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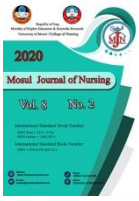

Assessment of Nurses Knowledge Regarding Delirium in Adult Critical Care Units in Baqubah

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Abstract:

Research Question: What is the knowledge of nurses in assessing patients with delirium in critical care units in Baqubah?

Aim of this study: An evaluation of nursing knowledge regarding delirium assessment in adult Critical care units .

Method: A quantitative descriptive survey was carried out among 36 staff nurses working in Critical care units in Baqubah teaching hospital. A self-reporting questionnaire was used to collect data to answer the research question .

Sample: All qualified nursing staff meeting outlined criteria and working in the Critical care clinical areas in the selected hospital were invited to participate in the study. A response rate of 80% (n=36) was achieved .

Findings: More than half of the nurses reported that they don't using validated tools to assess for delirium during their practice. However, critical care clinical practice in Baqubah lacks established protocols to screen for delirium resulting in non-adherence to clinical practice guidelines. Barriers and poor perceptions were identified in this survey in relation to delirium screening. This information can inform future care planning and care to be used to improve standards and quality of care in intensive care units.

Keywords; Nurse, Nurse Knowledge, Delirium, Critical care units, Adults.

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Introduction

Delirium is a sudden start of mental distress between adults and the elderly in adolescents (Pisani et al., 2008). Delirium was historically considered a medical disorder. Delirium has emerged as a popular phenomenon particularly between the chronically ill people over the last two decades. Delirium is also widely recognised in patients of all age groups in critical care facilities as acute brain damage or coordinated brain syndrome (Barr et al., 2013). Delirium is considered a medical emergency, especially among critically ill people, and marks brain dysfunction (Gesin et al., 2012). Delirium was linked to several negative clinical outcomes for patients receiving critical care. The short and long term clinical effects associated with delirium are well established among critically ill patients (Salluh, 2015). The reported short-term negative clinical outcomes among critically ill patients include: increased duration of critical care and hospital stay, increased number of days spent on ventilators and increased mortality risk (Baar et al., 2013).

Delirium is one of the severe complications in critical care units that present psychological problems for patients, families and health care providers. Delirium study has identified important results in multidisciplinary fields such as medicine and neuropsychology in the last decade: one such finding identifies delirium as a predictor of long-term cognitive impairment (Pandaharipande et al., 2013, Macullulich et al., 2013). Researchers,

professional international organizations, policy-makers, educationalists and clinical auditors have now recognized Delirium as a major problem in the last decade (Teodorczuk et al ,.2012, Macullulich et al., 2013).

Approach to the study

In order to answer the research question the Principal Investigator (PI) conducted a quantitative descriptive survey using a convenience sample 34 Critical care nurses in Baqubah. The data were collected using previously validated self-administered questionnaire, developed by Devlin et al. (2008).

Literature Review

Delirium definition: To understand what delirium actually about, the advent of delirium as a medical disease must be considered. In 1950, personnel working in intensive rehabilitation units became aware of serious psychological and emotional problems in critically ill patients. (Anbu, 2014). Mc Kegny indicated that the sensitivity of the patient to stress had an impact on the results of patients from their disease and the development of ICU syndrome. Critical care units are a highly stressful place for patients because of the difficulty of the procedures to restore health and rehabilitation resulting in a high risk unit for delirium occurrences (Rawal, Yadav & Kumar, 2017). There are about 25 words such as acute confessional condition, acute brain dysfunction and ICU psychosis that have been used in critical care to describe the cognitive disorder that is associated with delirium signs and symptoms. This development leads to a condition of neuro-psychiatry with organic pathology called delirium (Salluh et al, 2015). Diagnosis of delirium is also hindered by confusing nomenclature, with many of these terms expressing acute brain disturbance used differently in different treatment settings (Macullich et al, 2013).

