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Knowledge of nurses working in nursing departments and undergraduate students about delirium and its risk factors

Wiedza pielęgniarek i studentów pielęgniarstwa na temat zaburzeń świadomości oraz czynników ryzyka

ABSTRACT

Aim. To investigate knowledge of delirium and its risk factors among nurses working in nursing departments and undergraduate nursing students.

Material and method. A questionnaire was used to assess the knowledge of nurses and nursing students related to delirium and its risk factors. The questionnaire was completed by 258 participants (149 randomly selected general practice nurses and 109 final year undergraduate students from nursing study programmes).

Results. Only six of the 14 questions relating to the knowledge of delirium were answered correctly by more than half of the respondents. Only three of the 14 questions about delirium risk factors were answered correctly by more than 50% of the respondents.

Conclusion. Most nurses and students were aware of some delirium symptoms: distraction, inability to concentrate, perceptual disturbance and behavioural changes observed in the course of the day.

Key words: delirium, knowledge, nurse, nursing departments

STRESZCZENIE

Cel. Ocena wiedzy dotyczącej zaburzeń świadomości i związanych z nimi czynników ryzyka u pielęgniarek i studentów pielęgniarstwa.

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Osoby badane i metoda. Zastosowano kwestionariusz do oceny wiedzy pielęgniarek i studentów pielęgniarstwa na temat delirium i czynników ryzyka jego wystąpienia. Kwestionariusz został wypełniony przez 258 badanych (149 losowo wybranych pielęgniarek o profilu ogólnym i 109 studentów ostatniego roku pielęgniarstwa).

Wyniki. Niewiele ponad 50% respondentów odpowiedziało poprawnie, zaledwie na 6 spośród 14 pytań dotyczących wiedzy na temat delirium. Podobnie, ponad 50% badanych odpowiedziało poprawnie na 3 z 14 pytań dotyczących czynników wystąpienia delirium.

Wnioski. Większość badanych pielęgniarek i studentów znała niektóre objawy delirium: rozkojarzenie, trudności w koncentracji uwagi, zaburzenia spostrzegania, zamiany w zachowaniu.

Słowa kluczowe: Delirium, wiedza, pielęgniarka, pielęgniarstwo

Introduction

Delirium is a common complication of acute illness, particularly in older people (Godfrey et al., 2013). More severe cognitive impairment and depressive symptoms detected on initial assessment are associated with the development of delirium during hospitalization (Von Gunten, Mosimann, Antonietti, 2013). 10% of older patients enter the emergency department with delirium. Moreover, 14–56% of patients develop this condition during hospitalization (Sherman, 2002). Delirium is also frequent among nursing home residents, in particular during the first weeks after admission (Von Gunten, Mosimann, 2010), and nearly a quarter of all residents have symptoms of delirium after admission (Marcantonio et al., 2003).

Delirium is a distressing condition for patients, family and staff (Breitbart, Gibson, Tremblay, 2002; Lawlor, Bruera, 2002). The patient is often unable to communicate properly or even at all, nor are they able to fully participate in treatment decisions (Barron et al., 2004), and this may lead to more investigations and interventions than necessary (Van Zyl, Seitz, 2006). Delirium makes it more difficult for medical and nursing staff to assess other symptoms, and there is an increased risk of conflict concerning patient management arising between medical staff and family members, who might feel that not enough is being done. One study has indicated that nurses do not understand either the need for, or importance of preventive measures because the negative outcomes associated with delirium are not well enough understood (Flagg et al., 2010).

Delirium is a common problem for older people in long-term care (LTC) facilities. Voyer, Richard, Doucet, Danjou, Carmichael, (2008) confirmed the importance of the under-recognition of delirium symptoms by bedside nurses in this frail population group. The study showed that it is difficult to identify the symptoms and signs of delirium, and they are often overlooked. The incidence of delirium among the study's patient participants was 71.5% ($n = 108$), and of these, nurses identified delirium in just 13% ($n = 14$) of cases. The authors concluded that nurses under recognize delirium in older adults in the LTC setting. Lin et al. (2012) conducted a study to assess hospital nurses' knowledge and attitudes towards dementia care, and to investigate their relationship with nurse demographics. The results showed that the majority of nurses tend to confuse dementia with delirium.

