Descriptive Cross-sectional Study

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Assessing PICU Staff Nurses' Knowledge toward Delirium in Pediatric Patients

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ABSTRACT

Background: Delirium is frequently under diagnosed and under treated in Pediatric Intensive Care Units (PICU). Both adult and pediatric literature have noted the significance of detecting and treating PICU delirium. **Delirium** lengthens hospital stays, the duration of mechanical ventilation, and the Intensive Care Unit (ICU) and PICU morbidity.

Method: The goal of this study was to use a brief questionnaire to assess pediatric critical care nurses' current understanding of **delirium** and its risk factors. Assuming that PICU nurses lack the necessary information to accurately screen for and diagnose delirium in critically ill children before a focused **nursing educational** intervention. To gauge current understanding regarding delirium in children, a 10-bed PICU distributed a 16-question online survey to all PICU nurses.

Results: The response rate was 84% (26/31). Lack of knowledge was found that only two staff nurses (2/26; 8%) who properly responded when asked whether administering benzodiazepines is beneficial in treating delirium when asked about the use of these drugs to treat the condition. In addition, a family history of dementia predisposes a patient to delirium was another question that some participants correctly answered (4/26; 15%). Lastly, common incorrect answers when using the Glascoma Scale (GCS) as a diagnostic tool to identify **delirium** in **pediatric patients**, some staff nurses frequently give the incorrect response that **delirium** always manifests as a hyperactive, confused state, and those **pediatric patients** typically do not remember being delirious (5/26; 19%).

Conclusion: The survey's findings revealed knowledge gaps about the causes, symptoms, and treatments of pediatric **delirium** in critically ill children. Before the unit-wide adoption of a **delirium** screening and prevention program, **PICU staff** members urgently need to receive **nursing education** concerning pediatric **delirium** and associated risk factors, particularly regarding screening procedures and pharmacologic risk factors.

Keywords: *Delirium, Pediatric Patients, PICU Staff, Nursing Education*

BACKGROUND:

Delirium is a state of organic brain malfunction brought on by acute somatic illness, intoxication or drug withdrawal, exposure to toxins, or a variety of other causes. It has an abrupt and fluctuating onset and is defined by a general decline in cognitive abilities, a reduction in consciousness, attention difficulties, changes in psychomotoractivity, and sleep-wake cycle disorder[1].In anIntensive Care Unit (ICU), delirium mostly affects up to 80% of patients withlong-term cognitive impairment[2]. Delirium in pediatric intensive care setting has been currently known in the

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literature, in prospective longitudinal cohort study found that fifty-six children (27%) acquired delirium during their staying in the Pediatric Intensive Care Unit PICU and found that there is an independent association between decreased the quality of life after hospital discharge and delirium in the PICU setting[3].

Delirium in pediatric setting increases the risk of prolonged time of mechanically ventilated patients, length of stay, mortality rate, and healthcare care service cost mortality[4,5,6,7,8,9,10,11].Delirium screening has significantly risen in academic pediatric ICUs during the past three years. According to Valdivia and Carlin[12]. Frontline PICU nurses can undertake screening using the Cornell Assessment of Pediatric Delirium (CAPD) at the patient's bedside quickly and accurately. Another illustration comes from Dervan et al. who demonstrated a 92.3% score completion rate out of 13844 total eligible scoring chances over the course of a 31-month retrospective study [13]. With several research proving viability and reliability [14,15,16,17,18], the time has arrived for delirium screening in all critically ill children to be widely implemented.

To facilitate a reliable and consistent delirium screening tool in the healthcare setting under the umbrella of the ministry of health organization, it is important to determine staff nurses' insight and current knowledge; and prevention of delirium among PICU patients. The research goal is to assess staff nurses' knowledge to highlight the importance of utilizing a valid delirium screening assessment tool in a healthcare setting. Before conducting a focused educational intervention, the researcher anticipated that PICU nursing staff lacked sufficient knowledge to accurately screen for and diagnose delirium among critically ill children in PICU setting.

METHODOLOGY

The hospital is under the umbrella of the ministry of health (MOH), where the research is working. All nurses in a 10-bed PICU were given a 16-item survey to gauge their level of familiarity with pediatric delirium.Survey approval was obtained from the author to distribute during the study.Based on the data that is currently available regarding risk factors, screening procedures, therapies, and diagnostic standards for adult and pediatric delirium, survey questions were developed by specialists in the pediatric delirium[19].