Delirium clinical meaning is an essential consideration that may eventually contribute to a deeper understanding and recognition of the delirium. Lipowski (1990) described delirium as a psychiatric illness marked by an sudden onset of altered consciousness, fluctuating course and disturbances of perception, memory, thinking and behavior. (Anbu, 2014). "Delirium" is described in the American Psychiatric

Association as "a disorder that occurs in a short period (usually hours and days) and tends to fluctuate throughout the day." (Bakri, Ismail & Ibrahim, 2015).

Types of delirium

There are three subtypes of delirium which can be classified based on psychomotor activity, behavior and attention (Holly et al,2012) which includes; Hyper active, Hypo active and Mixture of both.

Critical health care nurses are quickly described as highly aggressive delirious patients, with symptoms like self-extuition, invasive line displacement, and combatant behavior (Ehwarieme, 2015). By contrast, hypoactive patients should sit comfortably, withdrawn, anxious and apathetically and guarantee an early screening method for them. Rising mechanical ventilation times, suction pneumonia and pressure ulcer complications include hypoactive delirium complications (Holly et al., 2012).

Delirium of mixed form reveals symptoms of hyperactive and hypoactive characteristics (Godfrey et al., 2010). Sometime after that, the patient can be quiet, anxious and nervous. (Holly et al., 2012). It is also difficult and frustrating for critical care practitioners to distinguish hypoactive and mixed delirious patients. When not detected early, hypoactive delirium can develop hyperactive and mixed deliriums that are much more difficult to manage and associated with negative effects such as prolonged treatment and increased mortality rates (NIHCE, 2013).

Risk factors

Intensive care units are dangerous environments for patients and the human brain displays outstanding environmental awareness (Mantz et al, 2012), In some patients with conditions such as stroke, septic encephalopathy, epilepsy, anoxia, a metabolic, inflammatory, and neurotoxicity mediated drugs and impaired circadian rhythms, the brain functions of the critically diseased are changed. In critical care patients, the environment has a significant effect on brain functions (Mantz et al., 2012). Arend and Christensen indicated that delirium is mostly triggered by environmental stimuli in critical health units, and that Van Rompaey et al shared this belief in environmental stimuli in critical care units that cause delirium

(Johansson, 2014). In their future analysis of the environmental risk factors for the occurrence of delirium, 53 per cent of environmental factors were calculated to be responsible for the occurrence of delirium. The literature identifies predisposing factors as cognitive or sensory disabilities, dehydration, specific (psychoactive) medication, older age, lack of sleep and underlying health condition (Evensen et al., 2018). The use of sedative medicines, hypnotics, primary neurological disorders, intercurrent disorders and the surgical setting are some of the prominent precipitating factors for deliria. The involvement of multiple invasive and tracking instruments, the insertion of catheters and uncomfortable interference in critical care facilities serve as premature causes for delusion (Arumugam et al., 2017). Exposure to sedatives such as benzodiazepines and hypnotics is one of the most modifiable risk factors for psychiatric, surgical and hospital patients to experience delirium. A multi-component intervention targeting established modifiable risk factors can reduce about a third of the incidence of delirium in hospitals (Godfrey et al., 2013) .

Delirium and Clinical outcomes

1- ***Short term complications***: The negative consequences of delirium can be categorized as short-term outcomes. Increased length of ICU and hospital stay, increased number of days spent on fans and increased risk of mortality were the short-term negative clinical outcomes of critically ill patients (Barr et al., 2013). In patients who go through highly traumatic critical disease with their pre-existent coexistence morbidity, cognitive disability and serious illness, delirious patients have greater risk of death. Delirium is often referred to as one indicator of increased mortality (Barr et al., 2013). The remaining short-term problems associated with hospitalized patients include chronic cognitive deficits, loss of independence, reduced mobility, rising costs, and increasing mortality rates up to two years. (Macullulich et al 2013). A 20 per cent greater risk of long-term admission and a 10 per cent greater risk of death are involved each additional day spent with delirium in health care facilities. (ICU delirium, UK, 2014). Delirium raises

healthcare expenses to 40%, which is attributed to the levels raised in chronically ill patients with unsuccessful extubation and reintubation. (Ely et al., 2012).