Hare et al. (2008) used a questionnaire to assess nurses' knowledge of delirium and its risk factors. Of the 338 (30.8%) returned responses: 64% ($n = 217$) scored 50% or better on the overall questionnaire; 36.3% ($n = 123$) scored 50% or better on the risk factor questions; and 81.9% ($n = 227$) scored 50% or

better on the knowledge questions. The findings indicated that orthopaedic nurses who had previously participated in a delirium education forum scored better on general delirium questions, compared to nurses who had undergone no pre-survey educational intervention. This questionnaire has also been used by Baker et al. (2015), who found nurses to have a significant lack of knowledge about delirium and its risk factors. Only 12 of the 60 respondents (20%) scored at least 75% to be considered as generally knowledgeable. Furthermore, the study found no correlation between education level, years of experience, or area of practice, and the nurses' general knowledge of delirium and its risk factors. However, nurses with experience of caring for patients with delirium scored higher on general delirium knowledge than those who lacked such experience.

Devlin et al. (2008) described the importance of recognizing the signs of delirium. The authors found that nurses' clinical recognition of delirium was poor in the before-education period as only 24% of nurses reported the presence or absence of delirium, and only 16% of their judgements were correct. Following an educational intervention, the number of nurses able to evaluate delirium using any scale rose from 12% to 82%, and correct usage was seen to increase from 8% to 62%. Another study by Dahlke and Phinney (2008) used qualitative interviews to assess how nurses apply preventive measures and treatments in older hospitalized patients, and this also assessed delirium-related issues.

Delirium is often seen as a complication of another physical disease, and as a result can be wrongly judged as being of secondary importance. In such cases, the lack of clarity around all elements of the care pathway, from assessment to diagnosis and treatment, adds weight to the argument that recognition is crucial (Teodorczuk, Reynish, Milisen, 2012). Inouye et al. (2001) suggested that appropriate training of nursing staff regarding the clinical features of delirium may reduce the prevalence of it failing to be detected. Moreover, given the shortage of nurses and carers in many health care settings, nurses may have very limited time for effective communication with medical, surgical and psychiatric staff. In order to reduce morbidity, mortality and the duration of hospitalization related to delirium, it is important that emergency department and inpatient care teams are constantly vigilant for signs of delirium, especially in the elderly. The most important factor in increasing the diagnosis of delirium has been seen to be the education of all clinical staff (Detweiler et al., 2014).

Since delirium in older people is more related to somatic disorders and risk factors and is observed in others than mental health departments, it is very important to educate nursing staff taking care about the patients in all health care sectors.

Literature suggests that education and training is only one aspect of complex preventive strategies avoiding delirium. Effective multicomponent preventive strategies, coordinated services, co-management in difficult cases, regular education, training and support for all staff.

Aim

To investigate knowledge of delirium and its risk factors among nurses working in nursing departments and undergraduate nursing students.

Study group

Sixty two nurses who participated in the survey worked in three long-term care treatment hospitals, 79 nurses – 12 nursing sections which have been established in the departments of the general profile in hospitals or departments belonging to primary healthcare centres. Eight were ward-based nurses in hospitals that did not have a distinct nursing department. Systematic sampling was random. There was chosen every tenth nurse from the nurses list.

One hundred and nine third or fourth year nursing students participated.

Data was collected from November 2012 to April 2013. Nurses employed in nursing departments and full-time nursing students in their third or fourth year of undergraduate studies were eligible for inclusion in the study. Participants needed to read and speak Lithuanian, and be willing to voluntarily participate in the study.

Method and tools

A tool based on the delirium questionnaire developed by Hare et al. (2008) was used. The section of the questionnaire that collected the respondents' socio-demographic and education data was modified to suit the Lithuanian context. Nurses were asked whether they often see delirium in their practice, whether they feel that delirium is a significant problem, and how often they attend conferences, or whether they had received training or any other education regarding delirium. They were also asked to specify their gender, age, education, the length of experience in their current role, and total number of years' experience they had as a nurse. The students were asked to specify the academic year and course they were in, when they were taught about delirium, and the number of classroom hours devoted to delirium. They were asked whether they felt that delirium is a significant problem, and to assess their knowledge of delirium on ten point scale. The students were also requested to state their gender, age and education.

A second section consisted of 14 questions related to the knowledge of delirium symptoms, and a third section consisted of 14 questions related to the risk of delirium. Participants were required to respond "true", "false" or "unsure" to a series of 28 statements. Completing the questionnaire took approximately 15 minutes.

