristics of nurses), process (missed nursing care), and outcomes (staff outcomes such as job satisfaction, and patient outcomes such as falls or pressure ulcers).

The Kalisch, Landstrom, Hinshaw (2009) model was adapted by Hessels et al. (2015) and published in 2015 as a conceptual model for their work. The model indicates that characteristics of the organizational work environment (material resources: availability of medications, supplies and viable equipment; labor resources: nurses – education, skills; inter-professional relationships, communication, and teamwork) affect nursing care and decisions regarding which nursing tasks are to be omitted, which, in turn, leads to negative patient outcomes. When time is short, each nurse must prioritize which nursing actions to provide and which to omit (Hessels et al., 2015).

Missed nursing care is becoming an important indicator of patient safety, as well as patient satisfaction (Hessels et al., 2015). In recent years the number of papers related to missed nursing care has increased considerably, and a quick review reveals that incomplete care is a problem worldwide, albeit masked by inconsistencies in terminology (Papastavrou, Andreou, Efsthathiou, 2014; Jones, Hamilton, Murry, 2015).

As missed nursing care is a new concept in the profession, Czech and Slovak nurses are not yet familiar with it or its meaning. One reason is that missed nursing care is not a commonly used term in either country, and it is very difficult to begin using this term without a deeper understanding of the concept. Although a number of papers and studies have been published throughout the world, there has been no study on missed nursing care in the Czech Republic or Slovakia.

## Aim

The aims of the pilot study were a) to compare the amount, type, and reasons for missed nursing care in the Czech Republic and Slovakia; and b) to investigate the psychometric properties of the Slovak and Czech versions of the *MISSCARE Survey*.

## Methods

### Design

Cross-sectional study.

### Sample

To ensure variation in hospital size (from 200 to 1300 beds) and type (teaching, general, private, public) a purposive sample of five acute care hospitals was used, in the Czech Republic and Slovakia. In this pilot study 11 medical – surgical, geriatric, and intensive care units in hospitals were included.

The study sample consisted of 226 hospital nurses (registered nurses – RNs) providing direct patient care (Table 1). The response rate was 77.93%. Ninety-two (40.2%) nurses were from Slovakia, and 134 nurses (59.8%) were from the Czech Republic. Most respondents were female (94.7%). The majority (71.3%) of nurses in the sample had graduated from secondary nursing schools. Almost one third (28.7%) of nurses had a bachelor degree or higher, and 37.2% of nurses had a specialization. Two hundred nine nurses (92.9%) reported a working week of over 30 hours. The study population had worked over ten years in their current job (38.9%). A significant proportion of the respondents (68.9%) reported working rotating shifts. 52.4% of the nurses worked more than 12 hours of overtime per week. Staff and unit characteristics are summarized in Table 1.

### Data collection

Data were collected during years 2017 and 2018.

For measurement of missed nursing care, *The Missed Nursing Care (MISSCARE) Survey* (Kalisch, Williams, 2009) was used.

The *MISSCARE Survey* consists of three parts. The initial part of the instrument includes items related to demographic and background variables (work conditions and satisfaction). The second part (Part A) includes 24 items related to missed nursing care activities (missed nursing care themes, Kalisch, 2006). Part B consists of 17 items related to the reasons for routinely missed nursing care. In order to calculate the overall score, answers should be recoded, with higher scores indicating higher levels

of missed care or a stronger reason for missed nursing care activities. A higher score indicates a higher level of missed nursing care (Part A), and a stronger reason for missed nursing care (Part B).

#### *Translation procedure for the Czech and Slovak versions of the MISSCARE Survey*

First, we obtained official approval from the author to use the *MISSCARE Survey* for the purpose of this study. Subsequently, a translation into Czech and Slovak was completed. The standard translation process comprised the following stages: the creation of two independent forward translations, which were combined to form a single forward translation; then two independent reverse translations were produced and analyzed; followed by a review by a nurse expert, and pilot testing. The first step (forward translation) was performed by two independent translators and combined to form a single version, which was subsequently translated back into English and compared with the original English version by another two independent translators. Forward and reverse translators, and nurse experts were Slovak/Czech native speakers, fluent in English. The third phase of linguistic validation was an evaluation of the relevance and applicability of the translated versions by a panel of experts (five experienced nurses).

