Research Report

PREVALENCE OF DELIRIUM AMONG OLDER ADULTS IN A TERTIARY CARE REFERRAL HOSPITAL IN KERALA

Anjana Babu TV[1], Saleem TK[2]*, Ramesh K[3]

[1]College of Nursing, Malabar Cancer Centre, Thalassery, Kannur, Kerala
[2]*Government College of Nursing, Kozhikode, Kerala
[3]Department of Psychiatry, Government Medical College, Kozhikode, Kerala
*Corresponding address: Assistant Professor, Government College of Nursing, Kozhikode. Email:tksaleem@gmail.com

ABSTRACT

Background: Delirium is a common neuropsychiatric condition in older adults in medical and surgical settings. It is important to identify cognitive impairment in the elderly population early in their stay at the hospital to reduce morbidity and mortality. The literature on the prevalence of delirium in the elderly population shows that the occurrence of delirium is associated with patient factors and clinical settings. Delirium may affect the outcome of the primary medical condition in addition to the occurrence of poor compliance to treatment and long-term psychological sequela. **Aim:** The study aims to identify the prevalence of clinical delirium among patients at the age of 60 years or above admitted to medical and surgical units of Government Medical College Hospital, Kozhikode, Kerala. The study also looked into the related factors and management aspects of the condition. **Methods:** A cross-sectional observational method was used in a sample of 300 older adult patients who were selected using a census approach from medical and surgical inpatient units of the hospital. Clinical and personal details were collected in addition to the assessment of the participants with the Confusion Assessment Method (CAM) and Nursing Delirium Screening Scale(Nu-DESC). **Results:** Findings of the study revealed the prevalence of delirium in older adult patients at 16%. The study also shows a significant association between the prevalence of delirium and selected clinical variables and area of admission. **Conclusion:** Early identification, prompt medical and psychiatric care, and environmental manipulation will reduce complications in older adults.

Keywords: delirium, prevalence, older adults

INTRODUCTION

Delirium is an acute and fluctuating disorder of attention and cognitive functioning, accompanied by abnormal arousal and perceptual disturbances.[1] Delirium is a common clinical syndrome, especially among older adults, characterised by inattention and acute cognitive dysfunction.[2,3] This condition is frequently not recognised in elderly patients admitted to the hospital.[4] A high prevalence of delirium in the elderly population in hospitalised settings has been reported in literature.[5] Development of delirium leads to functional impairment, increased risk of morbidity and mortality.[6] Misdiagnosis of delirium or delay in recognising the delirium state in hospitalised elderly patients is very common.[6] Among the known risk factors of delirium, advanced age and baseline cognitive impairment are relatively significant. The development of delirium in older adult patients is highly correlated with rates of mortality.[7] This study aims to identify the prevalence of delirium in older adult patients admitted to Government Medical College Hospital, Kozhikode. The study also investigates the prevalence of delirium and its association with personal and clinical variables.

Please cite this article as: Anjana Babu TV, Saleem TK, Ramesh K. Prevalence of delirium among older adults in a tertiary care referral hospital in Kerala. Kerala Journal of Psychiatry 2021;34(1): 27-34

A definitive diagnosis of delirium is based on DSM-5 criteria or ICD-10 criteria by a psychiatrist, which may not be often possible in a general medical or surgical setting. Various screening tools are available for the early identification of delirium. Confusion Assessment Method (CAM)[8] is frequently used in clinical settings to screen elderly patients for delirium, and Nu-DESC is used by nurses to screen and measure the severity.[9]

MATERIALS AND METHODS

Population and sample

The study population included older adult patients admitted to a tertiary care hospital. The sample constituted 300 patients at the age of 60 years or above admitted in selected wards and intensive care units. The study was conducted at Government Medical College Hospital, Kozhikode, which has a bed strength of 3000 and serves 40% of the population of Kerala. The sample size was 300, which was calculated based on a study conducted to identify the possible risk factors associated with delirium in the elderly, which reported a prevalence of 27% at some point during their hospital stay.[10]

Inclusion criteria

Admitted patients at the age of 60 years or above in selected medical, surgical wards and intensive care units, when either patient or caregiver is willing to participate in the study were included. Critically ill patients whose mental status could not be assessed, such as patients on ventilator, patient with tracheostomy tube, unconscious patients and clinically certified as deaf and dumb or having aphasia, were excluded. Patients under the palliative care unit were not included in this study.

