

Why nursing care is missed? Findings of a bilateral study. Reasons of Missed Nursing Care

Quali sono le ragioni delle Missed Care? Risultato di uno studio bilaterale. Ragioni delle Missed Care

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Abstract

Background: Evidence of missed nursing care in clinical practice has been well documented; however, fewer studies highlighting why care is missed have been conducted and this prevents effective interventions aimed at minimizing the missed care.

Methods: A secondary analysis of two cross-sectional study designs was performed to capture the direction and strength of 1,114 Italian and Australian nurses' perceptions about why care was missed in their hospitals. The MISSCARE survey was used to collect data and the specific section aimed at estimating the reasons for missed nursing care was used. Data were analysed using structural equation modelling.

Results: Six significant variables emerged as predictors of why care is missed, and these were: workplace miscommunication; increased work intensity; inadequate physical and human resources for care work; nurses' age; and years of clinical experience.

Conclusions: Australian and Italian findings contribute to growing international studies as to why nursing care is missed and provides a framework for understanding precipitating factors, such as incomplete workplace communication, unpredictable workflows, staffing and material resources issues might contribute to why care is missed and must thus be addressed/improved.

Riassunto

Background: l'occorrenza di episodi di mancata assistenza infermieristica nella pratica clinica è stata ben documentata; tuttavia, sono stati condotti pochi studi che evidenziano il motivo per cui le cure sono perse o tralasciate e questo impedisce interventi efficaci volti a ridurne al minimo gli episodi.

Metodi: è stata condotta un'analisi secondaria approcciando due studi trasversali per catturare la direzione e la forza delle percezioni di 1,114 infermieri italiani e australiani rispetto al motivo per cui l'assistenza è stata persa/tralasciata nei loro ospedali. Per la raccolta dei dati è stata utilizzato lo strumento MISSCARE Survey ed è stata utilizzata la sezione (parte B) volta a stimare i motivi della mancata assistenza infermieristica. I dati sono stati analizzati utilizzando i modelli di equazioni strutturali.

Risultati: sei variabili significative sono emerse quali predittori dell'assistenza è persa/tralasciata: cattiva o povera comunicazione; aumento dell'intensità del lavoro; risorse strutturali/fisiche e umane inadeguate per il lavoro di cura; età degli infermieri; e anni di esperienza clinica.

Conclusioni: i risultati australiani e italiani combinati contribuiscono alle evidenze disponibili in campo internazionali sul motivo per cui l'assistenza infermieristica viene persa o tralasciata e fornisce un quadro per la comprensione dei fattori precipitanti, come la comunicazione difficile sul posto di lavoro, i flussi di lavoro imprevedibili, la carenza di personale e di risorse materiali, aspetti sui quali sarebbe utile disegnare interventi specifici.

INTRODUZIONE

Nursing care required by patients is not always given by staff and various tasks are routinely omitted from daily care (1). Such omissions have been called missed nursing care (MC) and have been defined as “any aspect of required patient care that is omitted or delayed and is influenced by factors in the care environment, affecting nurses’ internal processes, that guide them in deciding which activity of nursing care should be missed, should be completed or should be delayed” (2). Initially, missed care was attributable to inadequate resources for care provision, as well as concurrent and multiple demands on nursing staff in charge of the care (2, 3). Cypriot and Australian studies further attributed MC to communication barriers among staff, ineffective methods for estimating the adequate staff numbers and the skill mix for care delivery (4-6).

With the progressive accumulation of evidence available, a number of other reasons behind why care is missed have been documented as the poor teamwork with ineffective delegation processes to nursing aides (1, 7, 8), working in shifts and its related staff rostering (9) and insufficient levels of clinical experience held by staff (10). Increased overtime requirements have been reported as increasing episodes of MC (11): moreover, the different health-care settings have also been documented as influencing the occurrence of MC; for example, urban vs rural health-care hospitals, or academic vs non-academic hospitals (12).