#### *Data analysis*

The statistical analysis was performed by the Statistical Package for the Social Sciences 20.0. Means, standard deviation ( $\pm$  SD), absolute and relative frequencies were calculated within descriptive statistical analysis. Since the data were normally distributed, the analysis was performed using parametric tests. For group comparisons, a one way ANOVA procedure was performed. Proportion comparisons were carried out with Pearson's chi-square test. To determine the associations and correlations between variables, parametric Pearson correlations were used. A p-value  $< 0.05$  was taken to indicate statistical significance for all comparisons. Psychometric procedures included factor analysis and reliability analysis procedures. The structure of the Slovak and Czech versions of the *MISSCARE Survey* (Part B) was studied using exploratory factor analysis (EFA). Dimensionality of both versions was confirmed by Principal Component Analysis (PCA) with Varimax rotation. Cronbach's alpha, item total correlations, and item domain correlations were calculated to determine the internal reliability of the *MISSCARE Survey*. Overall missing data were also reported.

**Table 1** The characteristics of participants in the pilot-testing

Variable	n	%
Age (n = 226)		
< 25 years	24	10.6
25–34 years	44	19.5
35–44 years	71	31.4
45–54 years	59	26.1
55–64 years	28	12.4
> 65 years	0.00	0.00
Highest nursing degree (n = 223)		
Secondary nursing school or diploma	159	71.3
Bachelor degree or higher	64	28.7
Professional experience (n = 221)		
less than 6 months	4	1.8
from 6 months to 2 years	17	7.7
from 2 years to 5 years	17	7.7
from 5 years to 10 years	25	11.3
more than 10 years	158	71.5
Years of experience on current unit (n = 226)		
less than 6 months	12	5.3
from 6 months to 2 years	32	14.2
from 2 years to 5 years	35	15.5
from 5 years to 10 years	59	26.1
more than 10 years	88	38.9
Postgraduate Education – specialized programs for nurses (n = 226)		
RN without specialization	142	62.8
RN with specialization	84	37.2
Work hours (n = 180)		
days	49	27.2
evenings	4	2.2
nights	3	1.7
rotating shifts	124	68.9
Hours of overtime in past 3 months (n = 225)		
none	61	27.1
1–12 hours	46	20.4
more than 12 hours	118	52.4
Hours worked per week (n = 225)		
less than 30 hours	16	7.1
30 hours or more	209	92.9
Days or shifts absent in past 3 months (n = 226)		
none – 1 day or shift	184	81.4
2 or more days or shifts	42	18.6
Perceived adequacy of staffing (n = 222)		
100% of the time	11	4.9
75% of the time	49	21.7
50% of the time	77	34.1
25% or less of the time	85	37.6
Leaving intentions of current position (n = 223)		
in the next 6 months – 1 year	33	14.8
no plans to leave	190	75.2
Hospital (n = 226)		
public	57	25.2
private	169	74.8

## Results

### Job satisfaction

The initial part of the instrument includes three items related to job satisfaction: satisfaction with the profession, satisfaction with teamwork on the unit, and satisfaction with current job position. Respondents evaluated each item of the questionnaire using a five-point Likert scale (1 = very dissatisfied to 5 = very satisfied). The mean scores of satisfaction with the profession ( $3.92 \pm 0.74$ ); current position ( $3.95 \pm 0.75$ ); and level of teamwork ( $3.77 \pm 0.99$ ) demonstrate balanced levels of satisfaction with nurses' current positions, as well as with the profession, and the level of teamwork. Significant differences were found between Czech and Slovak nurses in their satisfaction with the profession ( $F = 5.03$ ;  $p = 0.02$ ); current position ( $F = 4.32$ ;  $p = 0.03$ ), and level of teamwork ( $F = 24.47$ ;

$p = 0.000$ ). Czech nurses scored higher on all the aforementioned items relating to job satisfaction.

