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perspective

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Knowledge and attitudes of undergraduate nursing students toward dementia: An Indian perspective

Objective. This work evaluated nursing students' knowledge and attitudes toward individuals with Alzheimer's disease and dementia. **Methodology.** This was a transversal, descriptive study carried out with a randomly selected group of nursing students (N = 122) from Bangalore, India, in 2013. The study used the Alzheimer's Disease Knowledge scale (30 questions with true-false options) and the Attitude toward Alzheimer's Disease and Related Dementias scale (20 questions scored with seven Likert-type options; the higher the score, the better the attitude). **Results.** The findings revealed that 56% of the questions were answered correctly and the average attitude score was 95 ± 1.5. A negative correlation was observed between age and knowledge of dementia (r = -0.323; $p < 0.01$). **Conclusion.** The participants have inadequate knowledge of dementia. However, they have positive attitudes towards patients with dementia, giving way to improving their knowledge related to this disease. Thereby, there is urgent need to enhance the undergraduate study plan with respect to the content of this theme and strengthen the attitudes of comprehensive care to individuals with dementia.

Key words: Alzheimer disease; attitude; cross-sectional studies; dementia; India; students, nursing.

Conocimientos y actitudes de los estudiantes de enfermería hacia la demencia: Una perspectiva hindú

Objetivo. Evaluar en los estudiantes de enfermería el conocimiento y las actitudes hacia las personas con enfermedad de Alzheimer y demencia. **Metodología.** Estudio de descriptivo de tipo transversal llevado a cabo en un grupo seleccionado en forma aleatoria de estudiantes de enfermería (N=122) de Bangalore, India, en 2013. Se utilizaron las escalas: Alzheimer's Disease Knowledge Scale (30 preguntas con opciones verdadero/falso) y The Attitude toward Alzheimer's disease and Related Dementias Scale (20 preguntas calificadas con 7 opciones tipo Likert, a mayor puntaje mejor es la actitud). **Resultados.** Los hallazgos revelaron que el 56% de las preguntas fueron contestadas correctamente y el

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promedio puntaje de actitud fue 95±1.5 Se Observó una correlación negativa entre la edad y el conocimiento sobre la demencia (r=-0.323; *p*<0.01). **Conclusion.** Los participantes tienen un inadecuado conocimiento sobre la demencia. Sin embargo, que poseen actitudes alentadoras hacia los pacientes con demencia dando espacio a mejorar sus conocimientos relacionados con esta enfermedad. Por lo tanto, hay una necesidad urgente de fortalecer el plan de estudios de pregrado con respecto al contenido de este tema y fortalecer las actitudes el cuidado integral a las personas con demencia.

Palabras clave: enfermedad de Alzheimer; actitud; estudios transversales; demencia; India; estudiantes de enfermería.

Conhecimentos e atitudes dos estudantes de enfermagem para a demência: Uma perspectiva indiana

Objetivo. Avaliar nos estudantes de enfermagem o conhecimento e as atitudes para as pessoas com doença de Alzheimer e demência. **Metodologia**. Estudo de descritivo de tipo transversal levado a cabo num grupo selecionado em forma aleatória de estudantes de enfermagem (N=122) de Bangalore, Índia, em 2013. Utilizaram-se as escalas: Alzheimer's Disease Knowledge Scale (30 perguntas com opções verdadeiro/falso) e The Attitude toward Alzheimer's disease and Related Dementias Scale (20 perguntas qualificadas com 7 opções tipo Likert, a maior pontuação, melhor é a atitude). **Resultados**. Os resultados revelaram que 56% das perguntas foram contestadas corretamente e a pontuação média de atitude foi 95±1.5 Se Observou uma correlação negativa entre a idade e o conhecimento sobre a demência (r=-0.323; *p*<0.01). **Conclusão**. Os participantes têm um inadequado conhecimento sobre a demência. No entanto, que possuem atitudes alentadoras para os pacientes com demência dando espaço a melhorar seus conhecimentos relacionados com esta doença. Portanto, há uma necessidade urgente de fortalecer o plano de estudos de graduação com respeito ao conteúdo deste tema e fortalecer as atitudes o cuidado integral às pessoas com demência.