It is now broadly accepted that MC is a global occurrence and it negatively affects both the quality of patient's care and safety (3). Consequently, specific strategies are needed to minimize and/or prevent MC (3, 4, 13). In designing and testing the effectiveness of these strategies, a greater understanding of why care is missed is needed at the international level. However, a very few studies to date (14–16) have attempted to compare the reported reasons for MC across countries, where different health-care systems and funding schemes might have an influence. Moreover, none of these studies (14–16) have attempted to design and test explicitly a model capable of predicting the reasons behind MC by using modelling statistics.

Therefore, with the intent of covering the gap of the knowledge available, our study is intended to explore Australian and Italian nurses' perceptions regarding why care is missed, by estimating variances in the scores they attributed to MC. These two countries were selected as they had both engaged with quantifying MC in different studies (e.g. 17–20); therefore, we have considered the value of increasing the understanding of the phenomenon by comparing data collected in primary studies conducted with the same tools and in a similar target population. Our secondary analysis additionally seeks to understand both the magnitude and the strength of influence different factors have on why care is missed, but the strength of influence each of these reasons has on MC.

MATERIALS AND METHODS

Aim and study design

With the aim of comparing differences, if any, in the predictors of MC in Italy and Australia, a secondary analysis was undertaken by accessing data collected in two primary cross-sectional study designs, one conducted in Australia (17) and one in Italy (18), respectively.

Setting and participants

Eligible participants in the primary studies (17, 18) were all nurses irrespective of their gender, workplace status, hours worked, their employment setting, pre-registration training type and the type of clinical setting where they were employed at the time of the study. The primary studies involved a total of 1,114 nurses (=750 in the Australian study; 364 in the Italian study).

Instruments: the MISSCARE Survey

The MISSCARE Survey as developed by Kalisch and Williams (21) is aimed at collecting data regarding MC. It is comprised of three sections: (a) participants' demographic and workplace data; (b) a list of nursing care interventions with regards participants is requested to indicate whether these have been missed in the last shift; and, lastly, (c) the reasons why care is missed according to the perception of each participant.

Specifically, the third section of the MISSCARE survey formed the foundation of this study, employing a Likert-type rating scale to estimate the Italian and Australian nurses' perceptions regarding the degree of contribution of a set of different reasons in accounting for MC. The Likert scale (namely, 1= not a reason, 2= minor reason, 3= moderate reason, 4= significant reason) reflects a continuum of the degree of nurses' perceptions of the reasons why the care is missed. The 16 items describing the various reasons of missed care are reported in Table 1.

Table 1. Survey items used to describe nurses' perceptions regarding the reasons why care is missed (MISSCARE Survey; 21)

Survey item no.	Reason why care is missed^a	Survey item no.	Reason why care is missed^a
1	Inadequate number of staff	9	Tension/communication breakdowns ancillary staff
2	Caregiver off unit or unavailable	10	Tension/communication breakdowns between nurses
3	Inadequate number of assistive or clerical personnel	11	Tension/communication breakdowns with medical staff
4	Lack of back up support from team members	12	Nurse did not communicate that care was not provided
5	Other departments did not provide the care needed	13	Urgent patient situations (e.g., worsening patient condition)
6	Medications not available when needed	14	Unexpected rise in patient volume or acuity
7	Supplies/equipment not available when needed	15	Unbalanced patient assignment
8	Inadequate handoff from previous shift	16	Heavy admission or discharge activity

^aLikert scale used: 1= not a reason, 2= minor reason, 3= moderate reason, 4= significant reason, no.: number

Data collection

The MISSCARE Survey was administered in the primary studies (17, 18) in the Italian and English language; variables collected were homogeneous. The administration was performed after having informed the potential participants of the study aims and the data collection procedures. Questionnaires were administered via online (Australia) and paper and pencil (Italy), according to the resources available to conduct the studies.

Only one reminder was given and no rewards were offered to increase participation.

Ethical issues

Data from the Australian component of this study were approved by the (blinded) Social and Research Ethics Committee. Approval in Italy was also obtained (Comitato Etico dell'Azienda Ospedaliera Universitaria Integrata di Verona (Prot. N. 46279, 4 Novembre 2011). Nurses' participation was on a voluntary basis with confidentiality of data ensured both at the individual and at the unit and hospital level.