Tools and technique

Based on the objectives of the study, a semi-structured interview schedule was prepared for collecting socio-personal variables and the clinical profile of the patients. Socio-personal variables included age, sex, religion, education status, socioeconomic status, type of family and marital status. Clinical information included the area of admission, diagnosis, length of hospitalisation, associated problems, and attention to delirium status by health care professionals. Content validity of the tool was established by experts in the field of psychiatry, medicine and nursing. Observation and general medical

examination by the first investigator was the primary source of information. Review of the patient's clinical records, self-report by the patient or interview with the caregiver and nursing staff were the additional sources. Confusion Assessment Method (CAM) and the Nursing Delirium Screening Scale (Nu-DESC) were the specific tools used to identify delirium status.

The Confusion Assessment Method (CAM) is a standardised, evidence-based tool that enables non-psychiatrically trained clinicians to identify and recognise delirium quickly and accurately in a clinical setting. The CAM includes four features found to have the greatest ability to distinguish delirium from other types of cognitive impairment. The diagnosis of delirium by CAM requires both features A (acute onset or fluctuating course) and B(inattention) and the presence of either feature C (disorganised thinking) or D (altered level of consciousness).[11] The tool is in the public domain for academic purpose.

The Nu-DESC evaluates delirium based on observation of the following five features: disorientation, inappropriate behaviour, inappropriate communication, illusions/ hallucinations, and psychomotor retardation. The scale is rated for severity on a scale of 0-2, with a score range of Nu-DESC score 0-10, and a cut-off score of 2 for screening positive for delirium. Scores on Nu-DESC is also used in this study for assessing the severity of delirium. Psychometric properties of the Nu-DESC scale has been reported earlier for sensitivity and specificity.[9] Permission was obtained from the author for using the tool in this study. Inter-rater reliability was established for both the screening tools, where the CAM scale had a perfect agreement, and Nu-DESC was estimated to be 0.91.

A pilot study was conducted to check the feasibility of the study in a sample of 30. Ethical approval was obtained from the Institutional Ethics Committee. Administrative permission was obtained from the hospital authority, and informed consent was taken from individual participants or their caregivers.

Patients aged 60 years or above admitted in wards of medical and surgical departments or intensive care units were recruited for the study. Data were collected from one unit per day on a cross-sectional basis, with an average of 15-20 participants daily. The study was conducted during the month of January and February

2019. Data were collected in the afternoon and evening time of the hospital duty shift to account for the evening worsening of symptoms in delirium (sun-downing effect).[3] Clinical records were reviewed to confirm the responses under the clinical data. After collecting the clinical data, participants were screened with the Confusion Assessment Method (CAM). Participants who were positive for CAM were assessed for the severity of delirium using the Nu-DESC scale. Average, 5-10 minutes were taken for screening, and it took up to 20 minutes for each participant when it was positive for delirium to complete the data. Collected data were subjected to descriptive and inferential statistics using the 16th version of SPSS for Windows.

RESULTS

Sample characteristics of the study show that 60% of the participants were in the age group of 60-69 years, the majority (77.3%) were males, 67% were educated up to primary level, 82% were from Below Poverty Line (BPL) socioeconomic status, 93% were from a nuclear family, and 80.6% were married (Table 1). The clinical profile shows that 25.3% of the participants were diagnosed with coronary artery disease, and 24% were diagnosed with diabetes mellitus. (Table 2)

The distribution of participants based on CAM Score shows the prevalence of delirium as 16% (n=48), irrespective of the diagnoses. Similarly, the analysis of Nu-DESC scores is positive for 16% (n=48) of the participants. All the positive participants on CAM were positive on Nu-DESC as well. Screen positive patients in CAM were assessed using Nu-DESC for severity. The severity of delirium on the Nu-DESC scale showed a mean score of 4.23 ($\pm$ 1.74).