Palavras chave: doença de Alzheimer; attitude; estudos transversais; demência; India; estudantes de enfermagem.

Introduction

Dementia is a major health problem worldwide as there will be threefold increase in people living with dementia globally by 2050.[1] Alzheimer's disease is the most common form of dementia in the elderly (60-80% of all cases of dementia) which is chronic progressive, irreversible degenerative disease of the brain.[2] Like in other countries, in India the number of people with Alzheimer's disease and other dementias is expected to increase due to increase in longevity and increasing prevalence of risk factors such as hypertension and stroke and lifestyle changes.[3] Nursing care plays crucial role in providing care both at hospital and at home. Geriatric patients are very complex because of the effects aging and multiple co-morbid medical conditions adding to this cognitive decline and behavioral problems present special challenges in providing nursing care. Evidence suggests that the health services in developing countries were not adequately prepared to provide better services for people with dementia.[4]

Studies indicate adequate knowledge of dementia among health care professionals likely to affect critical issues in care[5] and enhances better patient outcomes.[5,6] However, studies indicate that healthcare provision for people with dementia, largely based around staff time limitations, poor knowledge about dementia and lack of understanding about individual patient

needs.[7] Nursing students are more likely encounter older persons with dementia during their clinical placements. Hence, it is crucial that nursing students are equipped with adequate dementia knowledge to deliver the holistic care to this elderly population. However, published evidence clearly demonstrates that health care utilization among people with dementia is limited in India.[8] Studies from India mainly focused on prevalence rates from different regions of India.[9,10] However, so far, studies that examined nurses' knowledge and attitudes towards dementia are limited.[11] Hence, it is critical to evaluate nursing students' level of knowledge and attitudes toward dementia. The findings may provide evidence to identify the deficiencies in the nursing curricula. Thus, the present study aimed to assess nursing students' general knowledge and attitudes toward dementia and their competence in working elderly with dementia.

Methodology

This was a cross sectional descriptive study carried out among undergraduate nursing students at a Govt. College of Nursing, Institute of National Importance, Bangalore, India, in 2013. This study was aimed to examine under graduate nursing students' knowledge and attitudes towards Alzheimer's disease related Dementia and the interrelationships between the research variables.

Participants

The sample for the present study selected through a random sampling method (Random number table) from the class attendance register. Nursing students those were studying third year and fourth year of their course and those were willing to participate were included in the study. Nursing students from 1st and 2nd year were excluded since they did not have theoretical and clinical exposure to the patients with dementia. There were 157 students those were enrolled in the study. However, 20 questionnaires were discarded because of incomplete responses. Further, few (n=8) of them were not willing to participate due to lack of time and interest and were absent during data collection (n=7). Hence, final sample comprised of 122 under graduate nursing students with the response rate of 77%.

Measures

1. **Demographic questionnaire.** The demographic form included variables to elicit information related to participants' age, religion, family's monthly income, residence, and year of nursing course.

2. **Alzheimer's disease Knowledge Scale (ADKS).** Nursing students' knowledge levels investigated through Alzheimer's disease Knowledge Scale. This validated tool comprised of 30 items with true/false responses .[12] One mark awarded for every correct response, zero otherwise. Hence, the total number of marks in the knowledge section ranged from 0 to 30. ADKS was selected for the present study since it is easy to use and has good psychometric properties with high internal consistency (.71). The ADKS measured level of knowledge under the following domains: life impact (3 items), risk factors (6 items), symptoms (4 items), treatment and management (4 items), assessment and diagnosis (4 items), care giving (5 items) and course of the disease (4 items).[12]

3. **The Attitude toward Alzheimer's disease and Related Dementias Scale.**[13] This instrument consists of 20 items with 7-point Likert scale that ranged from 'strongly disagree' to 'strongly agree' to reveal nursing students' attitudes toward dementia in two sub-domains namely "dementia knowledge" (items 3, 7, 10, 11, 12, 14, 15, 18, 19, 20) and "social comfort" (items 1, 2, 4, 5, 6, 8, 9, 13, 16, 17) with good psychometric properties (Cronbach's alpha 0.83–0.85). Points ranging from 1 to 7 were given to each response such that the more positive the response, the higher the score. The total possible scores for this scale range from 20 to 140.

