



# DELIRIUM IN ICU: IDENTIFYING THE PREVALENCE, RISK FACTORS, SEVERITY AND NURSING CHALLENGES IN MANAGING DELIRIUM

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**Abstract:** Delirium is etiologically a nonspecific organic cerebral syndrome which is characterized by concurrent disturbances of consciousness and attention, perception, thinking, memory, psychomotor behavior, emotion, and the sleep-wake cycle. The duration may vary and the degree of severity ranges from mild to severe.<sup>1</sup> The study was conducted by following quantitative research approach consisting of descriptive study design to identify prevalence of delirium patients in ICU, risk factors, its severity and the challenges faced by nurses with delirium patients admitted in ICU. Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) tool was used to identify the prevalence & severity of delirium patient in ICU. In addition, a MCQ based questionnaire was used to evaluate the risk factors of delirium.

The study was carried out among ICU patients who were diagnosed with delirium during the period of April to September 2023 at Apollo Hospitals, Guwahati. Out of 329 admitted patient in ICU, 67 patients had diagnosis of delirium, however, only 60 patients were considered for analysis since seven (7) patients have expired in mid of study period.

The overall prevalence of patients with delirium was found as 20.36%. Risk factors for developing delirium were identified as sepsis and infections (23%), post operative patient (20%), history of alcohol and drug uses (20%), patient with cardiovascular diseases (17%), respiratory illnesses (8%), organ failure (2%), autoimmune disorder (2%) and 8% had other factors. 75% (majority) of delirious patients were hyperactive (RASS>+1), 13% were hypoactive (RASS<-1) and 12% had mixed type of delirium. While considering the degree of severity, 63% had severe delirium (score 6-7) and 47% had mild to moderate (Score 3-5) as per CAM-ICU Scoring. The study could identify various nursing challenges as 71% patients had increased risk for fall and difficulty in mobilization, 55% had sleep disturbances, 40% had self-removal of tubings, 25% refused for feeding (food & drugs), 18% refused to commands/requests, 17% had bedwetting, 2% patient's family refused chemical restraint and another 2% could not be sedated for clinical reason. Moreover, study also found that majority (78.3%) of patients had more than one challenge for delivering effective nursing care. The study concluded that nurses encountered various challenges while caring for delirious patients with increased agitation in ICU. It is assumed that nurses working in such situation are unable to provide nursing care as desired. Therefore, efforts must be made for early detection of delirium, its underlying cause, and treat the patients as early as possible. It is advisable to develop a nursing care pathway for managing delirium patients in ICU setting and researcher would like to continue further in this regard.

**Index Terms** – ICU Patient, Delirium, risk factors, Nursing challenges.

## I. INTRODUCTION

Delirium is etiologically a nonspecific organic cerebral syndrome which is characterized by concurrent disturbances of consciousness and attention, perception, thinking, memory, psychomotor behavior, emotion, and the sleep-wake cycle. The duration may vary and the degree of severity ranges from mild to severe.<sup>1</sup> Delirium is commonly prevalent in critically ill patients which has been recently recognized as a serious concern associated with important clinical outcomes including increased ventilator days, length of ICU stay, care cost, long-term cognitive impairment, increase mortality and need for post discharge rehabilitation.<sup>3</sup>

The types of delirium are grossly classified as hyperactive, hypoactive and mixed delirium. Hyperactive delirium manifest features such as agitation, restlessness, emotional lability, and marked psychotic characteristics such as hallucinations, illusions that can interfere with the delivery of nursing care. Hypoactive delirium traits are confusion, apathy, passive, decreased motor function, withdrawn attitude, lethargy, drowsiness and are known to have higher mortality rate. Mixed delirium is a combination of hyperactive and hypoactive delirium.

Delirium is predominantly common among patient diagnosed with sepsis, respiratory illnesses, cardio vascular diseases, alcohol and drug intoxication or withdrawal, wernicke's disease, metabolic disorders, hypoglycemia, use of steroids, toxin or heavy metal ingestion, major complex surgeries, mechanical ventilation, meningitis, stroke, traumatic head injury, poor sleep pattern and other social factors.<sup>2</sup>

Delirious patients present with increased agitation, illusion and hallucinations which can be hinderance for delivering effective nursing care. Nurses often experience difficulties while caring patients with delirium and may potentially encounter to burnout syndrome. Therefore, efforts must be made for early detection of delirium, it's underlying cause, and treat the patients as early as possible. The aim of the study was to identify prevalence of delirium in ICU, risk factors, severity of delirium and the challenges faced by nurses in managing delirious patients.