The participation of individual responses would remain anonymous and confidential. Their voluntary participation is considered as consent to participate in this study. Approval from the institutional review board of the Ministry of Health Organization of Jeddah was obtained IBM SPSS Statistics software (version 23) was used to analyze the data.The percentage of respondents who answered each question correctly served as a summary of the data.

RESULTS

The survey was conducted on all PICU staff nurses and twenty-six (84%) out of thirty-one (31) nurses completed the survey. PICU staff qualifications who pursued bachelor were 57% and 42% were Diplomas. 53% of PICU staff nurses' age range was from thirty to forty-nine years and 57% have years of experience of more than 10 years. The percentile of nurses who correctly answered the questions ranges from (8%-96%) as it is shown in Table 1.

Table 1 Survey answers

Survey item	Correct	Incorrect
1. Fluctuation between orientation and disorientation is not typical of delirium (FALSE)	17 (65%)	9 (34%)
2. Poor nutrition increases the risk of delirium (TRUE)	23 (88%)	3 (12%)

Survey item		
3. The GCS score is the best way to diagnose delirium in critically ill children (FALSE)	5 (19%)	21 (81%)
4. Hearing or vision impairment increases the risk of delirium (TRUE)	21 (81%)	5 (19%)
5. Delirium in children always manifests as a hyperactive, confused state (FALSE)	5 (19%)	21 (81%)
6. Benzodiazepines can be helpful in the treatment of delirium (FALSE)	2 (8%)	24 (92%)
7. Behavioral changes in the course of the day are typical of delirium (TRUE)	24 (92%)	2 (8%)
8. Patients with delirium will often experience perceptual disturbances (TRUE)	25 (96%)	1 (4%)
9. Altered sleep/wake cycle may be a symptom of delirium (TRUE)	21 (81%)	5 (19%)
10. Symptoms of depression may mimic delirium (TRUE)	21 (81%)	5 (19%)
11. The greater the number of medications a patient is taking, the greater their risk of delirium (TRUE)	14 (54%)	12 (46%)
12. A urinary catheter in situ reduces the risk of delirium (FALSE)	22 (85%)	4 (15%)
13.Gender has no effect on the development of delirium (FALSE)	11 (42%)	15 (58%)
14.Dehydration can be a risk factor for delirium (TRUE)	20 (77%)	6 (23%)
15. Children generally do not remember being delirious (FALSE)	5 (19%)	21 (81%)
16.A family history of dementia predisposes a patient to delirium (FALSE)	4 (15%)	22 (85%)

Flaigle, M. C., Ascenzi, J., &Kudchadkar, S. R. (2016). Identifying barriers to delirium screening and prevention in the pediatric ICU: evaluation of PICU staff knowledge. *Journal of pediatric nursing*, *31*(1), 81-84(19).

Gapsin knowledge of PICU staff nurses were identified in some specific survey concepts. Pediatric patients who are not on a urinary catheterare less likely to have delirium (22/26; 85%).Common lack of knowledge to PICU staff nurses about hearing or vision impairment increases the risk of delirium, altered sleep/wake cycle could be a symptom of delirium, and symptoms of depression may mimic delirium (21/26; 81%). Some nursing staff (20/26; 77%) believed that dehydration can be a risk factor to have delirium.Responses incorrectly answered in fluctuation between orientation and disorientation do not consider delirium (17/26; 65%).Also, almost half of the staff nurses incorrectly answered that the more medication the patient received the more likely the patient will acquire delirium (14/26; 54%).

Extreme deficiency in knowledge was noticed in different items of this survey including, participants who believed that gender differences have no effect on the development of delirium among pediatric patients (11/26; 42). Also, some staff nurses have the common incorrect answer in believing that using the Glascoma Scale (GCS)as an assessment tool to diagnose delirium among

pediatric patients, delirium always manifests as a hyperactive; confused state; and pediatric patients generally do not remember being delirious (5/26; 19%).Furthermore, some participants correctly answered in a family history of dementia predisposes a patient to delirium (4/26; 15%). When staff nurses were questioned about benzodiazepines as a treatment for delirium, two staff nurses (2/26; 8%) correctly answered in the administration of benzodiazepinesis not helpful in the treatment of delirium.