Data analysis

First, the validity of the MISSCARE survey (21) part B was assessed. Specifically, the Likert scale used to estimate the reasons behind MC were ordinal measures, thus the traditional use of statistics to analyse interval/ratio data was not appropriate as it can give rise to misleading conclusions (22). Additionally, the use of Cronbach's alpha as an index of reliability was discarded in favour of using Rasch analysis, as the former measure was unable to confirm whether the MC survey items were unidimensional, given that all the survey items were measuring the same underlying construct (23). Instead, Rasch modelling was used, as its reliability estimates include both an item (survey) separation index and a person (nurse) separation index, which were 5.10 (reliability 0.83) and 2.20 (reliability 0.83), respectively. This result indicated a most acceptable reliability measure for this study (24) and confirmed that all 16 items were working well individually and collectively in reliably measuring the nurses' perceptions about why care was missed.

Then, the structural equation modelling was designed: a research hypothetical model was generated by sorting the MISSCARE items (as listed in Table 1) into either observable (as listed in Table 2) or unobservable (latent) variables and then linking them, by a prediction statement reflecting why MC occurs in Australia and Italy. The foundation behind the development of the hypothetical model arose from a combination of the relevant literature (2, 4, 18, 25-29) that was known to impact on why care was missed, and the variables already included in the MISSCARE tool.

Table 2. Descriptors of demographic variables that may influence Missed Nursing Care

Latent variable definitions^a	Descriptions of observable variables
1. Nurses' country of origin	1. Australia 2. Italy
2. Hospital location	1. Capital City 2. Regional or Provincial
3. Gender	1. Female 2. Male
4. Length of Clinical experience	Years
5. Type of qualifications held	1. Hold no university qualification 2. Hold Bachelor degree
6. Nurses' age	Years
7. Times absent from clinical areas over past three months	Number of shifts absent
8. Provision of staff to provide nursing care	Q1. Inadequate number of staff Q2. Caregiver off unit or unavailable Q3. Inadequate number of assistive or clerical personnel Q4. Lack of back up support from team members Q5. Other departments did not provide the care needed
9. Provision of physical resources for nursing care	Q6. Medications not available when needed Q7. Supplies/equipment not available when needed
10. Workplace communication issues	Q8. Inadequate handoff from previous shift Q9. Tension/communication breakdowns ancillary staff Q10. Tension/communication breakdowns between nurses Q11. Tension/communication breakdowns with medical staff Q12. Nurse did not communicate that care was not provided Q13. Urgent patient situations (e.g., worsening patient condition) Q14. Unexpected rise in patient volume or acuity Q15. Unbalanced patient assignment Q16. Heavy patient admission or discharge activity
11. Why Nursing Care is missed	Total survey scores

^aderived from the MISSCARE Survey (21)

Several of the variables used in the study were not directly quantifiable (i.e. were latent), necessitating the use of observable variables to estimate and describe them. Thus, the next step was to represent each variable diagrammatically to reflect the hypothetical relationships that were thought to exist between them and why care was missed (see Figure 1). Specifically, it was hypothesized that all 12 variables would have a statistically significant impact on why care was missed. In Figure 1, the variables presented as ellipses represent latent variables, which in turn have been defined by their indicator variables (shown as rectangles).