## II. RESEARCH METHODOLOGY

The study was carried out among delirious patients admitted in Apollo Hospitals, Guwahati for a period of 6 months (April to September 2023).

### Objective of the Study:

The objectives of the study were to identify:

- Prevalence of delirium in ICU
- Risk factors of delirium
- Delirium severity
- Nursing challenges in managing delirious patient.

### Population and Sample

Population: 329 patients admitted in ICU in the period of 6 months (April to September 2023) were considered for the study.

**Study Design:** Descriptive study.

**Research Approach:** Quantitative approach

**Study Setting:** Apollo Hospitals, Guwahati

**Duration of the Study:** 6 months

**Sample Size:** 67 patients

**Sampling Method:** Purposive Sampling

**Inclusion Criteria:**

All patients admitted in ICU diagnosed with delirium.

**Exclusion Criteria:**

- Neurology disorders.
- Psychiatric disorders
- Paediatric population

**Research variable:** Prevalence, risk factors, severity and nursing challenges

**Procedure methodology & Data Collection method:**

Data collection was done by using following tools:

1. **Tool 1 (Self-structured questionnaire for demographic profile):** Patient demographic data were collected by using the tool consisting of Age, Gender and length of stay in ICU. Data were collected by using a google online by observation method.
2. **Tool 2 Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) :** CAM ICU tool was used to identify the prevalence & severity of delirium in ICU.
3. **Tool 3 (Tool for identifying delirium related information):** The tool was developed with six questions to evaluate the risk factors and related information of delirium.
4. **Tool 4 (Nurse's daily note):** Nurses identified the challenges and recorded in nurses' daily note. The required information were gathered for analysis.

**III. RESULTS AND DISCUSSION**

**Results:** The descriptive data analysis were done and findings were present as:

**Section 1: Prevalence of Delirium in ICU (Refer table 1 & figure 1)**

The patients who presented with signs of altered sensorium were identified, subsequently the patients who met the inclusion criteria were included in the study. The study revealed that out of 329 admitted patient in ICU in the period of 6 months (April to September 2023), 67 patients were diagnosed with delirium, however; only 60 patients were considered for analysis since seven (7) patients expired in mid of study period. The overall prevalence of patients with delirium was found to be 20.36%. The study revealed that 53% (majority) delirious patients were > 65 years, 27% were at the age between 46 – 65 years, 15% were between 31-45 years and 5% were between 18 – 30 years, 67% were male and 33% female, length of stay in ICU was 0- 10 days for 60% delirious patients, 11 - 20 days for 21%, >30days for 12% and 21 – 30 days for 7%.

**Section 2: Findings related to Risk Factors of Delirium. (Refer table 2 & figure 2)**

Risk factors were identified as sepsis and infections (23%), post operative patient (20%), history of alcohol and drug uses (20%), patient with cardiovascular diseases (17%), respiratory illnesses (8%), organ failure (2%), autoimmune disorder (2%) and 8% had other factors.

**Section 3: Findings related to Severity of Delirium. (Refer table 3 & figure 3)**

The study revealed that 75% (majority) delirious patients were hyperactive (RASS>+1), 13% were hypoactive (RASS<-1) and 12% had mixed type of delirium, while considering the degree of severity, 63% had severe delirium (score 6-7) and 47 % had mild to moderate (Score 3-5) as per CAM-ICU Scoring, 72% had no delirium during admission and 28% had delirium during admission. The mean onset of delirium post admission was 3 days and mean onset of delirium post-surgery was 1.5 days. 47 % (majority)delirious patients were on chemical restraint, 35 % were on both chemical and physical restraint, 13% were given no interventions and 5% were on physical restraint. 22% patients who had severe delirium (score 6 - 7) were on both chemical and physical restraint, 83% (majority) of delirious patients' delirium was resolved on discharge.

**Section 4: Findings related to Nursing Challenges in Delirium. (Refer table 4 & figure 4)**

The study could identify various nursing challenges as 71% patients had increased risk for fall and difficulty in mobilization, 55% had sleep disturbances, 40% had self-removal of tubings, 25% refused for feeding (food & drugs), 18% refused to commands/requests, 17% had bedwetting, 2% patient's family refused chemical restraint and another 2% could not be sedated for clinical reason. Moreover, study also found that majority (78.3%) of patients had more than one challenge for delivering effective nursing care.

