

Original Article

Knowledge and Attitude Towards Dementia among Medical Students in the Western Region - Saudi Arabia: A Cross-sectional Study

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Abstract

Introduction: Dementia is a significant public health issue that is linked to the aging population. To the best of our knowledge, there is limited data on medical students' knowledge and attitudes toward dementia in the Western region of Saudi Arabia which has some of the largest percentages of older adults in the country. Therefore, our study aimed to evaluate the knowledge and attitude of medical students toward dementia in the Western region of Saudi Arabia.

Methods: The study design was a descriptive cross-sectional study. Our target population was medical students in the western region of Saudi Arabia. Their knowledge was assessed in the following domains: risk factors, presentation, treatment of dementia, along with their attitude toward people with dementia. The data was collected using a convenient sample and a self-administered online questionnaire in English, which was sent as a Google Form link through social media platforms, including WhatsApp, Twitter, Instagram, and Snapchat, to potential respondents. Any identifiable information revealing a participant's identity was eliminated, and all data was used anonymously. The questionnaire contained the following sections: Consent form, sociodemographic data, Dementia Knowledge Assessment Tool Version 2 (DKAT2), and Dementia Attitude Scale (DAS).

Results: About 88.1% of the study students know that people with dementia develop problems with visual perception, 86.6% said that when a person has late-stage dementia, families can help others to understand that person's needs, and 85.8% know that dementia occurs because of changes in the brain. A total of 183 (47.3%) students had poor knowledge about dementia, while 204 (52.7%) had good knowledge.

Conclusion: The findings highlight the importance of enhancing dementia education within the medical curriculum to ensure that future healthcare professionals are well-equipped to address the challenges associated with this condition.

Keywords: *Dementia, Medical, Students, Western Region*

Introduction

Dementia is a significant public health issue that is linked to the aging population. It can be differentiated by the following attributes: Cognitive decline refers to a gradual decrease in mental ability, memory, or functioning that hampers daily activities, while the person remains awake (1). Alzheimer's disease is widely regarded as the most common cause of dementia globally. Other common causes of dementia include vascular illness, dementia with Lewy bodies, and frontotemporal dementia (2). Dementia can have a profound effect on social conduct, creating challenges not just for individuals with the condition but also for their caregivers. Dementia ranks as the seventh most common cause of mortality globally (3).

Nearly 10 million new dementia cases are identified each year (4). In 2015, it was anticipated that 47 million individuals worldwide have dementia; this number is expected to rise to 75 million by 2030 and 135 million by 2050 (5). Age is the most important risk factor for developing dementia. The percentage of older adults in most countries is rising (4). In 2016, there were approximately a million (6.5%) Saudis over the age of 60, and by 2050, it is predicted there will be more than 10 million people in this age group (6). By 2050, older adults will make up 25% of the country's population, causing a shift in Saudi society's age distribution (6). Insufficient understanding of dementia will lead to an increase in stigmatization, prejudice, social isolation, and difficulties in diagnosing and providing treatment for those with this condition (4, 7). Internationally, nursing and medical students typically have a decent overview of dementia, but their knowledge is insufficient (8, 9). A survey of Brazilian medical students in their last year of school showed they had a theoretical understanding of dementia with no practical training (10). One survey of medical students in Jazan, Saudi Arabia found that 6.2% had theoretical and practical training, whereas 16.6% had only theoretical instruction (11). To the best of our knowledge, there is limited data on medical students' knowledge and attitudes toward dementia in the Western region of

Saudi Arabia which has some of the largest percentages of older adults in the country. Therefore, our study aimed to evaluate the knowledge and attitude of medical students toward dementia in the Western region of Saudi Arabia.

Methods***Study design and settings***

The study design was a descriptive cross-sectional study. The primary objective was to assess the knowledge and attitude towards dementia among medical students in the Western Region of Saudi Arabia. Our target population was medical students in the western region of Saudi Arabia. We elected to exclude 1st, 2nd, and 3rd-year medical students as those are not yet exposed to clinical training.

Data collection

Their knowledge was assessed in the following domains: risk factors, presentation, treatment of dementia, along with their attitude toward people with dementia. The data was collected using a convenient sample and a self-administered online questionnaire in English, which was sent as a Google Form link through social media platforms, including WhatsApp, Twitter, Instagram, and Snapchat, to potential respondents. Any identifiable information revealing a participant's identity was eliminated, and all data was used anonymously. The questionnaire contained the following sections: Consent form, sociodemographic data, Dementia Knowledge Assessment Tool Version 2 (DKAT2), and Dementia Attitude Scale (DAS). The Raosoft website calculated a minimum sample size of 377 for a population of around 20,000 for a confidence interval of 95% and an error margin of 5%.

Ethical considerations

An ethical approval was first obtained with approval number (HAPO-02-K-012-2023-04-1585). Electronic consent was obtained from all participants before filling out the questionnaire.

Statistical analysis

The data was entered into SPSS version 22 (SPSS, Inc. Chicago, IL). When we assessed knowledge and awareness levels regarding dementia, the

overall score was obtained by summing up all item scores. Students with a score of less than 60% of the maximum score were considered to have a poor knowledge level, while others with a score of 60% or more were considered to have an overall good knowledge level. Descriptive analysis based on frequency and percent distribution was done for all variables, students' demographic data, university, and GPA. Also, Students' knowledge and attitude regarding dementia was tabulated, and their overall knowledge level was graphed. Cross- tabulation graphs were used to assess factors associated with students' knowledge level about dementia using Persons' chi-square test and exact probability test for small frequency distributions.