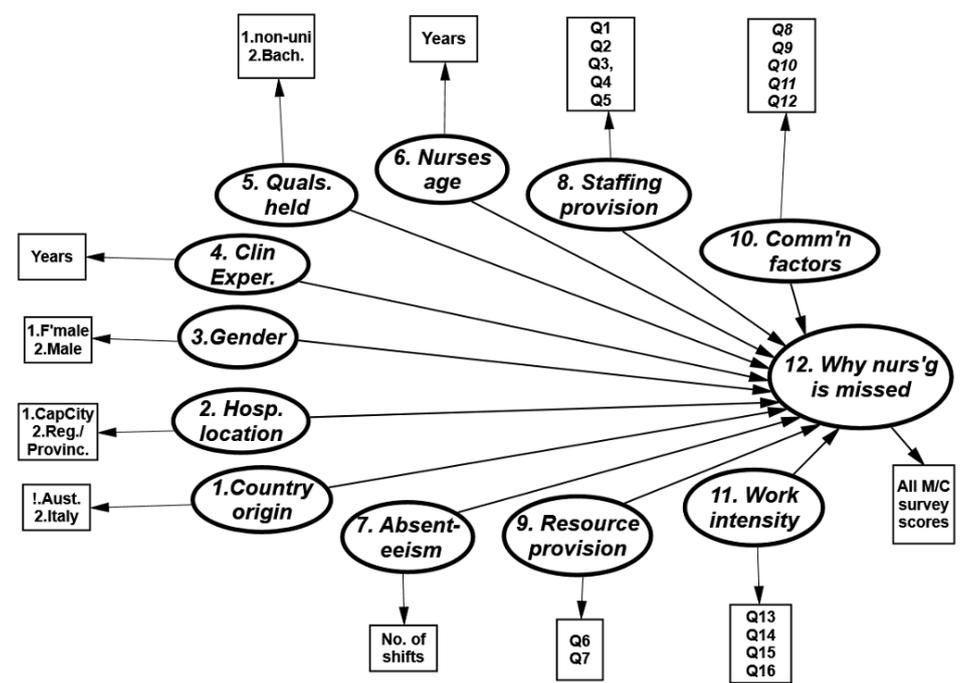


Figure 1. Hypothetical model predicting those variables that will influence why Australian and Italian nurses perceptions of MC reasons

Absenteeism: Time absent from clinical areas over past three months, Aust: Australia, Bach: Bachelor degree, CapCity: Capital City, Clin Exper: Length of Clinical experience, Comm'n factors: Workplace communication issues, Country origin: Nurses' country of origin, F'male: Female, Hosp. location: Hospital location, M/C: Missed Nursing care, non-uni: Non-university, No. of shifts: Number of shifts absent, Q1: Inadequate number of staff, Q2: Caregiver off unit or unavailable, Q3: Inadequate number of assistive or clerical personnel, Q4: Lack of back up support from team members, Q5: Other departments did not provide the care needed, Q6: Medications not available when needed, Q7: Supplies/equipment not available when needed, Q8: Inadequate handoff from previous shift, Q9: Tension/communication breakdowns ancillary staff, Q10: Tension/communication breakdowns between nurses, Q11: Tension/communication breakdowns with medical staff, Q12: Nurse did not communicate that care was not provided, Q13: Urgent patient situations (e.g., worsening patient condition), Q14: Unexpected rise in patient volume or acuity, Q15: Unbalanced patient assignment, Q16: Heavy patient admission or discharge activity, Quals. Held: Type of qualifications held, Reg./ Provinc: Regional or Provincial, Resource provision: Provision of physical resources for nursing care, Staffing provision: Provision of staff to provide nursing care, Why nurs'g is missed: Why Nursing Care is missed

To obtain a more holistic picture as to why nursing care was missed, the SMARTPLS (version 2.0) as developed by Hansmans and Ringle (30) was used to analyse available data. This program performs structural equational modelling and is highly appropriate for analysing and predicting relationships among data that are not normally distributed; moreover, it provides sufficiently robust information about the relationships of variables contributing to missed care, even when the data set consists of a relatively small number of cases (31).

RESULTS

Participants

The primary studies involved a total of 1,114 nurses (Table 3), the majority of them recruited by the Australian study (=750) as compared to that conducted in Italy (=364). Both studies recruited mainly female nurses (Australian sample= 95%; Italian sample=88%). Moreover, while the Australian nurses were mainly aged from 55 to > 65 years (50%), those who responded to the Italian study were aged mainly from 25 to 44 years (68%). In both studies the majority of nurses were educated to the academic levels (Australian sample= 41%; Italian sample=70%); however, while around a quarter of Australian nurses reported an advanced education (=27%), none of those involved in the Italian study had an advanced education. The hospitals where nurses were working at the time of the primary study were mainly located in cities in Australia (=63%), compared to the Italian sample where the majority of them were working in rural or provincially based hospitals (=77%). Moreover, while the majority (=61%) of the Italian sample reported up to 4 years' experience as a nurse, Australian nurses mainly had from 8 to > 15 years of experience (=72%).