### Elements of missed nursing care

For Part A, 83.7 % of participants answered all items in the Slovak version, and 87.3% of participants answered all items in the Czech version. Internal consistency was used to measure the reliability of both versions. Cronbach alpha for Part A was 0.939 for the Czech version, and 0.945 for the Slovak version, indicating that items had very good consistency.

Staff nurses in Slovakia reported more missed care than their counterparts in the Czech Republic. A comparison of specific elements of nursing care in the Czech Republic versus Slovakia based on mean scores (mean frequencies) is summarized in Table 2.

**Table 2** Elements of Missed Nursing Care: Comparison of the Czech Republic and Slovakia (one way ANOVA)

Item	Czech Republic		Slovakia		F**	p***
	mean ( $\pm$ SD)	Rank*	mean ( $\pm$ SD)	Rank*		
<b>Assessment</b>						
Full documentation of all necessary data	1.92 (0.82)	10	2.09 (1.13)	4	1.55	0.21
IV site care and assessment according to hospital policy	1.39 (0.76)	17	1.73 (0.86)	21	9.26	0.003
Monitoring intake/output	1.50 (0.80)	6	2.17 (3.29)	17	5.03	0.02
Vital signs assessed as ordered	1.63 (0.88)	18	1.71 (0.89)	10	0.38	0.53
Focused reassessment according to patient	1.58 (0.77)	7	2.13 (1.24)	12	16.10	0.000
Hand washing	1.56 (0.85)	22	1.49 (0.79)	13	0.41	0.52
Bedside glucose monitoring as ordered	1.15 (0.57)	23	1.48 (0.74)	24	14.02	0.000
Patient assessments performed each shift	1.41 (0.86)	19	1.71 (0.91)	20	6.04	0.01
<b>Interventions – Individual Needs</b>						
Assess effectiveness of medications	1.66 (0.92)	9	2.10 (1.21)	9	9.21	0.003
PRN <sup>1</sup> medication requests acted on within five minutes	1.47 (0.77)	14	1.92 (1.06)	18	13.85	0.000
Medications administered within 30 minutes before or after scheduled time	1.88 (0.89)	13	1.93 (0.96)	6	0.15	0.69
Assist with toileting needs within five minutes of request	1.63 (0.76)	15	1.87 (0.92)	11	4.57	0.03
Response to call light is provided within five minutes	1.45 (0.81)	16	1.79 (0.94)	19	8.15	0.005
Emotional Support to patient and/or family	1.98 (0.86)	2	2.34 (1.18)	3	6.84	0.01
<b>Interventions – Basic Care</b>						
Ambulation three times per day or as ordered	3.06 (1.03)	1	2.81 (1.28)	1	2.53	0.11
Turning patient every two hours	1.87 (0.93)	4	2.24 (1.11)	8	7.17	0.008
Mouth Care	1.88 (0.93)	5	2.22 (1.05)	7	6.68	0.01
Feeding patient when the food is still warm	1.52 (0.86)	8	2.12 (1.01)	15	22.68	0.000
Patient bathing/skin care	1.55 (0.79)	11	1.97 (0.85)	14	13.94	0.000
Skin/wound care					4.14	0.04
Setting up meals for patients who feed themselves	1.36 (0.81)	20	1.62 (0.85)	23	5.15	0.02
<b>Planning</b>						
Patient teaching	1.89 (0.88)	3	2.25 (1.10)	5	7.18	0.008
Attend interdisciplinary care conferences whenever held	2.30 (0.99)	24	1.47 (0.70)	2	47.07	0.000
Ensuring discharge planning	1.51 (0.89)	7	1.96 (1.04)	16	11.52	0.001
<b>Overall mean score</b>	<b>1.64 (0.51)</b>		<b>1.99 (0.83)</b>		<b>12.61</b>	<b>0.000</b>

