

# Delirium and it's Risk Factors among Elderly Patients

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**Abstract:** *Delirium is a common syndrome prevalent among hospitalized elderly patients. The prevalence is estimated to be 11 to 42 percent among elderly patients admitted in medical wards. The consequences of delirium could be significant such as an increase in mortality in the hospital, long-term cognitive decline, loss of autonomy and increased risk for long term hospitalization. Despite being a common condition, delirium remains under-recognized, poorly understood and inadequately managed. Therefore a descriptive study was conducted in private medical wards of a Tertiary care hospital in South India, to assess the prevalence of delirium and it's risk factors among hospitalized elderly patients. 150 participants were included in the study by total enumerative sampling technique. The short version of Confusion Assessment Method (CAM) and Delirium Risk Assessment Tool (DRAT) were used to assess prevalence and its risk factors. 74% of the participants had risk factors for delirium of which 11% of them had delirium. There was statistically significant association between delirium and its risk factors. Findings of the study helped to develop a protocol on multicomponent nonpharmacological nursing interventions, which will enable nurses to identify delirium and to care for elderly patients with delirium.*

**Keywords:** Delirium, Delirium risk factors, Elderly, Delirium protocol

## 1. Introduction and Need for the Study

Delirium is a disturbance of consciousness with impaired attention and disorganized thinking that develops rapidly with incidence of underlying physiological or medical condition (American Psychiatric Association, 2000). Delirium among elderly patients with medical and surgical disease conditions is 10% to 15% on admission and in-hospital occurrence is 10% to 40% (Fann,J.R 2000). Studies indicate that delirium is unrecognized in 66% to 84% of hospitalized elderly patients (Pisani et al., 2006). Advanced age and dementia are the most important risk factors for delirium. Pain, dehydration, infections, stroke, metabolic disturbances, and surgery are the most common risk factors. The risk of delirium increases with the number of risk factors.

Identification of risk factors by prompt and appropriate assessment with Multifactorial Model for Delirium and continued surveillance are the corner stones of delirium prevention (Inouye,S.K.Van,C.H.,Alessi,C.A.,et al.,1990). Nurses are in the best position to assess the risk factors and detect delirium in an early stage. Early identification and prompt management influences the outcome of medical treatment. Due to advancement of medicine and increased awareness among elderly adults the geriatric hospitalized patients have increased significantly. From the morbidity point of view, almost 50 % of the Indian elderly have chronic diseases and five per cent suffer from immobility. The elderly population is the most vulnerable group for delirium. This scenario demands the nurses to be competent in caring for elderly patients with possible delirium. Hence, this study was conducted to assess the prevalence of

delirium and to identify it's risk factors among hospitalized patients in tertiary care hospital.

### 1.1 Objectives

- 1) To assess the prevalence of delirium and it's risk factors among elderly patients
- 2) To determine the association between delirium and selected demographic and clinical variables
- 3) To determine the association between delirium and it's risk factors

## 2. Methodology

Descriptive design was utilized. The study was conducted in private medical wards in multispecialty Tertiary care Training and Research hospital in South India. Population consisted of elderly patients  $\geq$  60 years of age, who are admitted with medical illness. 150 participants were chosen using total enumerative sampling technique.

### Instruments and scoring

The instrument includes three sections:

**Section I:** Demographic characteristics: age, gender, mode of payment, previous history of delirium and co-morbidities (Diabetes Mellitus, Hypertension, Cardiovascular Diseases, Renal Disorders, Infection, others).

**Section II:** Short version of Confusion Assessment Method (CAM) tool was used to assess the prevalence of delirium. It has 4 features: A- Acute onset and Fluctuating course, B- Inattention, C- Disorganized thinking and D- Altered level of consciousness. The diagnosis of delirium requires presence of both A and B and presence of either C or D.

CAM is a standardized tool with a sensitivity of 94-100%, specificity of 90-95% and inter-observer reliability of kappa = 0.81 - 1.0 (Inouye, 1990).

**Section III:** Delirium Risk Assessment Tool (DRAT) is a standardized tool. It has two components. Component I assesses the age. Component II consists of 4 features, which assesses features like visual impairment, severe illness, cognitive impairment and dehydration. Risk of delirium is confirmed when the subject has component I and has at least one of the risk factors in component II. The confidence rating of DRAT tool has median score from 3 to 4 (range 2-5,  $p > 0.00$ ), Shah, N., Knifton, C., Dowsing, T (2013).

**Data Collection**

The study was conducted with the permission from the Research Committee of the Institution. Written consent was obtained from all the study participants. Confidentiality and anonymity was maintained. The investigator assessed the presence of delirium and risk factors.

**Data Analysis**

SPSS 18.0 was used to perform all statistical analysis. Descriptive statistics like frequency and percentage were used to analyze the prevalence of delirium and its risk factors. Quantitative variables were summarized using mean and standard deviation. Chi-square was used to find the association between delirium, demographic variables and risk factors. P value  $< 0.05$  was considered as statistically significant.

**3. Results and Discussion**

Analysis of demographic data revealed that majority of the participants (48%) were between the age group of 60-69 years. 54.7% of the participants were males. 92.7% of the participants had no previous history of delirium. 49% of the

participants had 3-4 co morbidities. Similar findings were also reported by Varghese, N.C (2012).

Among the study participants 11% had delirium. This finding is similar to a point prevalence study done by Riyan, D.J., et al., (2017), which revealed that 17.6% had delirium. Whereas, study conducted by Varghese, N.C (2012) in general medical wards in a tertiary hospital showed that 44% of the older adults had delirium. Lower rate of delirium prevalence in the present study could be due to the high education, knowledge of the health issues and access to the health care on time.