Table 1: frequency and percentage distribution of prevalence of delirium in ICU

n = 60

Total no. of patients admitted in ICU in the period of 6 months (April to September 2023)	Total no of delirium patients identified	Percentage
329	67	20.36%

Table 2: frequency and percentage distribution of risk factors of delirium.

n=60

Risk factors	Surgery	Cardiovascular disease	Alcohol or drugs	Sepsis/infection	Organ failure (kidney or liver failure.)	Others	Respiratory disorder	Autoimmune disorder
Frequency	12	10	12	14	1	5	5	1
Percentage	20%	17%	20%	23%	2%	8%	8%	2%

Table 3: frequency and percentage distribution of severity of delirium

n=60

Type of delirium	Hypo active (RASS <-1)	Hyperactive (RASS >+1)	Mixed	
Frequency	8	45	7	
Percentage	13%	75%	12%	
Delirium present on admission				
	Yes		No	
Frequency	17		43	
Percentage	28%		72%	
CAM ICU				
	Mild- moderate		Severe	
Frequency	28		32	
Percentage	47%		53%	
Interventions				
	Physical restraint	Chemical restraint	Combined	None
Frequency	3	28	21	8
Percentage	5%	47%	35%	13%
Frequency of severe delirium requiring both type of restraints				
Frequency	13			
Percentage	22%			
Was delirium resolved on discharge?				
	Yes		No	
Frequency	50		10	
Percentage	83%		17%	

Table 4: frequency and percentage distribution of nursing challenges

n = 60

Nursing challenges								
Challenges	Bedwetting	Self-removal of tubings	Difficulty in Mobilization, increased risk for fall.	Sleep Disturbances	Refusal to feed (food and drugs)	Refuses commands/requests	Refusal for treatment	Unable to use sedatives
	10	24	43	33	15	11	1	1
Percentage	17%	40%	71%	55%	25%	18%	2%	2%