Ethical Considerations and sample

All participants were 18 years of age or older, and were informed of voluntary nature of participating in the study. Respondents were informed that all of the reported results would be aggregated to protect the identity of individual participants. The research was conducted according to the principles of the Declaration of Helsinki.

A random sample of 163 nurses was selected from 254 nurses employed at 18 health establishments providing nursing services. Of these, 149 nurses agreed to participate and completed the questionnaire (response rate 91%). A convenience sample of 118 students in the last years of their nursing study programmes in colleges and universities was selected, with 109 properly completing the questionnaire (response rate 92%). Questionnaires were handed directly to participants as a paper questionnaire. All of the potential participants were provided with information about the research, its purpose, and were required to sign a consent form before completing the questionnaire. Those who consented to participate were provided with two envelopes, one for the signed consent form and one for the completed questionnaire. Participant anonymity was ensured by having the participants place the separate documents into the envelopes, prior to returning them to the researcher. A total of 258 respondents filled out the questionnaire: 58% were general practice nurses working in 18 nursing hospitals, and 42% were third or fourth year students in university or college undergraduate nursing programmes.

Statistical Analysis

Quantitative data was analysed using SPSS Statistics® (version 17) software. Answers of "True"/"False" were defined as correct or incorrect during the analysis. Descriptive statistical analysis was used to calculate frequencies, mean values, range, Pearson chi-square test, degrees of freedom (*df*). The p-value level of significance was set at 0.05. A Mann-Whitney *U* test was used to compare the overall scores of correct answers between nurses and students.

Results

Demographic findings: The age of general practice nurses ranged from 24 to 65 years, with a mean age of 46.1 years (*SD* ± 9.78 years), and 98% of participants were female. The final year students ranged in age from 19 to 53 years, with a mean age of 25.0 years (*SD* ± 6.74 years), and 95% of participants were female. The nurses' duration of work ranged from 1 to 45 years, with mean of 22.8 years (*SD* ± 11.80 years).

Questions relating to the significance of delirium: almost all of the nurses (98%) and a similar proportion of the students (97.2%) agreed with the statement that delirium was a significant condition. More than half of the nurses (59.1%) stated that they often observed cases of delirium in their practice. Almost half of the nurses (48.3%) indicated that they had not participated in any conferences or training sessions on delirium, but a minority (19.5%) of nurses said they participated in conferences or training sessions on delirium once a year. The same percentage of nurses said they had participated in conferences or training sessions on delirium once in the last three years. Most of the nurses (85.2%) thought that they needed additional training on delirium, and only a relatively small number (14.8%) felt that no additional training was needed.

Questions relating to the knowledge of delirium: the research aimed to investigate whether the respondents knew the general symptoms of delirium, the causes of its development, and instruments that can be used to diagnose this condition (Table 1).

Due to a printing error, 65 of the questionnaires completed by nurses did not include the first of the 14 questions relating to the knowledge of delirium. This was corrected for subsequent questionnaires. To ensure a fair and accurate comparison between nurse and student responses, the non-responses were excluded from the analysis. The number of non-responses are shown in Table 1 for completeness, but are not counted in the denominator. The response rates for correct, incorrect and unsure for each question were calculated excluding "no answer" from the denominator.

Of the 191 respondents who answered the first question, over half ($n = 114$, 59.7%) correctly answered "False" to the statement that a fluctuation between orientation and disorientation is not typical of delirium. Almost one third of respondents ($n = 63$) answered incorrectly, and only 14 (7.3%) were unsure. No differences between nurses and students for correct vs incorrect vs unsure answers were found ($\chi^2 = 1.933$, $df = 2$, $p = 0.380$).

Overall, responses were inconsistent for both nurses and students, with correct responses for individual questions ranging from 15.3% ($n = 112$) to 84.7% ($n = 216$), incorrect from 2.7% ($n = 7$) to 57.9% ($n = 146$) and unsure from 5.9% ($n = 15$) to 40.7% ($n = 103$). Only six of the 14 questions in this section were answered correctly by more than half of the respondents: 'fluctuation between orientation and disorientation is not typical of delirium' (false; $n = 114$, 59.7%) 'delirium never lasts more than a few hours' (false; $n = 132$, 52.2%); 'behavioural changes in the course of the day are typical of delirium' (true; $n = 216$, 84.7%); 'a patient with delirium is likely to be easily distracted and/or have difficulty following a conversation' (true; n = 210, 82.4%); 'patients with delirium will often experience perceptual disturbance' (true; n = 212, 83.3%); and 'altered sleep/wake cycle may be a symptom of delirium' (true; n = 172, 67.2%).