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Procedure

After obtaining permission from the authors who developed the questionnaires, pilot study was conducted among a group of nursing students (N=15).   It was found that the questionnaires were feasible to conduct the study in Indian setting and thus no major changes have been done. Then   the questionnaires were distributed to each batch of students separately after their lectures. On introduction, the researchers explained about the aims and methods of the present study to all participants. Participants those were willing to participate were asked to give written consent before administering the questionnaires. Approximately, it took 30 minutes for the participants to complete the questionnaires.

Ethical considerations

After obtaining the permission from college administrators, participants were explained about the purpose of the present study by the researchers. The questionnaires administered after taking the verbal consent from the participants those were willing to participate. Participants were assured about confidentiality of the data by not collecting their identity information.

Statistical analysis

Before data analysis, responses of the negative statements were reverse coded. Descriptive and inferential statistics used to determine significant differences between the participants regarding their mean knowledge and attitudes scores. Statistical significance considered at $p<0.05$.

Results

The present study comprised of under graduate nursing students (N=122), of whom 97.6% were women. The mean age of the participants was 20.6 ± 1.24 (M±SD) years. A majority of the participants was Christians (82%) and was from rural background (60.7%). The proportion (50.8%) of participants from fourth year BSC (N) was slightly higher than participants from 3rd year (49.2%) (Table1).

Table 1. Characteristics of the participants

Variable	Group	Frequency	Percentage
Gender	Male	3	2.5
	Female	119	97.6
Age	<20	64	52.4
	>20	58	47.6
Religion	Hindu	18	14.8
	Muslim	4	3.3
	Christian	100	82.0
Year of education	3rd Year	60	49.2
	4th Year	62	50.8
Back ground	Rural	48	39.3
	Urban	74	60.7

Table 2 represents distribution of participants' knowledge related to Alzheimer's disease in various domains. Although the mean score (1.70±0.78, out of 3) of life impact domain indicates inadequate knowledge among nursing students as less than half of them agreed that people with Alzheimer's disease reside in nursing homes (46.7%) and it is better to have companion at all times while people with AD to drive a care (44.3%). The mean score (2.76±1.34, out of 6) of risk factors domain suggests that participants had inadequate knowledge in this domain. Less than a quarter (20.5%) of the participants approved that caregivers should take over when people