2- ***Long term complications***: Delirium was treated as a short-term neurological condition. After the hospital discharge, the long-term squeal of delirium begin. Delirium is a key indicator of dementia and death, which strongly anticipates future new dementia and speeds up current dementia. Sleep disturbances, anxiety disorders, post-traumatic stress disorder, depression and a significant cognitive disability are long-term adverse consequences for delirant patients (Holly et al, 2012). Delirium is a precipitating factor in cognitive dysfunction over the long term. The long-term psychological sequelae of delirium affect patients as well as members of their families up to six years after their discharge. Neurocognitive impairments in patients contribute both to psychological distress and a burden on caregivers. (Kukreja, Günther & Popp, 2015

Current nursing knowledge of delirium assessment

In detecting delirium in ICU, nurses play an important role. Since nurses are constantly in close contact with ICU patients, they can recognize any distinct psychological changes and recognise delirium preferably. It is not only a matter for health care providers, but also doctors, pharmacists and other allied health practitioners to effectively incorporate a delirium assessment in critical care units (Pun & Devlin, 2013). A broad multi-center study of delirium awareness and actions by 784 UK junior medical practitioners showed that doctors lack basic information and lack of understanding of diagnosis and delirium care. Nevertheless, the literature shows that physicians and nurses still do not check for ICU patients sufficiently (Schadewaldt, 2013).

In the case of 912 medical professionals including medical practitioners (n = 753), nurses (n = 113), pharmacists (n = 13), physician assistants (n = 12), respiratory practitioners (n = 8) and others (n = 13), Ely et al. performed a survey (phase I). This study has been performed for critical care practitioners from various geographical regions

of the United States at an annual scientific conference. This study found that only 40% (n=345) had been tested for delirium and in particular 16% (n=146) had used approved delirium screening methods (Anbu, 2014).

Methodology

Research design: Non-experimental analysis, quantitative study and descriptive analysis. Conducted in 1st September 2019 to 25th February 2020.

Ethics approval: To conduct the study obtained from the Technical Institute in Baquba. Then, the approvals were obtained from the Diyala Health Department and then attested from the administration of Baquba Teaching Hospital. After that, the officials obtained approval in the critical care corridors to give the forms to the nurses. The researcher obtained the approval of the nurses and clarified the aim of the research for them.

Study questionnaire: The two parts were composed of: 1. The population and 2. Data. Delirium concerns and their related risk factors. The second section allowed participants to respond to a series of 36 statements by agreeing, disagreeing or unsure. Eighteen statements relating to delirium ("Knowledge Questions") and 16 statements relating to risk for delirium ("risk questions") were presented and handled. A paper list of nursing staff was used to discuss the information sheets attached to the questionnaires in an decided on protocol in the nursing managers room. They were then grouped according to the region and given to caregivers with a cover letter asking for help in distributing questionnaires. The researchers themselves returned completed questionnaires. Test whether the response was clear or not clear were completed questionnaires. When scanned, answers for each delirium statement have been recoded to "correct," "incorrect," "uncertain" or "blank."

Data analysis: Data were then exported to Statistical Package for Social Sciences (SPSS version 20.0) for analysis. Frequency tables were generated and standard deviation performed.

Study sample: The Inclusion criteria for this study was registered general nurses currently working a minimum of six months in ICU, HDU, Cardiac ICU or mixed type ICU in Baqubah at the time of recruitment for the

study. While the exclusion criteria for this study was all registered nurses who were on extended leave such as Career breaks, maternity leave and long-term illness at the time of the study in selected critical care units.