Over all of the questions, 3485 answers were given, 47.4% (n = 1651) of which were correct. A total of 1055 were answered incorrectly (30.3%), which is notable because the answer option of 'unsure' was available in each case, but only used for 22.4% (n = 779) of the total answers. This implies that respondents either had some degree of certainty about the answer, or were reluctant to indicate a lack of knowledge. There was no difference in the overall count between nurses and students.

Table 1. Answers by nurses and students to questions relating to knowledge of delirium

Question	Nurses' answers				Students' answers			
	Correct answer *n* (%)	Incorrect answer *n* (%)	Unsure *n* (%)	No answer *n*	Correct answer *n* (%)	Incorrect answer *n* (%)	Unsure *n* (%)	No answer *n*
Fluctuation between orientation and disorientation is not typical of delirium (False)[1]	**46 (54.8%)**	30 (35.7%)	8 (9.5%)	65	**68 (63.6%)**	33 (30.8%)	6 (5.6%)	2
Symptoms of depression may mimic delirium (True)	71 (48%)	28 (18.9%)	49 (33.0)	1	41(38.3%)	38 (35.5%)	28 (26.2%)	2
Treatment for delirium always includes sedation (False)	25 (16.9%)	90 (60.8%)	33 (22.3%)	1	27 (25%)	47 (43.5%)	34 (31.5%)	1
Patients never remember episodes of delirium (False)	21 (14.6%)	78 (54.2%)	45 (31.32%)	5	17 (16.2%)	64 (61%)	24 (22.9%)	4
A Mini Mental Status Examination (MMSE) is the best way to diagnose delirium (False)	20 (13.9%)	62 (43.1%)	62 (43.1%)	5	24 (22.2%)	45 (41.7%)	39 (36.%)	1
Delirium never lasts for more than a few hours (False)[2]	**81 (55.5%)**	23 (15.8%)	42 (28.8%)	3	**51 (47.7%)**	21 (19.6%)	35 (32.7%)	2
A patient who is lethargic and difficult to rouse does not have a delirium (False)	69 (47.6%)	61 (42.1%)	15 (10.3%)	4	36 (33.6%)	41 (38.3%)	30 (28%)	2
Patients with delirium are always physically and/or verbally aggressive (False)	23 (15.5%)	102 (68.9%)	23 (15.5%)	1	32 (30.8%)	44 (42.3%)	28 (26.9%)	5
Delirium is generally caused by alcohol withdrawal (False)	26 (17.7%)	96 (65.3%)	25 (17%)	2	44 (42.3%)	42 (40.4%)	18 (17.3%)	5
Patients with delirium have a higher mortality rate (True)	59 (39.9%)	18 (12.2%)	71 (48%)	1	60 (57.1%)	13 (12.4%)	32 (30.5%)	4
Behavioural changes in the course of the day are typical of delirium (True)[3]	**134 (90.5%)**	7 (4.7%)	7 (4.7%)	1	**82 (76.6%)**	17 (15.9%)	8 (7.5%)	2
A patient with delirium is likely to be easily distracted and/or have difficulty following a conversation (True)[4]	**133 (89.9%)**	2 (1.4%)	13 (8.8%)	1	**77 (72%)**	21 (19.6%)	9 (8.4%)	2
Patients with delirium will often experience perceptual disturbance (True)[5]	**135 (91.2%)**	3 (2%)	10 (6.8%)	1	**77 (72%)**	4 (3.7%)	26 (24.3%)	2
Altered sleep/wake cycle may be a symptom of delirium (True)[6]	**105 (70.9%)**	16 (10.8%)	27 (18.2%)	1	**67 (62%)**	9 (8.3%)	32 (29.6%)	1

[1] $\chi^2 = 1.933$, $df = 2$, $p = 0.380$; [2] $\chi^2 = 1.571$, $df = 2$, $p = 0.456$; [3] $\chi^2 = 10.429$, $df = 2$, $p = 0.005$; [4] $\chi^2 = 25.421$, $df = 2$, $p = 0.000$; [5] $\chi^2 = 16.968$, $df = 2$, $p = 0.000$; [6] $\chi^2 = 4.642$, $df = 2$, $p = 0.098$.