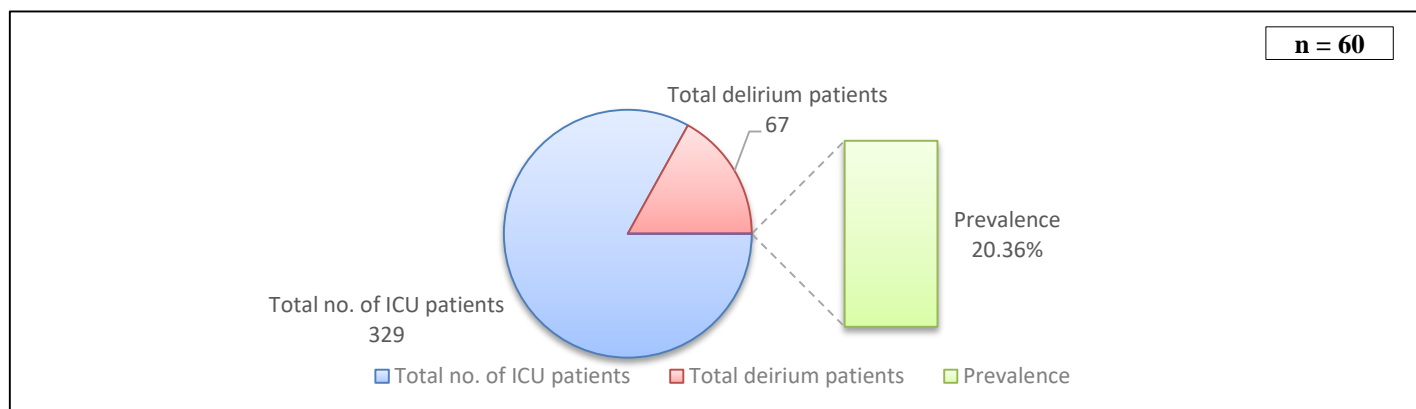


Figure 1: Prevalence of delirium in ICU

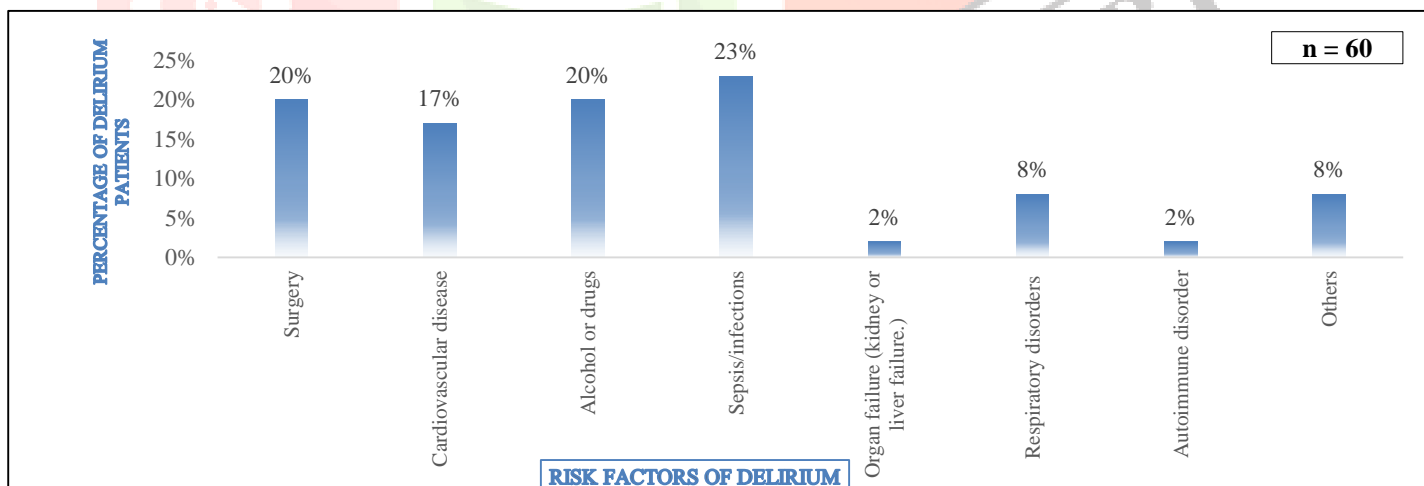


Figure 2: Distribution of risk factors of delirium

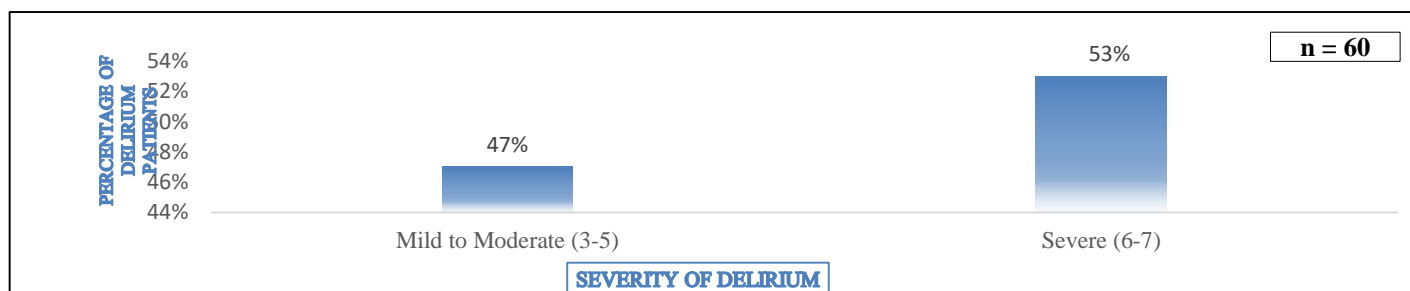


Figure 3a: Distribution of severity of delirium.