Table 2. Distribution of Participants Knowledge related to Alzheimer's disease

Variables	Correct answers (%)	M±SD
Life impact		
People with Alzheimer's disease are particularly prone to depression. (T)	79.5	0.79±0.40
Most people with Alzheimer's disease live in nursing homes. (F)	46.7	0.46 ±0.50
It is safe for people with AD to drive, as long as they have a companion in the car at all times. (F)	44.3	0.44±0.49
Mean score		**1.70±0.78**
Risk factors		
It has been scientifically proven that mental exercise can prevent a person from getting AD. (F)	25.4	0.25±0.43
People in their 30s can have Alzheimer's disease. (T)	50	0.50±0.50
Having high cholesterol may increase a person's risk of developing Alzheimer's disease. (T)	35.2	0.35 ±0.47
Prescription drugs that prevent Alzheimer's disease are available. (F)	44.3	0.44 ±0.49
Having high blood pressure may increase a person's risk of developing Alzheimer's disease. (T)	54.1	0.54±0.50
Genes can only partially account for the development of Alzheimer's disease. (T)	67.2	0.67±0.47
Mean score		**2.76±1.34**
Symptoms		
Tremor or shaking of the hands or arms is a common symptom in people with AD(F)	50.8	0.50±0.50
Trouble handling money or paying bills is a common early symptom of Alzheimer's disease. (T)	70.5	0.70±0.45
One symptom that can occur with AD believes that other people are stealing one's things. (T)	52.5	0.52±0.50
Most people with Alzheimer's disease remember recent events better than things that happened in the past. (F)	53.3	0.53±0.50
Mean score		**2.27±0.92**
Treatment and Management		
People whose AD is not yet severe can benefit from psychotherapy for depression and anxiety. (T)	59.8	0.59±0.49
Poor nutrition can make the symptoms of Alzheimer's disease worse. (T)	58.2	0.58±0.49
When a person has AD, using reminder notes is a crutch that can contribute to decline. (F)	59	0.59±0.49
Alzheimer's disease cannot be cured. (T)	55.7	0.55±0.49
Mean score		**2.32±1.07**
Assessment and diagnosis		
When a person with Alzheimer's disease becomes agitated, a medical examination might reveal other health problems that caused the agitation. (T)	59	0.59±0.49
If trouble with memory and confused thinking appears suddenly, it is likely due to AD. (F)	49.2	0.49±0.50
Symptoms of severe depression can be mistaken for symptoms of Alzheimer's disease. (T)	64.8	0.64±0.47
Alzheimer's disease is one type of dementia. (T)	82.8	0.82±0.37
Mean score		**2.55±0.94**
Care giving		
People with Alzheimer's disease do best with simple, instructions given one step at a time. (T)	68.9	0.68 ±0.46
When people with Alzheimer's disease begin to have difficulty taking care of them, caregivers should take over right away. (F)	20.5	0.20 ±0.40
If a person with Alzheimer's disease becomes alert and agitated at night, a good strategy is to try to make sure that the person gets plenty of physical activity during the day. (T)	59.8	0.59±0.49
When people with Alzheimer's disease repeat the same question or story several times, it is helpful to remind them that they are repeating themselves. (F)	60.7	0.60±0.49
Once people have Alzheimer's disease, they are no longer capable of making informed decisions about their own care. (F)	66.4	0.66±0.47
Mean score		**2.76±1.15**
Course of the disease		
After symptoms of Alzheimer's disease appear, the average life expectancy is 6 to 12 years. (T)	44.3	0.44±0.49
In rare cases, people have recovered from Alzheimer's disease. (F)	59	0.59±0.49
A person with AD becomes increasingly likely to fall down as the disease gets worse. (T)	73.8	0.73±0.44
Eventually, a person with Alzheimer's disease will need 24-hour supervision. (T)	70.5	0.70±0.45
Mean score		**2.47±0.95**
Overall Mean Knowledge score		**16.8±3.48**

T – True, F- False is the correct responses for the items

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with Alzheimer's disease begin to have difficulty taking care of them. However, the participants demonstrated poor level of knowledge in Symptoms (2.27±0.92 out of 4), Treatment and management (2.32±1.07, out Of 4), Assessment and diagnosis (2.55±0.94, out of 4), Care giving (2.76±1.15, out of 5) and Course of disease (2.47±0.95 out of 4) domains. Similarly, overall mean score 16.8±3.48 (out of 30) suggested that participants had inadequate knowledge regarding dementia related to Alzheimer's disease.

Concerning participants' attitudes towards Dementia in comfort domain, a majority (69.6%) of the participants felt that it is rewarding to work and comfortable in touching people who have ADRD (73.7%). Although, a majority (67.2%) of participants agreed that they were not afraid of people with ADRD and confident to be around people with ADRD (73.7%), nearly half of the participants agreed that they would avoid an agitated persons and felt discouraged because they do not know how to help ADRD patients (49.2%). However, the mean score (45.5±9.49) showed that participants hold positive attitudes towards dementia in comfort domain. While all of the participants agreed that people with dementia can enjoy life and can be creative (62.3%). Further, a majority also stated that they have different needs (74.6%) and a lot can be done to improve the lives of elderly with ADRD (78.8%). Similarly the mean score 49.4±9.23 approved that the participants have sufficient knowledge related to dementia. Further, the overall mean score (95.0±1.47) indicates that nursing students hold encouraging attitudes towards dementia (Table 3).