\*The items of the MISSCARE Survey are ranked according to the mean score from the elements perceived as most frequently missed to the least frequently missed; \*\*F – statistic; \*\*\*p-value, <sup>1</sup> „pro re nata“ = as needed

Significant differences were found in 19 elements of the *MISSCARE Survey*, as well as in the overall mean score (Table 2). Slovak nurses reported more missed nursing care than Czech nurses for 18 of the 24 domains of nursing care (Table 2). Five elements of missed care were not significantly different in the two countries: documentation of all necessary data; vital signs assessed; bedside glucose monitoring; medications administered within 30 minutes, and ambulation. Although Slovak nurses reported missing

most of the elements in Part A more often than Czech nurses, there is a discernible pattern in the amount and type of missed nursing care, especially vis-a-vis categories related to mobility (ambulation), and emotional and psychological needs of patients (patient/family education, emotional support). However, results based on the percentage of positive responses (occasionally, frequently, or always missed activities) indicated differences in 18 elements of the *MISSCARE Survey* (Table 3).

**Table 3** Elements of Missed Nursing Care: Comparison of the Slovak and Czech republics (Pearson chi-square test)

Item	Czech Republic n (%)*	Slovakia n (%)*	Pearson's chi-square test	p**
<b>Assessment</b>				
Full documentation of all necessary data	30 (13.5)	31 (13.9)	3.16	0.07
IV site care and assessment according to hospital policy	7 (3.2)	18 (8.3)	11.59	0.001
Monitoring intake/output	11 (5)	26 (11.7)	16.92	0.000
Vital signs assessed as ordered	22 (9.8)	21 (9.3)	1.38	0.23
Focused reassessment according to patient	9 (4.1)	31 (14)	26.6	0.000
Hand washing	22 (9.9)	13 (5.9)	0.31	0.57
Bedside glucose monitoring as ordered	4 (1.8)	12 (5.4)	8.002	0.005
Patient assessments performed each shift	13 (5.9)	15 (6.8)	1.88	0.17
<b>Interventions – Individual Needs</b>				
Assess effectiveness of medications	24 (10.9)	33 (15)	9.71	0.002
PRN <sup>1</sup> medication requests acted on within 5 minutes	9 (4)	26 (11.7)	18.68	0.000
Medications administered within 30 minutes before or after scheduled time	26 (11.8)	26 (11.8)	2.09	0.14
Assist with toileting needs within five minutes of request	16 (7.2)	22 (9.9)	5.23	0.02
Response to call light is provided within five minutes	14 (6.4)	24 (11)	9.66	0.002
Emotional Support to patient and/or family	35 (15.6)	38 (17)	5.39	0.02
<b>Interventions – Basic Care</b>				
Ambulation three times per day or as ordered	90 (41.4)	52 (23.7)	4.04	0.05
Turning patient every two hours	25 (11.3)	39 (17.6)	13.82	0.000
Mouth Care	28 (12.7)	34 (15.4)	6.18	0.01
Feeding patient when the food is still warm	14 (6.4)	37 (16.8)	25.76	0.000
Patient bathing/skin care	13 (5.9)	25 (11.4)	11.29	0.001
Skin/wound care	6 (2.7)	11 (5)	4.13	0.04
Setting up meals for patients who feed themselves	12 (5.5)	14 (6.4)	1.89	0.16
<b>Planning</b>				
Patient teaching	29 (13)	34 (15.2)	5.85	0.01
Attend interdisciplinary care conferences whenever held	52 (23.7)	9 (4.1)	25.02	0.000
Ensuring discharge planning	15 (6.8)	28 (12.7)	12.12	0.001

\*Missed = Occasionally + Frequently + Always; \*\*p-value, <sup>1</sup> „pro re nata“ = as needed