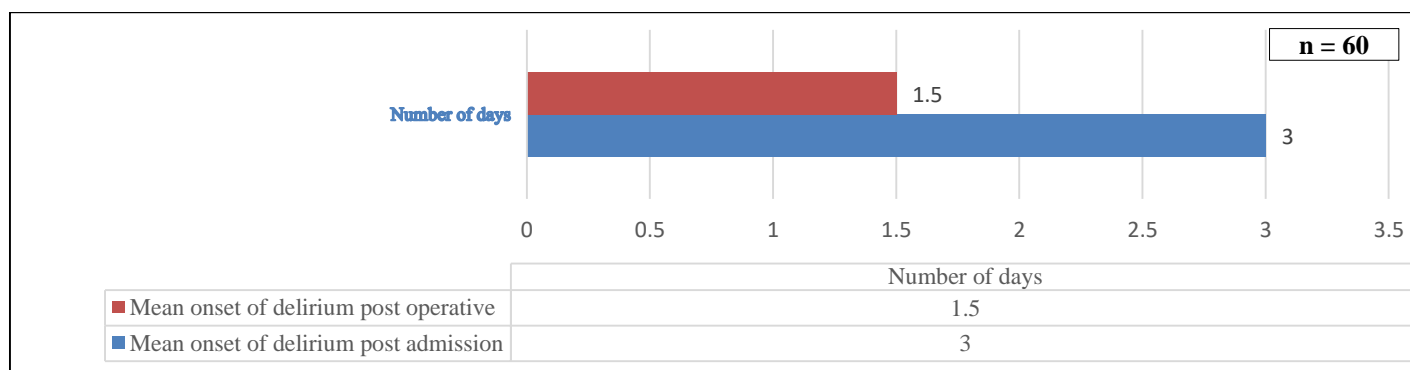


Figure 3b: Distribution of mean onset of delirium.

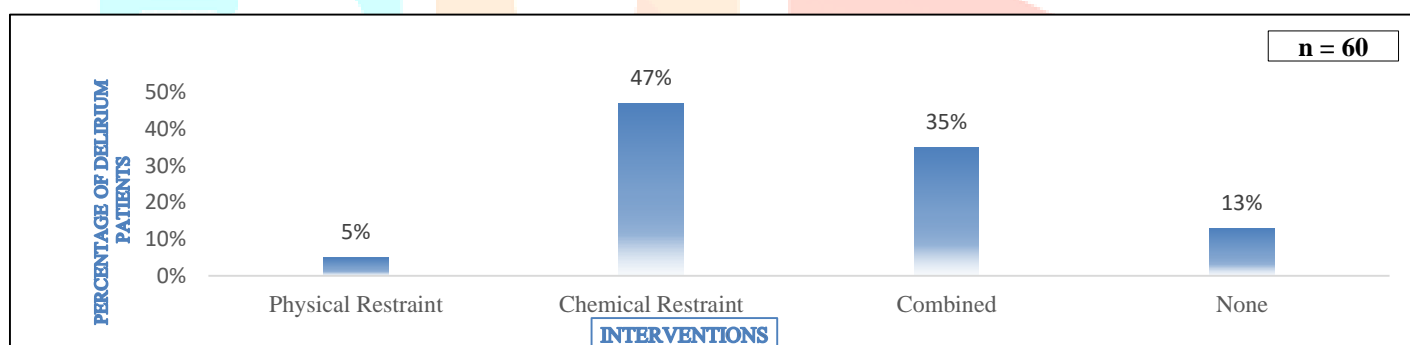


Figure 3c: Distribution of interventions.

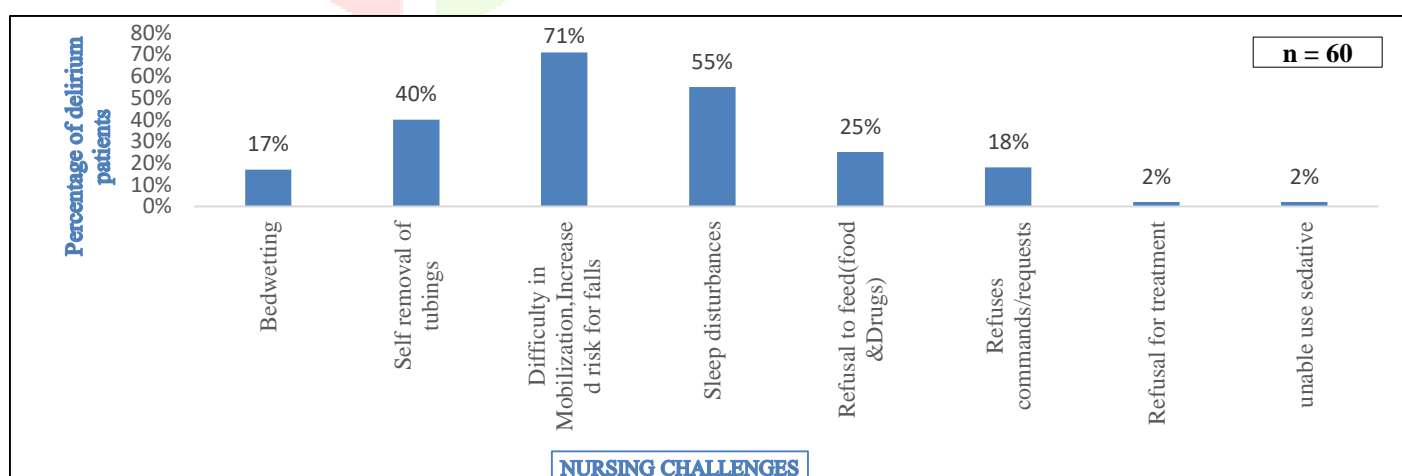


Figure 4: Distribution of nursing challenges.



