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South Korean nurses' knowledge of delirium in hospitalised older adults with and without dementia

Yun Kang[1] and Chang Seung Park[2]

[1]Department of Nursing, Changwon National University, South Korea

[2]School of Nursing, Cheju Halla University, South Korea

Abstract

Aim: To assess South Korean nurses' knowledge of delirium in hospitalised older adults with and without dementia.

Methods: A cross-sectional survey study was conducted in July 2013 and a convenience sample of 101 registered nurses from inpatients wards of one regional general hospital in South Korea was recruited and completed the case vignettes.

Results: This study showed that the registered nurses' knowledge of the recognition and management of hypoactive delirium and hypoactive delirium superimposed on dementia was poor and inappropriate for clinical practice, compared with their knowledge of dementia, hyperactive delirium, and hyperactive delirium superimposed on dementia.

Conclusion: The findings of this study highlights the need to educate South Korean nurses on dementia, delirium, and delirium superimposed on dementia care because older adults, particularly those with dementia, are at high risk of developing this complication while hospitalised.

Introduction

In South Korea, the prevalence of dementia is rapidly increasing alongside the aging of the population. The prevalence of dementia among South Korean older adults (age ≥65 years) was 8.4% in 2008, and it is expected to increase to 9.7% by 2020 and to 13.2% by 2050 [1]. The inpatient hospital costs for Alzheimer's disease, the most common form of dementia has also been reported as being greater than for any other disease in South Korea [2]. In the first half of 2015, the total inpatient hospital spending was USD $ 388,555,222 for Alzheimer's disease and was USD $ 6,548 per person in South Korea [2]. The rapid increase in the population of people with dementia has the potential to increase the likelihood of health care professionals in hospitals in South Korea encountering older adults with delirium superimposed on dementia (DSD) in their daily practice.

DSD occurs when a person with pre-existing dementia develops delirium [3]. Delirium is four times more likely to occur in hospitalised older adults with dementia compared with hospitalised older adults without dementia [4]. DSD is associated with higher health care costs and adverse outcomes such as worse functional outcomes and higher mortality rates when compared with patients with dementia alone or delirium alone [5,6]. DSD is also distressing for patients [7] and is likely to significantly increase patients' need for assistance from registered nurses (RNs) and family caregivers.

Recently, Western studies have assessed acute care nurses' knowledge of delirium in hospitalised older adult with and without dementia, using case vignettes [3,8]. Fick, Hodo [3] reported more knowledge of the recognition and management of dementia, hyperactive delirium and hyperactive DSD, compared with hypoactive delirium and hypoactive DSD, using the five vignettes. Bellelli, Morandi [8] reported poor knowledge of the recognition of hypoactive delirium and DSD, using the two vignettes. However, in South Korea, most nursing research has focused on delirium as a single clinical entity in hospital settings [9-12], and little attention was given to DSD recognition and management in hospital settings. The aim of this study was to assess South Korean nurses' knowledge of delirium in hospitalised older adults with and without dementia.

Methods

This cross-sectional survey study was conducted in one regional general hospital in South Korea.

Participants and data collection

Information seminars providing oral and written information about the study were held and a convenience sample of 101 RNs from inpatients wards, excluding critical care, paediatric and obstetric units was recruited. They completed the survey in July 2013.

Outcome measures

Knowledge of dementia, delirium, and DSD was measured using five case vignettes [3] which illustrate hospitalised older adults with dementia, hypoactive delirium, hyperactive delirium, hyperactive DSD, and hypoactive DSD. The case vignettes focus on assessing nurses' ability to identify different subtypes of delirium and DSD in

Correspondence to: Yun Kang, Department of Nursing, Changwon National University, 20 Changwondaehak-ro Uichang-gu Changwon-si, Gyeongsangnam Province 641-773, South Korea, Tel: 820127971295; E-mail: yun.kang@griffithuni.edu.au

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a standardised format, as well as to gather qualitative data from the nurses related to how they would assess and manage delirium [3]. For each vignette, the individual case symptoms and behaviours are presented, and respondents are asked to answer nine multiple choice and open-ended questions related to the patients' mental status, the type of change (*i.e.,* acute or chronic), what was happening to the patient (*i.e.,* recognition of delirium and/or dementia), whether or not they would call the physician to tell them about the behaviour, and whether or not they would call the physician to request a medication. Open-ended questions related to the cause of the patient symptoms, how they would manage the problem, and what if any medications they would administer for the problem are also provided [3].