Table 3. Demographic variables of Australian and Italian nurses

Variables	Total (N=1114)		Nurses of Australian Origin (N=750)		Nurses of Italian Origin (N=364)	
	Number	%	Number	%	Number	%
Nurses' gender						
Female	1034	93	712	95	322	88
Male	80	7	38	5	42	12
Nurses' age, years						
<25	77	7	52	7	25	7
25-34	281	25	181	24	100	28
35-44	267	24	120	16	147	40
45-54	277	25	196	26	81	22
55-64	193	17	182	24	11	3
>65	19	2	19	3	0	0
Nurses' highest qualification						
Non-university	347	31	238	32	109	30
Bachelor degree	562	51	307	41	255	70
Above Bachelor degree	205	18	205	27	0	0
Hospital location						
City or urban based	558	50	474	63	84	23
Rural or provincially based	556	50	276	37	280	77
Nurses' length of clinical experience						
Up to 1 year	102	11	31	4	71	19
Up to 4 years	296	23	148	20	148	42
Up to 8 years	288	26	143	19	145	39
Up to 15 years	145	14	145	19	0	0
>15 years	283	26	283	38	0	0

Predicting the reasons for missed care

Figure 2 explores the interactive effects that the different factors have on each other and why care was reported as being missed, along with their estimated degrees of influence. The inner model (namely, the ‘measurement model’) is composed of the latent (underlying) variables (shown as ellipses), and they together with their associated numerical values (coefficients) indicate the direction and magnitude of influence these variables are exerting on each other, and on the global scores underpinning why care is missed. The higher the coefficient value, the stronger the predictive relationship between the interconnecting variables.

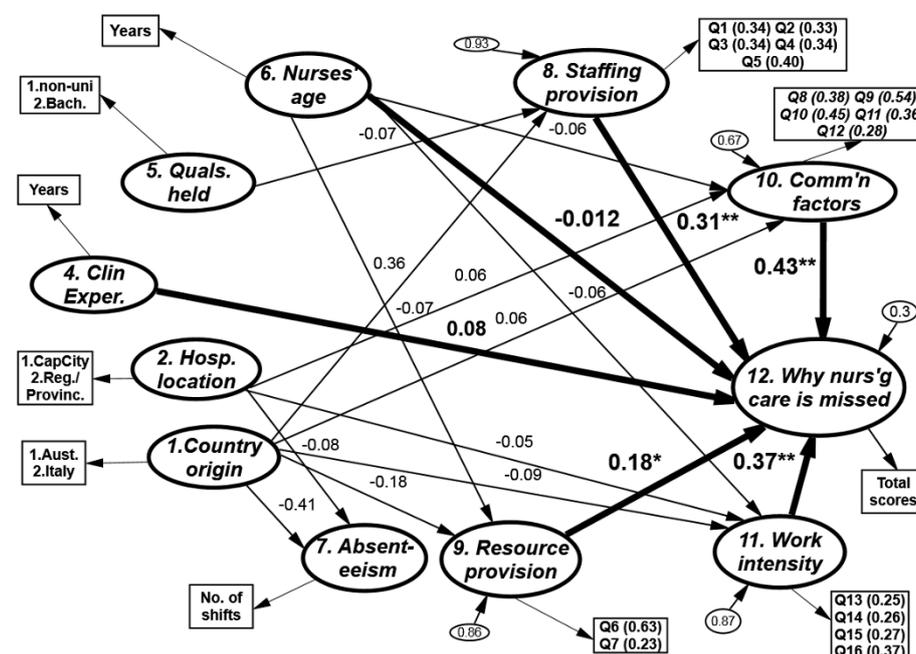


Figure 2. The final model predicting the reasons for reported missed Italian and Australian care ($p=0.05^*$ & $p=0.001^{**}$)