Results

Table 1. Nurses demographic data

NO.	Characteristics		f	%
1.	**Age**	21-24	**16**	**47**
		25-29	14	41.2
		30<	4	11.8
		Total	34	100.0
2.	**Qualification**	School Nurse	3	8.8
		Diploma	8	23.5
		Bachelorette	**23**	**67.6**
		Master	0	0
		Total	34	100.0
3.	**Gender**	Male	9	26.5
		Female	**25**	**73.5**
		Total	34	100.0
4.	**Years of experiences**	1-3 years	26	76.5
		4-7 years	5	14.7
		8-10 years	3	8.8
		Total	34	100.0
5.	**Courses for delirium**	Yes	30	88.2
		No	4	11.8
		Total	34	100.0
6.	**Use of delirium scale**	Yes	32	94.1
		No	2	5.9
		Total	34	100.0

F= frequency, %=percentage

From the table, 47% of nurses are in the 21-24 age groups, and 67.5% of nurses have a bachelor's degree. 73.5% of nurses are women, 76.5% have 1-3 years of experience, and 88.2% of nurses do not have delirium courses and 94.1% do not use delirium in their corridors.

Table 2. Results for questions relating to knowledge of delirium

NO.	Question	Correct answer n (%)	Incorrect answer n (%)	Unsure n (%)
1.	Fluctuation between orientation and disorientation is not typical of delirium (False)	13(38.2)	10(29.4)	11(32.4)
2.	Symptoms of depression may mimic delirium (True)	20(58.8)	6(17.6)	8(23.5)
3.	Treatment for delirium always includes sedation (False)	14(41.2)	13(38.2)	7(20.6)
4.	Patients never remember delirium episodes (True)	6(17.6)	**20(58.8)**	8(23.6)
5.	Delirium is a difficult case to assess (True)	13(38.2)	10(29.4)	11(32.4)
6.	A Mini Mental Status Examination (MMSE) is the best way to diagnose delirium (False)	4(11.8)	3(8.8)	27(79.4)
7.	Delirium never lasts for more than a few hours (False)	11(32.4)	**18(52.9)**	5(14.7)
8.	A patient who is lethargic and difficult to rouse does not have a delirium (False)	13(38.2)	6(17.6)	15(44.1)
9.	Starting treatment with antipsychotics (for example, haloperidol) should be the primary intervention for all patients with delirium (True)	12(35.3)	15(44.1)	7(20.6)
10.	Patients with delirium are always physically and/or verbally aggressive (False)	9(26.5)	15(44.1)	10(29.4)
11.	Delirium is generally caused by alcohol withdrawal (False)	9(26.5)	13(38.2)	12(35.3)
12.	Patients with delirium have a higher mortality rate (True)	7(20.6)	14(41.3)	13(38.2)
13.	Behavioral changes in the course of the day are typical of delirium (True)	19(55.9)	6(17.6)	9(26.5)
14.	A patient with delirium is likely to be easily distracted and/or have difficulty following a conversation (True)	17(50.0)	7(20.6)	10(29.4)
15.	Patients with delirium will often experience perceptual disturbances (True)	**22(64.7)**	4(11.8)	8(23.5)
16.	Altered sleep/wake cycle may be a symptom of delirium (True)	16(47.1)	9(26.5)	9(26.5)
17.	The most delusional age group is the youth group (False)	18(52.9)	3(8.8)	13(38.2)
18.	Poor focus often presents delirium (True)	15(44.1)	7(20.6)	12(35.3)

n=number, %=percentage.

From the above table, we find that: 58.8% of nurses have wrong answers about "patients never remember delirium episodes", and 52.9% have wrong information about "delirium that does not last for more than a few hours".