#### Reasons for missed nursing care

For Part B, 96.7 % of participants answered all items in the Slovak version and 87.3% in the Czech version. Cronbach alphas for the three subscales of the Czech version – communication, material resources, labor resources – were 0.919, 0.880, and 0.838 respectively. Cronbach alphas for the three subscales of the Slovak version – communication, material resources, labor resources – were 0.965,

0.958, and 0.924 respectively. An exploratory factor analysis (EFA), using the principal components method with Varimax rotation, was conducted in order to determine the *MISSCARE Survey* structure of the Czech and Slovak versions. All predictions regarding the performance of this analysis were confirmed. The Kaiser-Meyer-Olkin value was 0.92 in the Slovak version and 0.93 in the Czech version. The *MISSCARE Survey* – Czech/Slovak versions

were significant ( $p = 0.00$ ) for Bartlett's test of sphericity. The results of the Czech version showed that all 17 items had loaded onto two components, which explained 63.73% of the variance. Variance extracted by factor 1 (*communication and material resources*) was the highest, and this factor also explained the largest degree of variance (39.52% after rotation). Factor loading of the items in an existent factor was in the range between 0.62 (*Caregiver off unit or unavailable*) and 0.84 (*Tension or communication breakdowns within the nursing team*). Factor 2 '*labor resources*' accounted for a response variance of 24.21% after rotation. Factor loading of the items in an existent factor was in the range between 0.47 (*Inadequate number of assistive and/or clerical personnel*) and 0.89 (*Unexpected rise in patient volume and/or acuity on the unit*).

The Slovak version indicated similar results – all items were loaded on two components, explaining 80.43% of variance. Variance extracted by factor 1 (*communication and material resources*) was highest, and this factor also explained the largest degree

of variance (53.10% after rotation). Factor loading of the items in an existent factor was in the range between 0.68 (*Unbalanced patient assignments*) and 0.87 (*Tension or communication breakdowns with other ancillary/support departments*). Factor 2 '*labor resources*' accounted for a response variance of 28.32% after rotation. Factor loading of the items in an existent factor was in a range between 0.80 (*Inadequate number of assistive and/or clerical personnel*) and 0.89 (*Inadequate number of staff*). For Part B of the *MISSCARE Survey-Slovak/Czech*, the EFA did not confirm the three-factor solution of the *MISSCARE Survey-English*: labor resources, material resources, and communication.

In both countries, labor resources were reported to be the most significant reason for missed nursing care. There were significant differences between the two countries in means scores in the domain of communication. Slovak nurses believed, on average, that they had more problems in this domain (Table 4).

**Table 4** Reasons of Missed Nursing Care: Comparison of the Czech Republic and Slovakia (one way ANOVA)

Item	Czech	Slovakia	F*	p**
	Republic			
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)		
<b>Communication</b>				
Unbalanced patient assignments	2.47 (0.97)	2.38 (1.15)	0.41	0.52
Inadequate hand-off from previous shift	2.24 (0.84)	2.62 (1.23)	7.14	0.008
Other departments did not provide the care needed	2.25 (0.81)	2.81 (1.10)	19.43	0.000
Lack of back up support from team members	2.16 (1.04)	2.82 (1.17)	19.21	0.000
Tension or communication breakdowns with other ancillary/support departments	2.22 (0.88)	2.65 (1.15)	9.58	0.002
Tension or communication breakdowns within the nursing team	2.31 (1.05)	2.89 (1.21)	14.6	0.000
Tension or communication breakdowns with the medical staff	2.46 (1.01)	2.68 (1.17)	2.21	0.13
Nursing assistant did not communicate that care was not provided	2.46 (1.21)	2.79 (1.16)	4.19	0.04
Caregiver off unit or unavailable.	2.57 (1.05)	2.96 (1.26)	5.91	0.01
<b>Mean score</b>	2.35 (0.78)	2.72 (1.05)	8.91	0.003
<b>Material Resources</b>				
Medications were not available when needed.	2.58 (1.13)	2.65 (1.16)	0.21	0.64
Supplies/ equipment not available when needed	2.38 (1.01)	2.69 (1.16)	4.62	0.03
Supplies/ equipment not functioning properly	2.35 (0.98)	2.67 (1.17)	4.62	0.03
<b>Mean score</b>	2.43 (0.94)	2.67 (1.12)	2.70	0.10
<b>Labor resources</b>				
Inadequate number of staff	2.96 (1.01)	2.98 (1.28)	0.01	0.91
Urgent patient situations	2.88 (1.17)	2.52 (1.27)	4.68	0.03
Unexpected rise in patient volume and/or acuity on the unit	3.07 (1.01)	2.76 (1.23)	4.28	0.04
Inadequate number of assistive and/or clerical personnel	2.60 (0.98)	3.03 (1.23)	8.31	0.004
Heavy admission and discharge activity	2.75 (0.92)	2.63 (1.16)	0.72	0.39
<b>Mean score</b>	2.85 (0.80)	2.79 (1.07)	0.23	0.62