Absenteeism: Time absent from clinical areas over past three months, Aust: Australia, Bach: Bachelor degree, CapCity: Capital City, Clin Exper: Length of Clinical experience, Comm'n factors: Workplace communication issues, Country origin: Nurses' country of origin, F'male: Female, Hosp. location: Hospital location, M/C: Missed Nursing care, non-uni: Non-university, No. of shifts: Number of shifts absent, Q1: Inadequate number of staff, Q2: Caregiver off unit or unavailable, Q3: Inadequate number of assistive or clerical personnel, Q4: Lack of back up support from team members, Q5: Other departments did not provide the care needed, Q6: Medications not available when needed, Q7: Supplies/equipment not available when needed, Q8: Inadequate handoff from previous shift, Q9: Tension/communication breakdowns ancillary staff, Q10: Tension/communication breakdowns between nurses, Q11: Tension/communication breakdowns with medical staff, Q12: Nurse did not communicate that care was not provided, Q13: Urgent patient situations (e.g., worsening patient condition), Q14: Unexpected rise in patient volume or acuity, Q15: Unbalanced patient assignment, Q16: Heavy patient admission or discharge activity, Quals. Held: Type of qualifications held, Reg./ Provinc: Regional or Provincial, Resource provision: Provision of physical resources for nursing care, Staffing provision: Provision of staff to provide nursing care, Why nurs'g is missed: Why Nursing Care is missed

As reported in Figure 2, there emerged six statistically significant variables directly influencing why nursing care was reported as missed, as indicated by both Italian and Australian nurses. These influences can be identified by the six (bold) arrows that point to the reasons for the missed nursing care variable as reported in total scores (variable no. 12).

Communication factors among the various types of care providers (variable no. 10) was the most important variable in accounting for why care was missed (coefficient of +0.43 with confidence interval [CI] 95% 2.20-2.40). This path demonstrates that when communication tensions between staff – such as nurses' aides, nursing or medical staff – were present, this contributed significantly to as a primary reason behind MC.

The second set of factors accounting for why care was missed, were those relating to the increased work intensity (variable no. 11) with a coefficient of +0.37 and a CI 95% 2.98-3.12. This path illustrates that when a patient's condition deteriorated, or when there were increases in admissions and discharges, these factors contributing to MC increased correspondingly.

A third significant influence was the lack of available staff to provide care (variable no. 8), with a coefficient of +0.31 and a CI 95% 3.03-3.15. This relationship confirmed that inadequate human resources to provide care as perceived by nurses, contributed strongly to MC.

A fourth variable demonstrated the importance of having adequate physical resources, such as equipment and supplies, to provide care for patients (variable no. 9 with a significant coefficient of +0.18 and CI 95% 2.38-2.51). This path also confirmed that when nurses perceived insufficient resources to provide care, the care was more likely to be reported as missed. The fifth and the sixth variables were, respectively, the effect of/the influence of clinical experience (coefficient +0.08) and the age of the nurses (coefficient -0.012) on MC.

DISCUSSION

Missed care has been defined as an international phenomenon that merits being continuously studied. Missing elements of nursing care can affect patients' safety and, in the long term, increase nurses' dissatisfaction and the intention to leave the profession. Although several primary studies and systematic reviews have been performed to date (e.g., 2, 4, 17, 18, 25-29), the lack of strong evidence on predictors prevents the development of interventions aimed at minimizing MC. Therefore, we have approached two databases of primary studies with the main intent of exploring MC predictors at the overall level. Moreover, we have undertaken a secondary analysis because collecting new data might be inefficient and increase the burden of nurses in participating in a new survey. Furthermore, the findings suggest that no differences at the country level have emerged; however, the nurses' profile was non-homogeneous (e.g. age, qualification, clinical experiences), suggesting that findings should also be considered in this light.

Communication issues as a predictor for why care is missed

Communication factors between the various types of care providers was found to be the most important variable in accounting for MC. This is in contrast to Blackman et al. (17) in their Australian study, where it was found that inadequate human and material resources had the strongest influence on why care was missed, followed by staffs' increased work intensity.

An earlier Italian study reported unexpected rises in patient volume and acuity as the strongest reason for MC, followed by the inadequate number of staff, the increased admissions and discharges, the inadequate number of assistive personnel and the urgent/instable clinical condition of the patients (18). That study also found fewer Italian staff reporting overall communication issues a threat to MC, but specific communication tensions between registered nurses and nurse assistants did exist and was predictive for MC (18). The findings of previous MC studies conducted in countries also appear to be mixed, with Lebanese nurses reporting more communication and material resource problems than nurses in the USA (32). Conversely, the Kalisch et al. study (14) in both the United States and Turkey, reported inadequate labour resources to be the most prevalent reason behind MC, with insufficient material resources the next factor attributing to missed care. However, despite not being ranked in order of attribution for why MC occurs, other international studies have documented that communication tensions were a feature associated with MC by nurses working in New Zealand (33), the United States (7, 34), Brazil (35), Cyprus (4, 29, 36) and in Australia (5, 12, 17, 37-39), but was not a major attributable factor in Europe (16) or in Britain (40).