A significant association was found between delirium and medical diagnoses such as cerebrovascular accident (28.2%), chronic kidney disease (47.3%), urinary tract infection (45%), chronic obstructive pulmonary disease (35%), pulmonary oedema (33.3%), hypertension (32.3%) and diabetes mellitus (26.3%). A substantial proportion of patients with acute kidney injury (24%), anaemia (23.5%), chronic Liver Disease (16.6%), general surgical procedures (11.7), cancer (7.54), head injury (36.3%), coronary artery disease ((17.1%) and metabolic encephalopathy (33.3%) had delirium, but there were no significant statistical association for these variables. (Table 3)

Associated problems such as electrolyte imbalance

Table 1: Sample Characteristics (N=300)

Characteristics	Category	f	%
Age	60 to 64	99	33
	65 to 69	81	27
	70 to 74	58	19.3
	75 to 79	27	9
	80 to 84	18	6
	> 85	17	5.7
Sex	Male	232	77.3
	Female	68	22.7
Education status	No formal education	55	18.3
	Primary	201	67.0
	Secondary	40	13.3
	Higher secondary	2	0.7
	Graduate or Postgraduate	2	0.7
Socio economic status	BPL	246	82.0
	APL	54	18.0
Type of family	Nuclear Family	279	93.0
	Joint Family	18	6.0
	Institutionalized	3	1.0
Marital status	Married	242	80.6
	Widow or Widower	56	18.7
	Unmarried	2	0.7

(46.5%), sleep deprivation (35.9%), visual impairment (35.9%), and constipation (45.4%) had a significant association with delirium. Pain (15.4%), alcohol use (18.7%), and hearing impairment (22.2%) were also present in a considerable number of patients who were positive for delirium, but no significant association were found. (Table 4). A significant proportion of patients from ICUs (24.1%) and medical wards (19.2%) had positive delirium status (p= .004). (Table 5) Association of the prevalence of delirium with socio-personal variables such as age, sex, educational level,

Table 2 - Distribution of participants based on diagnosis (N=300)

Diagnosis	Frequency	%
Coronary artery disease	76	25.3
Diabetes mellitus	72	24
Hypertension	71	23.7
Anaemia	68	22.7
Cancer	53	17.7
Surgical procedures	51	17
CVA*	46	15.3
COPD*	20	6.7
Urinary tract infection	20	6.7
Chronic kidney disease	19	6.3
Pulmonary oedema	18	6
Head injury	11	3.7
Metabolic encephalopathy	9	3
Acute kidney injury	8	2.7
Chronic liver disease	6	2
Septicemia	3	1
Psychiatric disorders	2	0.7

socioeconomic status, type of family, marital status, and length of hospitalisation were statistically not significant.

Additional information gathered from patient records and interviews with nurses shows that in only 31.25% (n=15) of cases, the nursing staff had awareness about delirium in their patients. In 12.5% (n=6) of the cases, specific medications were prescribed. Specific measures or environmental measures were taken to manage delirium in 12.5% of patients (n=6). Psychiatric consultation for delirium management was done in 10.41% (n=5) of patients.

DISCUSSION

Analysis of socio-personal data shows that the majority (77.3%) of the participants were males. Studies on sex differences in hospital admissions show age and disease-specific reasons for variations in hospital admissions for males and females.[12] This study did not look into the reasons for the higher proportion of male participants admitted. Similarly, on socioeconomic status, most of the study participants (82%) belonged to the Below Poverty Line (BPL, an economic index stated by the Government of Kerala). It may be seen that elderly patients from BPL generally access government health services in this part of the country.

The primary objective of this study was to estimate the prevalence of delirium in older adult patients. We found that 16% of participants had delirium irrespective of the admission area and diagnosis. This finding is consistent with the results of other studies on the prevalence of delirium in hospitalised patients, which reported prevalence between 14 and 24%.[12] Present study was conducted among older adult patients in a tertiary care referral hospital, and patients undergoing palliative care were excluded.

Prevalence of delirium and medical diagnosis

Studies on the prevalence of delirium among older patients with stroke have reported estimates ranging from 13 to 48%.[14] In our study, in a sample of 46 patients with a cerebrovascular accident, a point prevalence of delirium in 28% was found. Similarly, previous studies have reported a high prevalence of cognitive impairment (up to 70%) among patients on dialysis and chronic kidney disease, consistent with our finding (47.3%).[15] Another study reported a high prevalence of delirium in the elderly inpatients and a direct association of delirium with UTI (36.8%) renal failure (40.9%).[16]

Similarly, the literature shows that the prevalence of cognitive impairment in COPD patients is approximately 56.7%, which is higher than our study's findings (35%).[17] Consistent with findings of this study, hypertension has been reported to be a significant risk factor for delirium by previous studies.[18]

The present study results show a significant association between the prevalence of delirium and diabetes mellitus. A previous study investigated the incidence, prevalence, risk factors and outcome of delirium in the elderly (≥60 years) patients admitted to a coronary care unit. Among the various risk factors studied, factors that were identified as predictors of delirium in the binary logistic regression analysis were