Questions relating to the knowledge of delirium risk factors: the research aimed to investigate whether the respondents knew of delirium risk factors such as age, gender, impaired hearing and vision, or having undergone repair of a fractured neck of femur or elective hip replacement (Table 2).

As with the questions relating to the knowledge of delirium, answers were inconsistent, with correct answers ranging from 6.5% ($n = 7$ students) to 74.8% ($n = 110$ nurses); incorrect answers ranging from 5.4% ($n = 8$ nurses) to 66.7% ($n = 98$ nurses); and unsure answers ranging from 10.2% ($n = 15$ nurses) to 65.4% ($n = 70$ students). Only three of the 14 questions were answered correctly by more than 50% of the respondents: 'the risk for delirium increases with age' (true, $n = 157$, 62.1%); 'a urinary catheter *in situ* reduces the risk of delirium (false, $n = 186$, 74%); and 'dementia is the greatest risk factor for delirium' (true, $n = 140$, 55.1%). Chi-square tests showed no statistically significant difference between nurses and the overall mean of correctly answered questions relating to the knowledge of delirium risk factors was 5.11 (nurses 4.94 and students 5.34). A Mann-Whitney U test showed no difference between the nurse and student answers (Mann-Whitney $U = 7320.0$, $Z = -1.37$, $p = 0.17$).

Discussion

This study adds to the international evidence, and is the first study to assess the knowledge of delirium and its risk factors amongst nurses working in nursing departments. It also offers the first evaluation of nursing students' knowledge of the topic. The results show that not only in intensive care units, but also in general care units, nurses lack of knowledge on delirium and its risk factors.

The literature search gave no returns relating to nursing students' knowledge of delirium and its risk factors, however medical students featured in a pilot study (Agens et al., 2016) aiming to evaluate their performance of cognition and functional status charting in older persons during non-geriatric clerkships. The documentation of cognitive status in hospital charts for students and physicians was somewhat higher than described elsewhere in the literature.

The research also investigated the knowledge of delirium and its risk factors that practising nurses have, compared to nursing students in their final years of study. Almost all of the nurses questioned and a similar proportion of the students agreed that delirium was a significant condition. Nearly three fifths of the nurses stated that they often observed cases of delirium in their practice, and this coincides with the recent research of Pandharipande et al. (2013) who found that in 821 patients, as many as 74% had developed delirium when hospitalized.

More than a half of the nurses questioned in this study answered six of the fourteen questions relating to knowledge of delirium correctly. They knew that fluctuation is typical of delirium, delirium might sometimes last for more than a few hours, an altered sleep/wake cycle might be a symptom of delirium, behavioural changes in the course of the day were typical of delirium, patients with delirium were likely to be easily distracted and/or have difficulty following a conversation, and that patients with delirium would often experience perceptual disturbance. More than a half of the questioned students answered five of the six questions relating to the knowledge of delirium correctly, that were also answered correctly by the majority of nurses. They did not answer correctly that delirium can last more than a few hours, but answered correctly that delirium is associated with higher mortality. To sum up, most nurses and students were aware of some delirium symptoms. Over a half of the questioned students were not aware of the fact that patients would sometimes remember episodes of delirium. Two fifths of the nurses and same number of students also erred in their answer, that the Mini Mental Status Examination (MMSE) was the best way to diagnose delirium. In the research presented by Saczynski et al. (2012),

Table 2. Answers by nurses and students to questions relating to knowledge of delirium risk factors