The original vignettes underwent an expert validation process prior to use [3]. In this study, the English version of the vignettes was translated into Korean by the first author. Two bilingual South Korean nursing professors conducted back-translation. No significant discrepancies between the original English version and the back-translation version were determined by agreement between the first author and the bilingual South Korean nursing professors who carried out back-translation. To validate the concepts measured and any issues regarding wording of the vignettes [13], along with back-translation the Korean version was pilot-tested by a convenience sample of six South Korean 4th-year undergraduate nursing students at one private university who had completed the subject and clinical placement of gerontological nursing.

Data analysis

Quantitative data were analysed using the Statistical Package for Social Science (SPSS), version 21.0. Participant characteristics and multiple-choice questions of case vignettes were analysed descriptively. The manifest content analysis for the open-ended questions of case vignettes was conducted to describe themes that arose from the occurrence of specific words or phrases as distinguished from latent content analysis [14]. In this study, the theme identification process based on the steps by Norwood [14] informed the qualitative data analysis: data familiarisation through reading and re-reading the transcripts; generating initial codes in a systematic fashion across the whole data set, using an inductive analysis process to allow themes to emerge from the data; reviewing themes to ensure internal and external validity; and defining and naming themes. The first author conducted the initial analysis of data in the original language. To improve consistency and reliability and to minimise bias, the initial analysis was reviewed, discussed and refined with the research team until a consensus was reached.

Ethical considerations

The permission from the institution representative where the data were collected was obtained because related hospital did not have the Institutional Review Board (IRB) during that period. All participants were given an information sheet and they signed a consent form. The confidentiality of both the participants and the hospital involved were assured.

Results

South Korean nurse sample

The 101 female RNs were aged between 23 and 57 years (M=34.4, SD=8.1). The majority of participants (n=85) were involved in direct patient care. In this study, gerontological nursing education refers to any gerontological education, either undergraduate or continuing (and/or in-service) education. Seventy-nine participants reported that they studied content related to older people with and without dementia and/or delirium in medical-surgical or mental health nursing subjects in their undergraduate programs. Seven participants reported that they did not have any formal education on gerontological nursing. Table 1 provides additional demographic information.

Quantitative results

Ninety-one participants reported that they had experience in caring for older patients with the symptoms of hyperactive delirium, and hyperactive DSD. Seventy-nine participants had experience caring for older patients with the symptoms of hypoactive delirium and hypoactive DSD.

Ninety-five and ninety-three participants correctly answered acute onset as the key feature of delirium in the hyperactive delirium and hyperactive DSD vignettes, respectively. Sixty-one and fifty-eight

Table 1. Personal and Professional Characteristics of Participating Nurses (*N*=101) [Note: Work unit and nursing position title used only at the study hospital site].

Variable	N	M(SD)		Minimum	Maximum
Age (years)	101	34.4(8.1)		23.0	57.0
Variable	N	Description			%
Gender	101	Female			100.0
	0	Male			0.0
Work units/speciality	26	Neurology internal medicine and surgery			25.7
	25	Gastroenterology internal medicine and surgery			24.8
	20	Orthopaedic surgery			19.8
	10	Rehabilitation			9.9
	20	Respiratory internal medicine			19.8
Nursing position title	85	Registered general nurse			84.2
	16	Charge nurse			15.8
Nursing experience(years)	57	≤ 9 years			56.4
	30	10 years ≤ and ≤19 years			29.7
	14	≥ 20 years			13.9
Nursing education	20	4-year Bachelor degree			19.8
	81	3-year Associate degrees			80.2
Formal education in gerontological nursing	79	Yes	Undergraduate		78.2
	15		Continuous (and/or in-service)		14.9
	7	No			6.9

participants answered acute onset as the key feature of delirium for hypoactive delirium and hypoactive DSD vignettes, respectively.

Fifty-seven and seventy-one participants had knowledge of the recognition of hyperactive delirium and hyperactive DSD, respectively. Fifteen and thirteen participants had knowledge of the recognition of hypoactive delirium and hypoactive DSD, respectively.

Eighty-five and seventy-two participants considered to call the on-call physician for managing the symptoms of hyperactive delirium and hyperactive DSD, respectively. Thirty-nine and forty-one participants considered to call the on-call physician for managing the symptoms of hypoactive delirium and hypoactive DSD, respectively.

Ninety-two and seventy-seven participants considered calling the on-call physician for medicating the symptoms of hyperactive delirium and hyperactive DSD, respectively. Thirty-six and thirty-eight participants considered calling the on-call physician for medicating the symptoms of hypoactive delirium and hypoactive DSD, respectively. To manage the symptoms of hyperactive delirium and hyperactive DSD, *Haloperidol* and *Lorazepam* were reported by the participants who considered calling the on-call physician for medication. To manage the symptoms of hypoactive delirium and hypoactive DSD, *Trazodone, Lexapro* and *Quetiapine* were reported by the participants who considered calling the on-call physician for medication because the symptoms were incorrectly interpreted as depression. Table 2 provides additional information about the multiple-choice questions about the recognition and management of dementia, delirium and DSD.