DISCUSSION

The survey's findings highlight specific knowledge gaps among PICU nursing staff about the causes, symptoms, and treatments of delirium among pediatric patients. A greater risk of later delirium was linked to intermittent urine catheterization and foley implantation. Only foley placement in the critical setting remained substantially linked with the development of in-hospital delirium after controlling for the presence of dementia[3], however, eighty-five percent of staff nurses responded incorrectly that inserting a foley catheter into a patient can reduce the risk of delirium. In adult and pediatric patients who have a vision or hearing impairments are more likely to have delirium in the healthcare setting contradicting eighty-one percent of responses answered that patients who have hearing and vision impairments are less likely to have delirium [20,1].Also, eighty-one of the nurses'respondents believed disturbing the sleep cycle of the patient will not be considered a delirium symptom, but studies show that sleep cycle alteration in the pediatric patient can cause delirium[4,21,22,23].Although 34% of staff nurses responded that delirium is not typically characterized by fluctuations between orientation and disorientation, a study shows that one of the initial symptoms of delirium is the disturbance of consciousness, which frequently fluctuates, especially in the evening when external stimulation is at its lowest. The same patient's degree of awareness may swing between extremes, or it could show up as subtler symptoms like mild sleepiness or attention deficit disorder. In fact, in more severe situations, the patient may appear noticeably sleepy, lethargic, or even semi-comatose[24]Eight percent of respondents agreed the administration of opioids medication can treat delirium while studies show that in a critically ill setting,there have been reports of delirium being brought on by opioids, hypnotics, anxiolytics, corticosteroids, anticholinergic medications, hypercalcemia, hyponatremia, dehydration, hypoxia, infections, and organic impairment to the Central Nervous System (CNS) [9,25,10]. Studies show that gender differences have different results toward delirium, in fact, in critically ill patients in adult and pediatric settings, males have the highest risk to acquire delirium than female patients[26,27,28]. Aneurological measure that provides a trustworthy description of the state of consciousness is the GCS score. After noticing that 19% of our nurse responders thought the GCS was a suitable approach to screen for delirium, education about delirium screening instruments became a crucial area of attention. Participants incorrectly responded in having dementia in the family increases a patient's risk of delirium. However, studies found that a family history of dementia may lead to delirium and is considered a risk factor for delirium that negatively affects the quality of life of the patient[3,10].Due to ageist attitudes and a lack of awareness of delirium and its clinical implications, delirium prevention activities are not commonly used in nursing practice. There is an urgent need for educational programs that broaden understanding, combat negative attitudes, and enhance delirium prevention practice. Preventing delirium has grown to be a significant global health concern. It is becoming more and more crucial for clinical practice to include the delirium prevention[29].

National guidelines in Australia, the United Kingdom, and the United States have taken into account the evidence regarding delirium prevention [30,29,31,32]. Although necessary for

delirium prevention, direct patient care tasks like assessment, family/patient interaction, nourishment, and mobility are rarely prioritized and occasionally neglected or skipped [33].

The study has some major limitations. First off, because the survey was only presented to the nursing staff at a specific governmental hospital setting under the umbrella of the Ministry of Health Organization in Saudi Arabia, probably, the findings cannot be applied to nurses working in other PICU settings. There is also the possibility of selection bias if the non-responders had different years of experience or understanding of delirium from the respondents, even if the respondents represented a wide variety of education and experience levels with critically ill children. In addition, lack of generalization in identifying the educational need since it is in one healthcare setting.

CONCLUSION

Pediatric patients who are critically ill face a serious problem called pediatric delirium, which calls for careful observation, detection, and treatment. Our investigation identified areas that need specialized instruction. It was concluded that the staff needed additional training to understand the significance, risk factors, and therapies for pediatric delirium before the implementation of unit-wide delirium screening. The findings may also be applied to the majority of pediatric intensive care units that employ professionals with a wide range of training and experience. Without targeted training for the staff on how to diagnose delirium, adequate screening, and associated risk factors, it is likely that the majority of critical care units, whether for children or adults, will have comparable knowledge gaps.

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Ethical Clearance

This research has been declared ethical by the Ministry of Health of Directorate of Health Affairs of Jeddah for Medical Research and Studies.

Conflict of Interest

There is no conflict of interest.

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