Table 3- Association between the prevalence of delirium and medical diagnosis (N=300)

Diagnosis*	Delirium status		χ^2 (df=1)	p-value
	Positive (%)	Negative (%)		
Cerebro vascular accident(n=46)	13(28.2)	33(71.8)	6.07	0.01*
Chronic kidney disease(n=19)	9(47.3)	10(52.7)	14.85	0.001**
Urinary tract infection (n=20)	9(45)	11(55)	13.40	0.001**
Chronic obstructive pulmonary disease (n=20)	7(35)	13(65)	5.75	0.01*
Pulmonary oedema(n=18)	6(33.3)	12(66.7)	4.28	0.03*
Hypertension (n=71)	23(32.3)	48(67.7)	18.60	0.001**
Diabetes mellitus(n=72)	19(26.3)	53(73.7)	7.60	0.006**
Anaemia (n=68)	16(23.6)	52(76.4)	3.70	0.05*
Head injury (n=11)	4(36.3)	7(63.7)	3.52	0.06
Metabolic encephalopathy (n=9)	3(33.3)	6 (66.7)	2.07	0.15
Acute kidney injury (n=8)	3 (24)	5 (76)	2.82	0.09
Coronary artery disease (n=76)	13(17.1)	63 (82.9)	0.09	0.76
General surgical procedures (n=51)	6 (11.7)	45 (88.3)	0.82	0.36
Cancer (n=53)	4 (7.54)	49 (92.46)	3.42	0.06

*There were multiple diagnoses in some patients

Table 4 - Distribution of participants based on associated problems and the prevalence of delirium (N=300)

Associated problems*	Delirium status		χ^2 (df=1)	p-value
	Positive (%)	Negative (%)		
Electrolyte imbalance (n=58)	27(46.5)	31(53.4)	49.93	0.001**
Sleep deprivation (n=64)	23(35.9)	41(64)	24.06	0.001**
Visual impairment (n=72)	20(27.8)	52(72.2)	9.77	0.002**
Constipation (n=44)	20(45.4)	24(54.6)	33.28	0.001**
Pain (n=97)	15 (15.4)	82 (84.6)	0.03	0.86
Substance use (n=16)	3 (18.7)	13 (91.3)	0.09	0.75
Hearing impairment (n=9)	2 (22.2)	7(77.8)	0.26	0.60

*There were multiple associated problems in some patients. ** Significant at 0.01 level

Table 5- Association between the prevalence of delirium and area of admission (N=48)

Area of admission	Delirium status		χ²/ Fishers exact	p-value
	Positive (%)	Negative (%)		
Medical ward	23 (19.2)	97 (80.8)		
Surgical ward	7 (8.4)	76 (91.6)		
Oncology ward	2 (16.7)	10 (83.3)		
Nephrology ward	3 (60)	2 (40)	19.21 (df=6)	0.004**
Cardiology ward	0 (0)	16 (100)		
Neurology ward	0(0)	10 (100)		
ICU	13 (24.1)	41 (75.9)		

** Significant at 0.01 level

hypokalaemia (23%), presence of uncontrolled diabetes mellitus (23%) and presence of congestive cardiac failure.[19]

As per the present study, there is a significant association between the prevalence of delirium and anaemia. A similar finding was reported by a study conducted in a comparable critical care unit setting. It showed that patients with severe delirium had significantly lower haemoglobin concentrations than those with moderate or no delirium.[20]

Another study estimated the incidence of delirium and its risk factors among critically ill cancer patients in an intensive care unit. This study shows no association between the prevalence of delirium and the diagnosis of cancer. It reports that delirium is a frequent condition in critically ill cancer patients admitted to the ICU.[21] Community based cancer care and palliative care services has reduced the need for admission of such patients with this condition.