\*F – statistic; \*\*p-value

### Job satisfaction and missed nursing care

Satisfaction with the profession, satisfaction with teamwork on unit, and satisfaction with current job

position correlated negatively with the overall mean score of Part A in both versions (Table 5).

**Table 5** Correlations between satisfaction with the profession, job position, and teamwork, and overall mean score of Part A in Czech (above diagonal) and Slovak (below diagonal) sample

	Overall mean score (Part A)	Satisfaction with the profession	Satisfaction with job position	Satisfaction with team work
Overall mean score (Part A)		-0.23*	-0.21*	-0.23*
Satisfaction with the profession	-0.45**		0.64**	0.37**
Satisfaction with job position	-0.32**	0.69**		0.41**
Satisfaction with team work	-0.55**	0.51**	0.36**	

\* $p < 0.05$ ; \*\* $p < 0.01$ 

## Discussion

The *MISSCARE Survey* is one of the most widely used tools in evaluating the phenomenon of missed nursing care worldwide. Its content validity, construct validity, internal consistency and stability have been tested in the United States, including both qualitative (focus groups, concept analysis, Kalisch 2006; Kalisch, Landstrom, Hinshaw, 2009) and quantitative methods (psychometric analysis, Kalisch, Williams, 2009). The *MISSCARE Survey* was developed in US and later translated into several languages, and is used by many researchers worldwide. The psychometric properties of this frequently deployed instrument are well established and compared in a series of empirical studies in the US (Kalisch, Williams, 2009); Brazil (Siqueira et al., 2013), and in Europe (Bragadóttir et al., 2015 – Iceland; Kalisch, Terzioglu, Duygulu, 2012 – Turkey; Sist et al., 2017 – Italian), Asia (Srulovici, Drach-Zahavy, 2017), and Australia and New Zealand (Blackman et al., 2015; Willis et al., 2017). Prior to the current study, the instrument was not available in Czech and Slovak languages, and the psychometric properties were not known.

The pilot study is the first to undertake an examination of missed nursing care in the Czech and Slovak Republics. The response rate in this study was good. Psychometric testing proved that Czech and Slovak versions of the *MISSCARE Survey* are reliable and valid tools. For Part A, internal consistency was satisfactory, with Cronbach alpha at 0.939 for the Czech version and 0.945 for the Slovak version. For part B, internal consistency was satisfactory for all subscales, with Cronbach alpha at over 0.83 for the three subscales of the Czech version and 0.92 for the Slovak version. Construct validity was examined using factor analysis. There were two factors for Part B of the *MISSCARE Survey*. In previous studies, the three-factor solution was examined (Kalisch, Williams, 2009; Kalisch, Landstrom, Hinshaw, 2009; Bragadóttir et al., 2015).