Communication tensions between nurses and medical staff have also been reported as an important cause leading to MC in most studies carried out by Kalisch (1, 2, 14, 15) and where it was found that nurses take their prioritization of care decisions based on physician orders (29, 33). Ineffective communication between nurses arising from an inadequate handover from previous shifts or from other units and departments regarding the health-care status of patients was found to be a reason for MC in this study. Ineffective communication can result in fragmented care and might potentially put patients at risk of injury, or of receiving a poor-quality of care. One way to minimize this factor, is to standardize handover communication processes between staff in hospitals (41). Early outcomes of studies suggested that revising handovers processes might reverse the trend of missed care, given the occurrence of communication problems across all workplace settings (42). Another way to improve this important part of patient care in hospitals is to organize joint educational opportunities for all health-care staff, including nurses, physicians, other health-care staff and nurses' aides, focusing particularly on the effectiveness of communication among different professionals, both within and across units and/or hospital departments.

Increased work intensity and staff provision as factors for why care is missed.

Unexpected variations in the needs of the patients have emerged as increasing the risk of MC: patients with increased need of nursing care due, for example, to urgent conditions, are prioritized and those who are stable might receive less nursing care. Dealing with variations in the care need is more challenging when there is a lack of nursing resources, as emerged in our study as a predictor of MC.

Several working positions for registered nurses in Italian hospitals have been substituted recently for nursing assistants (43), by changing the skill mix (44). Specifically, the Italian National Health System has been faced recently with several reforms and austerity measures, which have caused a significant reduction in nursing resources with increased nursing staffs' workloads (18). Alongside the need to revise the amount of nursing resources devoted to patients' care there is also a need to increase the cooperation between nursing assistants and nurses that might currently be being prevented due to role confusion (43).

However, a successful delegation by registered nurses to nurse aides requires clear communication and a positive relationship between them, as well as a manageable workload (45). One recent study (46) found that introducing nurse aides instead of registered nurses has been linked to poorer quality of care and increased patient mortality. Thus, when policymakers make decisions regarding the revision of staff skill mix in hospitals, very careful consideration must be given to ensure that proper supervision and coaching of non-qualified or assistive staff is in place. As patient care in hospitals is often extremely complex and unpredictable, it is not always appropriate to delegate all aspects of care to non-qualified staff. Moreover, alongside the need to provide the right amount of nursing care, designing flexible mechanisms to increase the nursing workforce in case of unpredictable events might be useful.

Resource provision as a factor for why care is missed

The outcomes of this study also indicated that being a nurse with longer clinical experience was predictive of why MC existed, while being of younger age was slightly protective. In light of the limited magnitude of these predictors, it is reasonable to argue that the more experienced registered nurses perceived a higher occurrence of MC because of the decreased work capacity, as well as because they might compare the current situation with their past when the amount of nursing resources were higher, thus allowing them to fulfil the nursing care required.

Limitations of this study

The outcomes of this study can only be considered as valid in the context of this study's sample, which was from a group of nurses working in Australia and in Italy, thus they do not reflect all nurses working in these two countries. Moreover, in reporting the findings, we have emphasized those variables directly involved as reasons for MC. While the data arising from the survey items and participants' item responses show good reliability, there is a need to design further primary studies to substantiate the relationships between MC and reasons for why care is missed.

CONCLUSIONS

This study sought to identify statistically significant antecedents and their magnitude that explain why care was missed in two different countries. While 12 variables were hypothesized to account for why care was missed, six emerged as direct predictors, namely workplace communication issues, increased work intensity, the allocation of physical and human resources to provide care, nursing staff age and the length of their clinical experience. With the cumulative evidence obtained in future studies, managerial strategies aimed at addressing modifiable factors can be designed, tested for their effectiveness and implemented.

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