## Discussion:

### Section 1: Prevalence of Delirium in ICU

The patients who presented with signs of altered sensorium were identified, subsequently the patients who met the inclusion criteria were included in the study. The study revealed that out of 329 admitted patient in ICU in the period of 6 months (April to September 2023), 67 patients were diagnosed with delirium, however; only 60 patients were considered for analysis since seven (7) patients expired in mid of study period. The overall prevalence of patients with delirium was found to be 20.36%. A study conducted by M van den Boogaard et al (2012) also revealed that the prevalence of delirium in ICU was 25.5% (out of 1613 patients, 411 developed delirium).<sup>5</sup>

The current study revealed that majority delirious patients were significantly older i.e., 53% > 65 years, 27% were at the age between 46 – 65 years, 15% were between 31-45 years and 5% were between 18 – 30 years, 67% were male and 33% female, length of stay in ICU was 0- 10 days for 60% delirious patients, 11 - 20 days for 21%, >30days for 12% and 21 – 30 days for 7%. A study conducted by Tilouche N, Hassen MF et al (2018) also found that delirious patients were significantly older ( $71 \pm 9$  vs.  $61 \pm 17$  years;  $P < 0.001$ ), higher incidence of hypertension (56% vs. 38%;  $P = 0.032$ ), and COPD (72% vs. 23%;  $P < 0.001$ ), delirium was higher among male (67%) than female (33%).<sup>6</sup>

### Section 2: Findings related to Risk Factors of Delirium.

A study conducted by Tilouche N, Hassen MF et al (2018) revealed that delirium was associated with history of alcohol intake, smoking, co morbidities such as hypertension, diabetes mellitus, COPD.<sup>6</sup> The median onset of delirium was 8 days with a median duration of 3 days. The similar findings were seen in the current study where risk factors of delirium identified were, 20 % had history of use of alcohol and drugs, 8% respiratory illness, 2% organ failure, 2% autoimmune disorder, 23% sepsis and infections, 20% post operative patient, out of which 75% were orthopedic surgeries and 25 % cardiac surgery and 8 % other causes.

### Section 3: Findings related to severity of delirium.

While considering the degree of severity, 63% (majority) had severe delirium (score 6-7) and 47 % had mild to moderate (Score 3-5) as per CAM-ICU Scoring, 72% had no delirium during admission and 28% had delirium during admission, 75% (majority) delirious patients were hyperactive (RASS>+1), 13% were hypoactive (RASS<-1) and 12% had mixed type of delirium. The mean onset of delirium post admission was 3 days and mean onset of delirium post-surgery was 1.5 days. 47 % delirious patients were on chemical restraint, 35 % were on both chemical and physical restraint, 13% were given no interventions and 5% were on physical restraint. 22% patients who had severe delirium (score 6 - 7) were on both chemical and physical restraint. Majority of the patients i.e., 83% delirium was resolved on discharge. A study conducted by Collet MO, Caballero J et al (2018) also stated that hyperactive delirium is the more commonly identified form of delirium, the hypoactive (24.5% to 43.5%) and mixed (52.5%) types are more often observed in the ICU setting. Hyperactive ICU delirium accounts for approximately 23% of cases.

### Section 4: Findings related to nursing challenges in delirium.

The current study could identify various nursing challenges as 71% patients had increased risk for fall and difficulty in mobilization, 55% had sleep disturbances, 40% had self-removal of tubings, 25% refused for feeding (food & drugs), 18% refused to commands/requests, 17% had bedwetting, 2% patient's family refused chemical restraint and another 2% could not be sedated for clinical reason. Moreover, study also found that majority (78.3%) of patients had more than one challenge for delivering effective nursing care. A study conducted by Urfer Dettwiler, P, Zúñiga, F., Bachnick, S. *et al* (2022) also found that delirium was associated with patient safety issues such as falls and pressure ulcers.<sup>7</sup>

## Conclusion:

The study concluded that nurses encountered various challenges while caring for delirious patients with increased agitation in ICU. It is assumed that nurses working in such situation are unable to provide nursing care as desired. Therefore, efforts must be made for early detection of delirium, it's underlying cause, and treat the patients as early as possible. It is advisable to develop a nursing care pathway for managing delirium patients in ICU setting and researcher would like to continue further in this regard.

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