Patient safety has become an important priority for hospitals in both countries. However, as Kalisch

(2009) points out, the patient safety movement has paid very little attention to missed nursing care. This pilot study provides the first results on how Czech and Slovak nurses perceive the phenomenon of missed nursing care. Both countries reported a significant amount of missed nursing care, with Slovak nurses reporting more missed care than Czech nurses. The average score for missed nursing care was  $1.64 \pm 0.51$  for the Czech Republic, and  $1.99 \pm 0.83$  for Slovakia. Less missed nursing care was reported in a study by Kalisch, Terzioglu, Duygulu (2012) for Turkey ( $1.40 \pm 0.41$ ) and for the United States ( $1.77 \pm 0.39$ ).

Papers presenting results for the *MISSCARE survey* are not uniform in their interpretation of the findings. Most of the papers presented missed nursing care as a percentage (Kalisch, Williams, 2009; Kalisch, Terzioglu, Duygulu, 2012). In these studies, the percentage of missed care was gauged using the categories “occasionally”, “frequently”, and “always”. Our results are presented in both ways, which, in this respect, is not typical, and there are subtle differences between the results. A Brazilian study similarly presented missed nursing care as both a percentage and a mean (Siqueira et al., 2013). Further work could indicate how the results of *MISSCARE* should best be interpreted to help researchers compare their findings.

The results of the study indicate that some activities that are integral to nursing care are being neglected. In our study the most frequent missed nursing activities were: ambulation, emotional support, patient teaching, mouth care, turning patients, documentation of necessary data, and medications administered within 30 minutes. In her qualitative study, Kalisch (2006) identified nine elements of nursing care which are regularly missed: ambulation, turning, delayed or missed feedings, education, discharge planning, emotional support, hygiene, intake and output documentation, and surveillance. Most of these elements were also missed in our sample.



Among the most missed nursing care activities in US hospitals were: ambulation, assessment of effect of medications, turning, mouth care and teaching (Kalisch, Williams, 2009). If nurses cannot provide all necessary services, they must prioritize. According to Jones, Hamilton, Murry (2015) the prioritization of physiological over emotional and psychological needs is congruent with the pyramid of human needs proposed by Abraham Maslow. Staff nurses in Slovakia reported more missed care than their counterparts in the Czech Republic. Slovak nurses were also less satisfied with their jobs. Czech nurses scored higher on all the aforementioned items relating to job satisfaction. This finding is consistent with a previous study in which Czech nurses reported more job satisfaction in all subscales of The McCloskey/Mueller Satisfaction Scale (Gurková et al., 2013). When nurses are unable to deliver the care they deem necessary, they report dissatisfaction with their jobs. According to Kalisch, Landstrom, Williams (2009) when nurses cannot fulfill their responsibilities in a manner that satisfies their patients' needs, most report feelings of distress and dissatisfaction with their jobs. In addition, the results of our study revealed a negative correlation between overall mean score of missed nursing care and satisfaction with the profession, meaning that nurses who reported more missed care also reported less satisfaction with the profession, and with teamwork.

In the Czech Republic and Slovakia, scarcity of human resources was the chief reason for missed nursing care.

### Limitation of study

One of the limitations of the study is that the reliability of the tool was established using only internal consistency. Test-retest reliability was not performed.

### Conclusion

Psychometric testing showed that Czech and Slovak versions of the MISSCARE Survey are reliable and valid tools, and can be used for measuring missed nursing care. The results of this study confirm that missed nursing care is a problem in the Czech Republic and Slovakia, and that this critical problem requires intervention to reduce its occurrence.

### Ethical aspects and conflict of interest

The directors of Nursing Departments in each of the five hospitals were contacted by researchers prior to data collection; the study was explained; and permission obtained for data collection. All respondents were informed of the objectives of the

research, and gave their consent to participation in the survey. The authors hereby declare that they have no conflicts of interest, and have followed all relevant ethical guidelines in conducting the research.

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### Author contribution

Concept and design (EG, RZ, DJ), data collection (DJ, EG), manuscript draft (RZ, EG), critical revision of the manuscript (EG, RZ, DJ), final approval of the manuscript (RZ, EG, DJ).

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