Table 4 discusses the relationship between the mean score of knowledge, attitudes and the students' year in various domains. With regard to participants knowledge related Alzheimer's disease, significant differences were found between 3rd and 4th year nursing students in risk factors (p > 0.01), treatment and management (p > 0.01) and care giving (p> 0.02) domains as the mean score of the 4th year students was higher comparing to 3rd year nursing students.

Similarly, the overall mean knowledge score for the 4th year students (17.8± 3.67) was higher than students from 3rd year (15.8± 3.02) and significant difference was observed (p< 0.01). Likewise, 4th year students hold more positive attitudes in knowledge domain (p> 0.01) and mean total attitudes towards dementia (p =0.03) than 3rd year students.

The Pearson Correlation Coefficient test revealed that a negative relationship existed between age and knowledge (r=-0.323; p <0.001) towards dementia. Older students scored higher on the total knowledge scale compared to their younger counterparts.

Discussion

The focus of this study was to examine undergraduate nursing students' knowledge and attitude towards dementia. The findings of the present study showed inadequate knowledge among nursing students toward dementia. However, they hold encouraging attitudes toward dementia related to Alzheimer's disease. In the present study, the overall mean score of dementia knowledge was 16.8 3.48, out of 30 (56% correct) suggested that participants had insufficient knowledge regarding dementia related to Alzheimer's disease. Similarly, knowledge was inadequate in the domain of the ADKS such as 'risk factors (2.76±1.34) and this number was significantly lower than the sample of Norwegian clinical psychologists 24.01[14] and health district staff 23.6±3.26.[15] Furthermore, the average knowledge score was lesser than dementia caregivers (M=22.7) and older adults (M=24.1).[16] However, the mean score of the present study sample was significantly higher than knowledge of Dementia among undergraduates in the Health and Social Care Professions in Hong Kong (7.4 ± 3.7).[17] In general, nurses with high level of dementia related knowledge are able to provide quality of care to the people with dementia. This was consistent with previous studies that found substantiate relationship between knowledge of dementia and quality of care.[18] Nonetheless,

Table 3. Participants responses to Attitude towards Dementia

Variables	Disagree	Agree	Neutral	M±SD
Comfort				
1. It is rewarding to work with people who have ADRD	33(27.1)	85(69.6)	4(3.3)	5.21±2.23
2. I am afraid of people with ADRD*	82(67.2)	37(30.4)	3(2.5)	4.88±2.58
4. I feel confident around people with ADRD	44(36.1)	78(64.0)	-	4.92±2.58
5. I am comfortable touching people with ADRD	31(26.2)	90(73.7)	1(0.8)	5.52±2.38
6. I feel uncomfortable being around people with ADRD*	66(54.1)	53(43.5)	3(2.5)	4.44±2.69
8. I am not very familiar with ADRD*	35(28.7)	87(71.3)	-	2.92±2.50
9. I would avoid an agitated person with ADRD*	64(52.4)	57(46.7)	1(0.8)	4.22±2.47
13. I feel relaxed around people with ADRD	60(49.2)	62(50.9	-	4.45±2.48
16. I feel frustrated because I do not know how to people with ADRD*	71(59.2)	51(41.8)		4.34±2.86
17. I cannot imagine caring for someone with ADRD*	74(60.6)	48(39.3)		4.60±2.89
Mean score				**45.5±9.49**
Knowledge				
3. People with ADRD can be creative	37(30.5)	76(62.3)	9(7.4)	4.96±2.30
7. every person with ADRD has different needs	31(25.4)	91(74.6)	-	5.54±2.24
10. people with ADRD like having familiar things nearby	40(32.8)	82(67.2)	-	5.24±2.36
11. it is important to know the past history of people with ADRD	23(18.8)	99(81.2)	-	5.94±1.98
12. It is possible to enjoy interacting with people with ADRD	39(31.9)	82(67.2)	1(0.8)	5.36±2.34
14. People with ADRD can enjoy life	122(100)	-	-	1.53±0.50
15. People with ADRD can feel when others are kind to them	51(41.8)	71(58.2)	-	4.85±2.45
18. I admire the coping skills of people with ADRD	38(31.1)	84(68.9)	-	5.37±2.38
19. We can do a lot now to improve the lives of people with ADRD	26(21.3)	96(78.8)	-	5.78±2.06
20. Difficult behaviors may be a form of communication for people with ADRD.	48(39.3)	74(60.7)	-	4.86±2.38
Mean score				**49.4±9.23**
Over all attitude score				**95.0±1.47**