Table 3. Results for questions relating to risk for delirium

NO.	Question	Correct answer n (%)	Incorrect answer n (%)	Unsure n (%)
1.	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)	11(32.4)	5(14.7)	18(52.9)
2.	The risk for delirium increases with age (True)	26(76.5)	3(8.8)	5(14.7)
3.	A patient with impaired vision is at increased risk of delirium (True)	10(29.4)	10(29.4)	14(41.2)
4.	The greater the number of medications a patient is taking, the greater their risk of delirium (True)	11(32.4)	5(14.7)	18(52.9)
5.	A urinary catheter in situ reduces the risk of delirium (False)	15(44.1)	4(11.8)	15(44.1)
6.	Gender has no effect on the development of delirium (False)	6(17.6)	15(44.1)	13(38.2)
7.	Poor nutrition increases the risk of delirium (True)	15(44.1)	9(26.5)	10(29.4)
8.	Dementia is the greatest risk factor for delirium (True)	23(67.6)	5(14.7)	6(17.6)
9.	Males are more at risk for delirium than females (True)	3(8.8)	12(35.3)	19(55.9)
10.	Diabetes is a high risk factor for delirium (False)	8(23.5)	11(32.4)	15(44.1)
11.	Dehydration can be a risk factor for delirium (True)	13(38.2)	8(23.5)	13(38.2)
12.	Hearing impairment increases the risk of delirium (True)	13(38.2)	9(26.5)	12(35.3)
13.	Obesity is a risk factor for delirium (False)	11(32.4)	14(41.2)	9(26.5)
14.	A family history of dementia predisposes a patient to delirium (False)	8(23.5)	**19 (55.9)**	7(20.6)
15.	Patients who have a mechanical ventilation are more likely to have delirium (True)	15(44.1)	9(26.5)	10(29.4)
16.	Anesthesia and narcotics are not related to delirium (False)	14(41.2)	15(44.1)	5(14.7)

n=number, %=percentage.

From the above table, we find that 55.9% of nurses answered wrong answers to nurses who had wrong answers to the question "The family history of dementia prepares the patient for delirium".

Table 4. Nurse's total knowledge towered delirium

Knowledge	f	%	Mean	Std. Deviation
High (68-46)	**0**	**0.0**		
Moderate(45-24)	**31**	**91.2**	**1.91**	**0.288**
Low (23-0)	**3**	**8.8**		

F= frequency, %=percentage

Discussion

The main result of this study is that nurses and nurses in the study hospital have insufficient levels of delirium knowledge, especially with regard to risk factors, where nursing was in one of the wards where in-service education was provided but education about delirium was not addressed however, the difference did not extend. This knowledge indicates delirium risk factors, and this indicates that in-service education can improve knowledge of delirium, and this also indicates the need for more education.

In Table No. (1), it appears that most of the nurses are in their twenties, and that 67.6% of them have a bachelor's degree while the rest of the nurses have a diploma and middle school nursing certificate that varies with the research (Anbu, 2014) as most of the workers in the intensive care corridors are nurses They mostly hold a high diploma 48.1%, as well as a master's 11.3%, while the baccalaureate they are a small percentage 28.3%. And 73.5% of the two patients working in the intensive care ward were women, while 26.5% of them were men, the sample had little experience 1-3 years 76.5%. In the study sample, the sample did not obtain delirium cycles and no scale was used to measure delirium in intensive care corridors.

As demonstrated by this study, the existence of delirium and the distinction between delirium and other conditions in elderly hospitalized patients are still not understood by nurses and other medical professionals. As the populations age, they will raise the age and acuity of hospitalized patients and will eventually face important problems in avoiding or early diagnosis of delirium. Caregivers must be able to reliably and consistently assess cognitive performance in-patient under their care and to relate their results to the medical history and normal functioning of the individual patient (before hospital) (Powers, 2013) .

The health care provider is best positioned as a primary care provider in the hospital for risk assessment, stratification and tailored measures to reduce risk. Prevention is the most common way to treat delirium (Dwight, 2014), In-patient and especially elderly nurses have a lack of awareness, particularly in relation to risk factors. Better awareness would lead to better avoidance,

diagnosis and delirium treatment. This improved awareness will result in a clearer distinction between chronic and acute uncertainty, along with clearer access to and evaluation of longitudinal information on patients' cognitive state and functioning (Middle & Miklancie, 2015). Results are seen in the reduction of mortality and morbidity, improved recovery and rehabilitation, less adverse accidents due to mobility disability (for example, falls) or diminished functioning, shorter stay times and reduced health system and person costs. Once again, the cost savings will be increased as the population ages (NICE, 2013).