Qualitative results

In terms of the causes, hypoactive delirium had four key responses and included: (1) delirium risk factor; (2) delirium; (3) age-related fatigue, lethargy and depression; and (4) dementia-related mood change. Hyperactive delirium had four key responses and included: (1) delirium risk factors; (2) delirium; (3) dementia-related hallucination and delusion; and (4) stroke. Delirium risk factors of dehydration, drug side effects, environmental change, infection, advanced age, sensory impairment and lack of mobilization were identified by participants as

Table 2. Responses to Multiple-choice Questions of Dementia, Delirium, and DSD.

Vignette N (%)	Care experience	Acute onset	Recognition	Decision to call the on-call physician for management	Consideration given to calling the on-call physician for medicating
Dementia	Yes: 86 (85.1) No: 15 (14.9)	Yes: 41 (40.5)	**Dementia: 59 (58.4)** Delirium: 7 (6.9) DSD: 10 (9.9) Normal aging: 25 (24.8)	Yes: 6 (5.9) No: 95 (94.1)	Yes: 12 (11.9) No: 89 (88.1)
Hypoactive Delirium Only	Yes: 79 (78.2) No: 22 (21.8)	**Yes: 61 (60.3)**	Dementia: 39 (38.6) **Delirium: 15 (14.9)** DSD: 13 (12.9) Normal aging: 10 (9.9) None of above: 24 (23.7)	Yes: 39 (38.6) No: 62 (61.4)	Yes: 36 (35.6) No: 65 (64.4)
Hyperactive Delirium Only	Yes: 91 (90.0) No: 10 (10.0)	**Yes: 95 (94.0)**	Dementia: 2 (2.0) **Delirium: 57 (56.4)** DSD: 42 (41.6)	Yes: 85 (84.2) No: 16 (15.8)	Yes: 92 (91.1) No: 9 (8.9)
Hyperactive DSD	Yes: 91 (90.0) No: 10 (10.0)	**Yes: 93 (92.0)**	Dementia: 15 (14.9) Delirium: 12 (11.9) **DSD: 71 (70.2)** Normal aging: 1 (1.0) None of above: 2 (2.0)	Yes: 72 (71.3) No: 29 (28.7)	Yes: 77 (76.2) No: 24 (23.8)
Hypoactive DSD	Yes: 79 (78.2) No: 22 (21.8)	**Yes: 58 (57.4)**	Dementia: 74 (73.3) Delirium: 3 (2.9) **DSD: 13 (12.9)** Normal aging: 6 (5.9) None of above: 5 (5.0)	Yes: 41 (40.6) No: 60 (59.4)	Yes: 38 (37.6) No: 63 (62.4)

Note: Correct answer is in bold fond. DSD=delirium superimposed on dementia

Table 3. Responses to Open-ended Questions of Dementia, Delirium, and DSD.

Vignette	Key responses on causes	Key responses on management
Dementia	-Alzheimer's disease -Aging -Parkinson' disease	-Consultation for diagnosis -Dementia medication -Reorientation and reassurance
Hypoactive Delirium Only	-Delirium risk factors -Delirium -Aging-related fatigue, lethargy & depression -Dementia-related mood change	-Notify physicians of patients' status and take an order for laboratory testing (e.g., dehydration and inflammation) -Notify physicians for diagnostic tests of depression -Check the list of medications that have been administered -Emotional support and reorientation -Activity encouragement
Hyperactive Delirium Only	-Delirium risk factors -Delirium -Dementia-related hallucination and delusion -Stroke	-Notify physicians of patients' status and take an order for medication (antipsychotic or sedative drug) -Isolation and physical restraint use if aggressive -Emotional support and reorientation -Hazard removed for safety
Hyperactive DSD Only	-Delirium risk factors -Delirium -Dementia	-Notify physicians of patients' status and medication (antipsychotic or sedative drug) -Isolation and physical restraint use if aggressive -Emotional support and reorientation
Hypoactive DSD	-Delirium risk factors -Dementia-related depression -Aging	-Check blood sugar, or vital signs, notify physician of patient's status and take an order for laboratory testing (e.g., dehydration) -Assessment of consciousness change

Note: DSD=delirium superimposed on dementia

causes of hypoactive delirium, hyperactive delirium, hyperactive DSD and hypoactive DSD. Table 3 provides additional information about the responses on causes of dementia, delirium, and DSD.