* Reverse scored item

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Table 4. Relationship between the mean score of knowledge and attitudes with the students' year of education

Variable	3rd year (M±SD)	4th year (M±SD)	Sig
Life impact	1.61±0.80	1.79±0.77	0.22
Risk factors	2.41±1.19	3.09± 1.39	<0.01
Symptoms	2.23±0.92	2.30±0.93	0.66
Treatment and Management	2.01±1.03	2.62±1.02	<0.01
Assessment and diagnosis	2.55±0.83	2.56± 1.04	0.93
Care giving	2.51±1.09	3.00±1.17	<0.02
Course of the disease	2.53±0.92	2.41±0.98	0.51
Total correct knowledge score	**15.8± 3.02**	**17.8± 3.67**	**<0.01**
Comfort	44.6 ± 8.21	46.3 ± 10.5	0.32
Knowledge	47.4 ± 8.91	51.4 ± 9.18	<0.01
Mean Total Attitudes	92.1 ± 12.8	97.8 ± 15.9	<0.03

substantial studies observed that nurses were inadequately trained and educated.[19] Further, nurses were unsuccessful to meet the needs of people with dementia.[20] However, these deficits in nursing staff indicate the need for continuous education, particularly in taking care of elderly with dementia.[21] The overall mean score of Dementia Attitude scale (95.0±1.47) indicates that nursing students hold encouraging attitudes toward people with dementia. Nonetheless, the present study shows that the nursing students had inadequate knowledge related to Alzheimer's disease. However, they had positive attitudes toward people with dementia. These findings were inconsistent to a recent study among nursing students in Malta that found better knowledge and encouraging attitudes toward patients with dementia.[22] On contrary, considerable number of studies reported negative attitudes among nursing students[23] and nurses[18] toward dementia patients. The findings of the present study showed the significant difference related to mean knowledge scores between 3rd and 4th year students. The mean knowledge score for the 4th year students (17.8± 3.67) slightly higher compared to the students from 3rd year (15.8± 3.02). Similarly, 4th year students hold more positive attitudes than

3rd year students. These findings could be due to better exposure to the people with dementia and were similar to previous research.[22] A recent study observed that knowledge related to dementia was higher among students in the MSN (Master of Science in Nursing) program compared to the ASN (Associate of Science in Nursing) students.[24] The present study has certain limitations. Small sample size and the sample were restricted to a single university. Moreover, the present sample comprised predominantly by the women. Hence, we could not examine the gender differences. Further, quantitative approach adopted for this study. Thus, the results may not be generalizable. However, despite of these limitations, we believe that this study include significant findings for researchers as well as nurse educators in formulating the dementia curriculum to nurture positive attitudes in caring of elder people with dementia.

Conclusion

The findings of the present study revealed that the participants had an inadequate knowledge

towards people with dementia. However, they hold encouraging attitudes towards patients with dementia giving space to improve their knowledge related dementia. These results confirm the importance of strengthening the dementia related content in undergraduate curriculum to inculcate constructive attitudes and to provide holistic care to the persons with dementia. Our results also suggest ongoing dementia education programs for nurses should be of priority to provide quality dementia care.

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