Hospitalization seeks primarily to enhance the health and well-being of the individual or at least to preserve them. Delirium puts patients at risk for long-term health consequences, such as poor independent recovery and early mortality and ongoing morbidity. Maintenance of patient safety in the hospital as well as after discharge will have immediate and continuing impacts on individual and community healthcare costs (Inderpal, 2016). The skills, trust and comfort of the nurses in treating the confused, particularly older people in general would increase, in the course of better training, will also help health workers and the healthcare system. This will improve satisfaction by reducing tension and have flow-on implications for better recruiting and retention. In turn, less patients will need close monitoring, contributing to lower costs for nursing. (Powers, 2013).

Educational needs: The results of this study highlight the need to improve nurses' knowledge of delirium and its associated risk factors, particularly in the context of healthcare for the elderly. Therefore, it is recommended that delirium, its management and associated risk factors be more strongly incorporated into university curricula. This education must include broader knowledge and skills in relation to cognitive assessment, in order for the nurse to be able to accurately assess the level of the patient's cognitive function and explain changes in cognition to distinguish between delirium and other situations that may have similar signs and symptoms. These skills in cognitive assessment must include the ability to consider possible causes and contributing factors.

Conclusion and recommendations:

From the above, it becomes clear to us that the information of the nurses was average, despite the level of education of the nurses ranging from diploma to baccalaureate, which is supposed to raise the knowledge of nurses. This may also be due to the duration of the nurses' experience, which for most nurses was relatively short.

University education must be supplemented by in-service education, especially in the context of graduate nursing programs. This education should also include the use of existing formal assessment tools to assess the presence, type, and possible causes of confusion. Collaborative communication between the government, hospitals, and education providers is also required to establish a standard set of evaluation tools and roles and to facilitate standardization and consistency of evaluation standards and models throughout the healthcare system.

References

Anbu, A.S., (2014). **An evaluation of nursing practices regarding delirium assessments in adult critical care units in Western seaboard region of Ireland**. M. Health Sc. Galway: National University of Ireland Galway.

Arumugam, S., El-Menyar, A., Al-Hassani, A., Strandvik, G., Asim, M., Mekkodithal, A., Mudali, I., & Al-Thani, H. (2017). Delirium in the Intensive Care Unit. *Journal of emergencies, trauma, and shock, 10*(1), 37–46. https://doi.org/10.4103/0974-2700.199520

Bakri MH, Ismail EA, Ibrahim A. Comparison of dexmedetomidine or ondansetron with haloperidol for treatment of postoperative delirium in trauma patients admitted to intensive care unit: randomized controlled trial. *Anaesth Pain & Intensive Care* 2015;18(2):118-123

Barr, J., Fraser, G., Puntillo, K., et al. (2013) **Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit**. Critical Care Medicine, 41, pp 263-306.

Bell, L. (2011) **AACN Practice Alert: Delirium assessment & management.** Accessed online at from /www.aacn.org/WD/practice/docs/practicealerts/delirium-practice alert-2011.pdf>.

Dwight D. Faught, (2014). **Delirium: The Nurse's Role in Prevention, Diagnosis, and Treatment,** Instructions for Continuing Nursing

Education Contact Hours appear on page 304, Medsurg nursing: official journal of the Academy of Medical-Surgical Nurses · September 2014.

Ehwarieme Timothy Aghogho. The Dangerous Effect of Delirium in Intensive Care Unit: Implication for Nurses. Research and Reviews: *Journal of Neuroscience*. 2015; 5(3): 1–13p

Ely, E.W., Siegel, M.D., Inouye, S., et al. (2012). **Delirium in the intensive care unit :an under-recognized syndrome of organ dysfunction, in**: Seminars in Respiratory and Critical Care Medicine, 22. pp 115–126.

Evensen, S., Saltvedt, I., Lydersen, S. *et al.* Environmental factors and risk of delirium in geriatric patients: an observational study. *BMC Geriatr* **18,** 282 (2018). https://doi.org/10.1186/s12877-018-0977-y

Gesin, G., Russell, B., Lin, P., et al. (2012) **Impact of a delirium screening tool and multifaceted education on nurses' knowledge of delirium and ability to evaluate it correctly**. American Journal of Critical Care, 21, pp 12-20.