Similarly, this study has found that there is no association between the prevalence of delirium and head injury. In contrast, another study reported that almost half of patients with mild to moderate head injuries might develop delirium in the first four days after traumatic brain injury.[22]

Prevalence of delirium and associated problems

It is also found that the prevalence of delirium has a significant association with visual impairment. Comparable results have been reported earlier in a study among elderly patients with a history of hearing or visual impairment. They reported that uncorrected sensory impairment leads to increased delirium.[23]

Interestingly, we have found a significant association between the prevalence of delirium and sleep deprivation. Another study conducted among cardiac surgical patients indicates that sleep deprivation can either cause delirium, be a result of it, or may simply lower the clinical threshold for delirium. Decreased stage REM sleep has been hypothesised as contributing factors for the development of delirium. [24]

We have also found a significant association between the prevalence of delirium and physical problems like constipation. Evidence shows that chronic constipation, a frequent complaint among older adult patients, is often overlooked precipitating factor for delirium.[25]

Prevalence of delirium and area of admission

The present study revealed a relatively higher proportion of delirium positive status in the nephrology ward and ICU. A high proportion of delirium status in patients admitted in intensive care units, and its association with mortality has been studied elsewhere in a prospective cohort study. The findings showed that more than half of the participants (50.2%) developed at least one episode of delirium.[26] Our study excluded patients on ventilator and tracheostomy, as well as unconscious patients. The longitudinal nature of the development of delirium and

the prevalence of delirium in patients with end-stage illness may need further investigation.

Management of delirium

There are pharmacological interventions that provide rapid, effective, and safe relief to symptoms in delirium.[27] In this study, it was found that only 12.5% of delirium positive participants were receiving specific medications for delirium and specific environmental measures to reduce cognitive impairment. Among the delirium positive participants, psychiatry consultation was done in 10.41%. The low rate of detection and psychiatric management of delirium in patients admitted in general settings indicates the lack of awareness among health care professionals about these patients' psychological problems.[27] The specialty of Consultation-Liason Psychiatry in India needs to improve to provide the best and optimal care to the patients in general settings.[28] Careful observation of symptoms, signs, and behaviours are important in early recognition of delirium.[29] Our study also found that only in 31.25% of cases, nursing staff were aware of the delirium status of these participants. If identified early, pharmacological and nonpharmacological interventions involving patient and family education improve symptoms and relieve patient and family distress. Delirium frequently produces a significant amount of distress for patients, families, and caregivers.[30] The revised Clinical Practice Guidelines for Management of Delirium in Elderly published by the Indian Psychiatric Society outlines a practice framework for health care professionals in managing older adult patients with cognitive impairment.[3]

Limitations and recommendations

The study was a cross-sectional survey, limited to hospitalised older adult patients of a tertiary care referral hospital. Patients with end-stage diseases who are receiving palliative care were not included in this study.

Conclusion

The present study looked into the prevalence of delirium among older adult patients admitted to a tertiary care hospital. This study also looked into the association between the prevalence of delirium and selected variables in the elderly population. We recommend more focused longitudinal observation for the development of delirium in older adults admitted in hospitals, which benefit the patient with a better outcome.

Financial support and sponsorship

Conflicts of interest

The authors have no conflict of interest.

REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Arlington, VA: American Psychiatric Association; 2013.
2. Morandi A, et al. Understanding international differences in terminology for delirium and other types of acute brain dysfunction in critically ill patients. Intensive Care Med. 2008; 34: 1907–1915.
3. Grover S, Avasthi A. Clinical Practice Guidelines for Management of Delirium in Elderly. Indian J Psychiatry 2018; 60:329-40.
4. Inouye SK, Westendorp RGJ, Saczynski JS. Delirium in elderly people. The Lancet. 2014;383(9920):911–22
5. Alamri SH, Ashanqity OA, Alshomrani AB, Elmasri AH, Saeed MB, Yahya SA, et al. delirium and correlates of delirium among newly admitted elderly patients: a cross-sectional study in a Saudi general hospital. Ann Saudi Med. 2018; 38(1):15- 21.
6. Shaji KS, Jyothi KS. Clinical recognition of delirium. Indian J Psychiatry. 2014; 56:306.
7. Vasilevskis EE, Han JH, Hughes CG, Ely EW: Epidemiology and risk factors for delirium across hospital settings. Best Pract Res Clin Anaesthesiol. 2012; 26:277–87.
8. Kuhn E, Du X, McGrath K, Coveney S, O'Regan N, et al. Validation of a Consensus Method for Identifying Delirium from Hospital Records. PLoS One.2014; 9(11): e111823.
9. Gaudreau JD et al. "Fast, systematic, and continuous delirium assessment in hospitalised patients: the nursing delirium screening scale. J Pain Symptom Manage. 2005:29(4); 368-375.
10. Khurana PS, Sharma PSVN, Avasthi A. prevalence of delirium in geriatric hospitalised general medical population. Indian J Psychiatry. 2002; 44(1):41-46.
11. Inouye SK, van Dyck CH, Alessi CA, Balkin S, Siegal AP, Horwitz RI. Clarifying confusion: the confusion assessment method. A new method for detection of delirium. Ann Intern Med 1990; 113(12):941-948.