The study findings revealed that 74% of the participants had risk factors for delirium. These findings are well supported by a study done by Eduard, E, et al, 2013, which states that infections, such as a urinary tract infection or pneumonia, are probably some of the most common precipitants of delirium and may be present in 34-64% of the hospitalized patients with delirium. Multi factorial Model for Delirium suggests that the risk of delirium increases with the number of risk factors present (Inouye, S.K., Van, C.H., Alessi, C.A., et al (1990). This study findings signify the importance of identification of high-risk patients, risk factors, prompt and appropriate treatment and continued surveillance for delirium prevention.

A statistically significant association was found in age, male gender and previous history of delirium as shown in Table-1. These findings are consistent with the findings of a systematic review and meta-analysis of four studies done by Ahmed S., Leurent, B, Sampson, E.L (2014), which revealed that old age was significantly associated with increased delirium with a mean difference of 2.74 (95% -CI 0.11, 5.38,  $P=0.04$ ). Content data bases were screened and reported by Elie, M., et al in 1998, that the five most common risk factors for delirium were dementia, medication, medical illness age, and gender, which is consistent with the present study findings.

**Table 1:** Association between delirium and demographic and clinical variables (n=150)

S.No	Variables	Delirium Present		Delirium Absent		Total		$\chi^2$	P Value
		No	%	No	%	No	%		
1	<b>Age</b>								
	60-69yrs	3	4.17	69	95.83	72	48.00	8.666	<b>0.013*</b>
	70-79yrs	7	13	47	87	54	36.00		
>80yrs	6	25	18	75	24	16.00			
2	<b>Gender</b>								
3	Male	9	11	73	89	82	54.67	8.589	<b>0.014*</b>
	Female	7	10.30	61	89.70	68	45.33		
4	<b>Previous history of delirium</b>								
	Yes	5	45.45	6	54.55	11	7.33	15.076	<b>0.000*</b>
	No	11	7.92	128	92.08	139	92.67		

The present study revealed that there was statistical significant association between delirium and age, sodium and potassium dyselectrolytemia, hypoxia, mental illness, cognitive impairment and dehydration as presented in Table 2. 37.5% of the participants with hyponatremia and 33.3% of the participants with hypokalemia had delirium. These findings are supported by the study conducted by Zieschang T, 2009 who reported that, patients with hyponatremia suffered more often from delirium. A study by Yong TY.,

Huang JE, Lau SY, Li JY (2011), also supports that eleven patients were admitted with severe hyponatremia and ten patients with hypokalemia, of which delirium was present among six patients. This study findings also suggest that 36.4% had hypoxia, 37.5% had mental illness, 42.1% had cognitive impairment and 22.7% of the participants had dehydration. These findings are consistent with a prospective cohort study by Korevaar, J.C., (2005), which revealed that cognitive impairment and an increased urea

nitrogen level were the strongest risk factors which increased the risk of delirium by nine fold. The study finding

revealed that, none of the study participants had the risk factor of alcohol intoxication.

**Table 2:** Association between delirium and risk factors (n=150)

Description	Delirium Present		Delirium Absent		Total		$\chi^2$	P Value
	N	(%)	N	(%)	No	%		
Age $\geq$ 60yrs	16	10.66	134	89.33	150	100	8.666	<b>0.013*</b>
<b>Diabetic Ketoacidosis</b>								
Present	1	100.00	0	0.00	1	0.67		
Absent	15	10.07	134	89.33	149	99.33	8.431	<b>0.004*</b>
<b>Dyselectrolytemia</b>								
<b>Sodium</b>								
Present	9	37.50	15	62.50	24	16.00	21.589	<b>0.000*</b>
Absent	7	5.56	119	94.44	126	84.00		
<b>Potassium</b>								
Present	5	33.33	10	66.67	15	10.00	8.986	<b>0.003*</b>
Absent	11	8.14	124	91.86	135	90.00		
<b>Hypoxia/ Hypercapnia</b>								
Present	4	36.4	7	63.6	11	7.33	8.226	<b>0.004*</b>
Absent	12	8.6	127	91.4	139	92.67		
<b>Mental illne or depression</b>								
Present	3	37.50	5	62.50	8	5.33	6.386	<b>0.012*</b>
Absent	13	9.15	129	90.85	142	94.67		
<b>Cognitive impairment</b>								
Present	8	42.1	11	57.9	19	12.67	22.566	<b>0.000*</b>
Absent	8	6.1	123	93.9	131	87.33		
<b>Dehydration</b>								
Present	5	22.7	17	77.3	22	14.67	3.936	<b>0.047*</b>
Absent	11	8.6	117	91.4	128	85.33		

#### 4. Conclusion

The study results showed that 74% of the participants had risk factors for delirium, among which 11% had delirium. In the context of an aging population, use of services by the elderly throughout the health care system continues to grow, particularly among those aged 85 years and above. Delirium has serious consequences and is a “high priority” nursing challenge for all nurses who care for older adults. Though delirium is considered to be a reversible condition, it is also reported to be associated with high mortality. Nurses play a key role in both the prevention and early recognition of this potentially devastating condition. Recognizing the first signs of delirium is important to identify, eliminate or reduce the risk factors such as pain, infection, or other acute illnesses. A significant proportion of delirium cases can be prevented by identifying modifiable risk factors and utilizing a standard nursing practice protocol (delirium identification, risk factor assessment and multicomponent non-pharmacological nursing interventions) promptly.

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