Girard, D., Pandharipande, P., Carson, S., et al. (2010) **Feasibility, efficacy, and safety of antipsychotics for intensive care unit delirium: The MIND randomized ,Placebo-controlled trial**. Critical Care Medicine, 38, pp 428–437.

Godfrey, M., Smith, J., Green, J. et al. (2013) **Biomedcentral Health Services Research**, 13, pp 341-342

Holly C., Cantwell E. R., Jadotte Y. (2012) **Acute delirium: differentiation and care** .Critical Care Nursing Clinics of North America, 24(1), 131-134.

Inderpal Singh (October 12th 2016). Assessment and Management of Older People in the General Hospital Setting, Challenges in Elder Care, Edward T. Zawada Jr., IntechOpen, DOI: 10.5772/64294. Available from: https://www.intechopen.com/books/challenges-in-elder-care/assessment-and-management-of-older-people-in-the-general-hospital-setting

Johansson Lotta, (2014), *Being critically ill and surrounded by sound and noise Patient experiences, staff awareness and future challenges*, ISBN 978-91-628-9153-4.

Kukreja, D., Günther, U., & Popp, J. (2015). Delirium in the elderly: Current problems with increasing geriatric age. *The Indian journal of medical research*, *142*(6), 655–662. https://doi.org/10.4103/0971-5916.174546

Maclullich, A., Anand, A., Davis, D et al. (2013) **New horizons in the**

pathogenesis ,assessment and management of delirium. Age and Ageing. 42(6), pp 667–674.

Marcantonio E. R. (2017). Delirium in Hospitalized Older Adults. *The New England journal of medicine*, *377*(15), 1456–1466. https://doi.org/10.1056/NEJMcp1605501

McPherson, J., Wagner, E., Boehm, L et al. (2013) **Delirium in the Cardiovascular Intensive Care Unit: Exploring Modifiable Risk Factors**. Critical Care Medicine ,41(2), pp405–413.

Middle, B., & Miklancie, M. (2015). *Strategies to Improve Nurse Knowledge of Delirium. Clinical Nurse Specialist, 29(4), 218–229.*

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE (NIHCE), (2013), Health and social care directorate Quality standards and indicators Briefing paper, Delirium; Prioritised quality improvement areas for development. Retrieved from, https://www.nice.org.uk/guidance/qs63/documents/delirium-briefing-paper2

National Institute for Health and Care Excellence (NICE), (2013). **Assessment and prevention of falls in older people.**

Powers, J. S., Doering, T., Gordon, S., Eden, S. K., Shintani, A., & Schnelle, J. (2013). Exploring the utility of ultra-brief delirium assessments in a nonintensive care geriatric population: the GEM study. *The Gerontologist*, *53*(6), 1051–1055. https://doi.org/10.1093/geront/gns161

Pun BT, Devlin JW, (2013). Delirium monitoring in the ICU: strategies for initiating and sustaining screening efforts. *Semin Respir Crit Care Med*. ;34:179–88.

Rawal, G., Yadav, S., & Kumar, R. (2017). Post-intensive Care Syndrome: an Overview. *Journal of translational internal medicine*, *5*(2), 90–92. https://doi.org/10.1515/jtim-2016-0016

Schadewaldt, V., McInnes, E., Hiller, J.E. *et al.*, (2013). Views and experiences of nurse practitioners and medical practitioners with collaborative practice in primary health care – an integrative review. *BMC Fam Pract* **14,** 132. https://doi.org/10.1186/1471-2296-14-132

Salluh, J. I. F., Wang, H., Schneider, E. B., Nagaraja, N., Yenokyan, G., Damluji, A., … Stevens, R. D. (2015). *Outcome of delirium in critically ill patients: systematic review and meta-analysis. BMJ, 350(may19 3), h2538–h2538.* doi:10.1136/bmj.h2538

Teodorczuk A., Reynish E., & Milisen K. (2012) **Improving recognition of delirium in clinical practice, a call for action**. Biomedcentral Geriatrics, 12, pp55.