12. Accorsi S, Fabiani M, Nattabi B, Ferrarese N, Corrado B, Iriso R, Ayella EO, Pido B, Yoti Z, Corti D, Ogwang M, Declich S. Differences in hospital admissions for males and females in northern Uganda in the period 1992-2004: a consideration of gender and sex differences in health care use. Trans R Soc Trop Med Hyg. 2007;101(9):929-38

13. Fong, Tamara G et al. "Delirium in elderly adults: diagnosis, prevention and treatment" Nature reviews. Neurology. 2009; 5:4 210-20.

14. McManus J, Pathansali R, Stewart R, Macdonald A, Jackson S. Delirium post-stroke. Age Ageing. 2007 Nov;36(6):613-8.

15. Murray AM. Cognitive impairment in the aging dialysis and chronic kidney disease populations: an occult burden. Adv Chronic Kidney Dis. 2008 Apr;15(2):123-32.

16. Pereira FB, Lopes MA. Delirium in elderly inpatients admitted to clinical wards prevalence and investigation of clinical conditions in a Brazilian sample. Dement Neuropsychol. 2018; 12(2): 152-156.

17. Bajaj MPK, Burrage DR, Tappouni A, Dodd JW, Jones PW, Baker EH. COPD patients hospitalised with exacerbations have greater cognitive impairment than patients hospitalised with decompensated heart failure. Clin Interv Aging. 2019;14:1-8)

18. Kim H, Chung S, Joo YH, Lee JS. The major risk factors for delirium in a clinical setting. Neuropsychiatr Dis Treat. 2016 Jul 21;12:1787-93

19. Grover S, Sarkar S, Yaddanapudi LN, Ghosh A, Desouza A, Basu D. Intensive Care Unit delirium: A wide gap between actual prevalence and psychiatric referral. J Anaesthesiol Clin Pharmacol. 2017; 33:480-6.

20. Granbergaxell C, Malmros W, Bergbom IL, Lundberg DBA. Intensive care unit syndrome/delirium is associated with anemia, drug therapy and duration of ventilation treatment. Acta Anaesthesiol Scand 2002; 46: 726–731.

21. Sánchez-Hurtado LA, Hernández-Sánchez N, Del Moral-Armengol M, et al. Incidence of Delirium in Critically Ill Cancer Patients. Pain Res Manag. 2018; 2018:4193275.

22. Maneewong J, Maneeton B, Maneeton N, et al. delirium after a traumatic brain injury: predictors and symptom patterns. Neuropsychiatr Dis Treat. 2017; 13:459-465.

23. LaHue SC, Liu VX. Loud and Clear: Sensory Impairment, Delirium, and Functional Recovery in Critical Illness. Am J Respir Crit Care Med. 2016; 194 (3): 252-3.

24. Watson PL, Ceriana P, Fanfulla F. Delirium: is sleep important? Best practice & research. J ClinAnesth. 2012; 26(3): 355-66.

25. Rosen T, Connors S, Clark S, Halpern A, Stern ME, DeWald J, Lachs MS, Flomenbaum N. Assessment and Management of Delirium in Older adult patients in the Emergency Department: Literature Review to Inform Development of a Novel Clinical Protocol. AdvEmergNurs J. 2015; 37(3), 183-96.

26. Klein Klouwenberg PMC, Zaal IJ, Spitoni C, et al. The attributable mortality of delirium in critically ill patients: Prospective cohort study. BMJ. 2014; 349:1–10.

27. Fleury MJ, Imboua A, Aubé D, Farand L, Lambert Y. General practitioners' management of mental disorders: a rewarding practice with considerable obstacles. BMC Fam Pract. 2012 16;13:19.

28. Grover S. State of Consultation-Liaison Psychiatry in India: Current status and vision for future. Indian J Psychiatry. 2011 Jul;53(3):202-13.

29. Irwin SA, Pirrello RD, Hirst JM, Buckholz GT, Ferris FD. Clarifying delirium management: practical, evidenced-based, expert recommendations for clinical practice. J Palliat Med. 2013;16(4):423-35.

30. Namba M, Morita T, Imura C, Kiyohara E, Ishikawa S, Hirai K. Terminal delirium: families' experience.Palliat Med. 2007 Oct; 21(7):587-94.