In terms of the management, hypoactive delirium had five key responses and included: (1) notify physicians of patients' status and take an order for laboratory tests for possibility of dehydration and inflammation; (2) notify physicians for diagnostic tests of depression; (3) check the list of medications that have been administered; (4) emotional support and reorientation; and (5) activity encouragement. Hyperactive delirium had four key responses regarding core management and included: (1) notify physicians for medication, such as antipsychotic or sedative drugs; (2) isolation and physical restraint use if aggressive; (3) emotional support and reorientation; and (4) hazard removed for safety. Table 3 provides additional information about the responses on management of dementia, delirium, and DSD.

Discussion

In the current study, almost RNs reported that they had experienced caring for hospitalised older adults with the symptoms of dementia, hyperactive delirium, hypoactive delirium, hyperactive DSD, and hypoactive DSD represented in the case vignettes. This finding suggests that it is common for South Korean RNs to encounter hospitalised older adults with hyperactive delirium, hypoactive delirium, hyperactive DSD, and hypoactive DSD, as well as dementia, in their daily practice.

There are very few studies in the literature that have assessed the knowledge of acute care nurses to correctly identify and appropriately manage specific situations of dementia, delirium, and DSD subtypes. Fick, Hodo [3] conducted a cross-sectional survey design to assess acute care nurses' knowledge of the recognition and management of dementia, delirium and DSD in the United States (US), using the same case vignettes used in the current study. Consistent with this prior research [3], the nurses in the current study had some knowledge of the recognition of hyperactive delirium and hyperactive DSD. Specifically, higher percentages of nurses in the current study were able to correctly identify hyperactive delirium (56%) and hyperactive DSD (70%) compared with 52% and 59% in the Fick, Hodo [3] study. In contrast, lower percentages of nurses in the current study were able to correctly identify hypoactive delirium (15%), hypoactive DSD (13%) and dementia (58%) compared with 41%, 21% and 83% in the Fick, Hodo [3] study.

Consistent with the Fick, Hodo [3] study, in the current study the qualitative responses given by nurses were related to management of the problems, and reflected that even though nurses may have identified the delirium and/or dementia problem incorrectly they appeared to recognise that there was a change in cognitive status requiring further investigation, either through notification of the physician or taking actions such as assessment of glucose levels and vital signs. However, the results from the quantitative data in the current study showed that 39% of nurses decided to call the on-call physician for the symptoms of hypoactive delirium and 41% decided to call for the symptoms of hypoactive DSD vignettes compared with 86% and 65% in the Fick, Hodo [3] study. This could indicate that less attention has been paid to dementia, delirium and DSD care in nursing education in South Korea. South Korean nurses may assume that the symptoms of hypoactive delirium and/or hypoactive DSD are a normal part of the ageing process or a result of dementia, rather than being related to the symptoms of delirium. In South Korea, family caregivers at the bedside have the most consistent contact with their older family member in acute care settings [15]. Due to a lack of awareness for delirium, family caregivers do not identify the symptoms of hypoactive delirium and/or hypoactive DSD and do not report these symptoms to staff nurses. This finding highlights the need to educate both acute care nurses and family caregivers on dementia, delirium, and DSD care because older adults, particularly those with dementia, are at high risk of developing this complication while hospitalised.

This study had several limitations. First, this study used self-reported case vignettes to assess nurses' knowledge of the recognition and management of demenita, delirium, and DSD; their actual performance was not measured. This study also included only those who were willing to participate in this study, which reduced the representativeness of the chosen population sample. The small sample with data collection undertaken only in one regional general hospital in South Korea is a further limitation.

Conclusions

The findings of this study are important because this topic has received little attention in the South Korean context. This study demonstrated that South Korean nurses' knowledge of dementia, delirium, and DSD was inadequate, thus potentially resulting in inappropriate dementia, delirium, and DSD care in practice. The results of this study signify a need for an ongoing educational programme. Therefore, hospital in-service education programs should include dementia, delirium, and DSD care for nurses. This education should be directed towards helping nurses to improve their ability to provide appropriate dementia, delirium, and DSD care.

Nursing students in undergraduate programs should be well-prepared to provide appropriate dementia, delirium, and DSD care before entering a nursing career. Nursing faculty members who are committed to gerontological nursing in undergraduate programs need to advocate for stand-alone gerontology courses to be compulsory and to increase the content of dementia, delirium, and DSD care in these subjects and clinical placements.

Conflict of interest

No conflict of interest has been declared by the authors.

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