Question	Nurses' answers				Students' answers			
	Correct answer *n* (%)	Incorrect answer *n* (%)	Unsure *n* (%)	No answer *n*	Correct answer *n* (%)	Incorrect answer *n* (%)	Unsure *n* (%)	No answer *n*
A patient having a repair of a fractured neck of femur has the same risk for delirium as a patient having an elective hip replacement (False)	27 (18.4%)	57 (38.8%)	63 (42.9%)	2	37 (34.9%)	44 (41.5%)	25 (23.6%)	3
The risk for delirium increases with age (True)[7]	**92 (62.6%)**	25 (17%)	30 (20.4%)	2	**65 (61.3%)**	12 (11.3%)	29 (27.4%)	3
A patient with impaired vision is at increased risk of delirium (True)	20 (13.6%)	81 (55.1%)	46 (31.3%)	2	16 (15%)	58 (54.2%)	33 (30.8%)	2
The greater the number of medications a patient is taking, the greater their risk of delirium (True)	42 (28.4%)	54 (36.5%)	52 (35.1%)	1	47 (44.3%)	32 (23.2%)	27 (25.5%)	3
A urinary catheter in situ reduces the risk of delirium (False)[8]	**110 (74.8%)**	8 (5.4%)	29 (19.7%)	2	**76 (71%)**	6 (5.6%)	25 (23.4%)	2
Gender has no effect on the development of delirium (False)	34 (23.1%)	98 (66.7%)	15 (10.2%)	2	35 (32.7%)	52 (48.6%)	20 (18.7%)	2
Poor nutrition increases the risk of delirium (True)	33 (22.3%)	78 (52.7%)	37 (25%)	1	47 (43.5%)	26 (24.1%)	35 (32.4%)	1
Dementia is the greatest risk factor for delirium (True)[9]	**83 (56.8%)**	25 (17.1%)	38 (26%)	3	**57 (52.8%)**	30 (27.8%)	21 (19.4%)	1
Males are more at risk for delirium than females (True)	39 (26.5%)	46 (31.3%)	62 (42.2%)	2	30 (28.3%)	43 (40.6%)	33 (31.1%)	3
Diabetes is a high risk factor for delirium (False)	56 (38.4%)	43 (29.5%)	47 (32.2%)	3	53 (50%)	18 (17%)	35 (33%)	3
Dehydration can be a risk factor for delirium (True)	64 (44.4%)	41 (28.5%)	39 (27.1%)	5	43 (40.2%)	21 (19.6%)	43 (40.2%)	2
Hearing impairment increases the risk of delirium (True)	32 (21.9%)	69 (47.3%)	45 (30.8%)	3	26 (24.3%)	36 (33.6%)	45 (42.1%)	2
Obesity is a risk factor for delirium (False)	83 (56.8%)	12 (8.2%)	51 (34.9%)	3	43 (40.2%)	14 (13.1%)	50 (46.7%)	2
A family history of dementia predisposes a patient to delirium (False)	21 (14.1%)	77 (51.7%)	51 (34.2%)	–	7 (6.5%)	70 (65.4%)	30 (28%)	2

[7] $\chi^2 = 2.653$, $df = 2$, $p = 0.265$; [8] $\chi^2 = 0.511$, $df = 2$, $p = 0.775$; [9] $\chi^2 = 4.599$, $df = 2$, $p = 0.100$

the MMSE was used as a tool for the assessment of patient's cognitive functions. However, one of the widest used methods to diagnose delirium is the Confusion Assessment Method (CAM), and this was used by Fortini et al. (2014) to diagnose delirium in their research.

One of the possible answers to questions was "Unsure", but in 8/28 questions, more than half of the nurses chose incorrect answers. This indicates that nurses are not aware of the gaps in their knowledge about delirium: e.g. they didn't know symptoms and risk factors of delirium such as impaired vision, gender and poor nutrition. It can therefore be inferred that the nurses lack information on delirium, its risk factors, and the recognition of its signs and symptoms. Thus, nurses should be encouraged to participate in conferences and training opportunities which focus on delirium, in order to acquire both theoretical knowledge and practical skills. Hare et al. (2008) also highlighted the need to educate nurses on the topics of the recognition of delirium and its risk factors, especially those who are responsible for the care of elderly patients. Being able to recognize the signs of delirium may improve the quality of patient care by improving treatment, reducing the duration of hospitalization, and reducing the level of mortality. However, authors have indicated that a lack of timely diagnosis of delirium leads to increased mortality (McAvay et al., 2006; Isaia et al., 2009), but given the findings of this study, it would appear that effective educational measures are not yet in place.

Conclusion

Despite delirium being recognized as a significant contributory factor to the wellbeing and mortality of nursing departments, and previous research identifying the need for educational interventions, the findings of this research indicate that most of the nurses and students questioned in this survey were aware of delirium symptoms, but gap of knowledge was revealed on some aspects recognising delirium and its risk factors. Nurses and nursing students lack of knowledge on delirium which implicates introduction of continuous educational activities and gives a firm recommendation for practice and further research.

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