Results

A total of 387 medical students in the Western region were included. Students ranged from 19 to 30 years of age, with a mean age of 22.7 ± 1.8. A total of 218 (56.3%) were females, 122 (31.5%) at their 4th study year, 171 (44.2%) at 5th study year and 94 (24.3%) at 6th study year. 213 (55%) had a GPA of 4.5-5, 130 (33.6%) had a GPA of 3.5-4.49, and 11.4% had a GPA of less than 3.5 (Table 1).

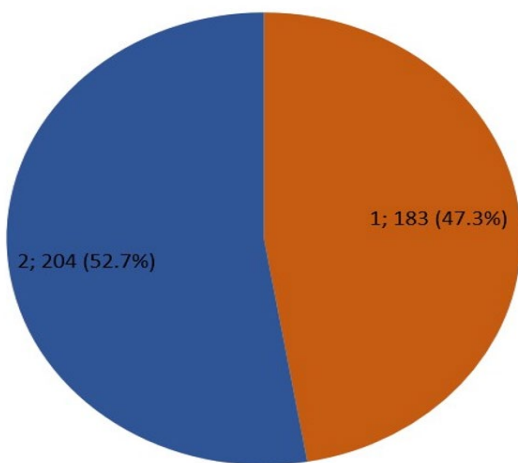


Figure 1: Overall medical students' knowledge regarding dementia among medical students, Western region, Saudi Arabia

About 88.1% of the study students know that people with dementia develop problems with visual perception, 86.6% said that when a person has late-stage dementia, families can help others to understand that person's needs, 85.8% know that dementia occurs because of changes in the brain,

80.1% reported that brain changes causing dementia are often progressive, 79.3% think that knowing the likely cause of dementia can help to predict its progression, and 73.4% know that blood vessel disease can also cause dementia. Only 31.3% reported that confusion in an older person is probably due to dementia, and 10.1% think that only older adults develop dementia (Table 2). Moreover, a total of 183 (47.3%) students had poor knowledge about dementia, while 204 (52.7%) had good knowledge (Figure 1).

Table 1. Personal characteristics of study medical students, Saudi Arabia

Personal data	No	%
University		
College of Medicine at Taibah University	84	21.7%
Batterjee Medical College	76	19.6%
College of Medicine at Umm Al-Qura University	60	15.5%
Ibn Sina National College for Medical Studies	55	14.2%
College of Medicine at Jeddah University	37	9.6%
College of Medicine at King Saud bin Abdulaziz University in Jeddah	33	8.5%
College of medicine in Taif University	23	5.9%
College of Medicine at King Abdulaziz University	17	4.4%
College of medicine at Alfarabi University	1	.3%
Fakeeh College of Medical Sciences	1	.3%
GPA		
1.75-2.74	6	1.6%
2.75-3.49	38	9.8%
3.5-4.49	130	33.6%
4.5-5	213	55.0%
Gender		
Male	169	43.7%
Female	218	56.3%
Age in years		
19-20	33	8.5%
21-23	270	69.8%
24+	84	21.7%
Study year		
4th year	122	31.5%
5th year	171	44.2%
6th year	94	24.3%

A total of 53.5% of the students agreed that every person with Alzheimer's disease and related dementias (ADRD) has different needs, 50.1% agreed that it is essential to know the history of

people with ADRD, 47.5% think that we can do a lot now to improve the lives of people with ADRD, 45.5% agreed that People with ADRD can feel when others are kind to them, 38% told that People with ADRD like having familiar things nearby, and 37.5% think that people with ADRD can enjoy life. Only 15.5% feel uncomfortable around people with ADRD, and 9.6% fear people with ADRD (Table 3).

About 59.2% of the male students had good knowledge about dementia compared to 47.7% of females with recorded statistical significance (P=.025). Also, good knowledge about dementia was detected among 80.9% of 6th-year students versus 39.3% of the 4th-year group (P=.001). Other students' factors showed insignificant association with their overall knowledge about dementia (Table 4).

Table 2. Knowledge regarding dementia among medical students, Western region, Saudi Arabia

Knowledge items	Yes		No		Don't know	
	No	%	No	%	No	%
Dementia occurs because of changes in the brain	332	85.8%	28	7.2%	27	7.0%
Brain changes causing dementia are often progressive	310	80.1%	54	14.0%	23	5.9%
Alzheimer's disease is the main cause of dementia	248	64.1%	102	26.4%	37	9.6%
Blood vessel disease can also cause dementia	284	73.4%	37	9.6%	66	17.1%
Confusion in an older person is almost always due to dementia	121	31.3%	204	52.7%	62	16.0%
Only older adults develop dementia	39	10.1%	299	77.3%	49	12.7%
Knowing the likely cause of dementia can help to predict its progression	307	79.3%	17	4.4%	63	16.3%
Incontinence always occurs in the early stages of dementia	113	29.2%	150	38.8%	124	32.0%
Dementia is likely to limit life expectancy	280	72.4%	56	14.5%	51	13.2%
When a person has late-stage dementia, families can help others to understand that person's needs	335	86.6%	37	9.6%	15	3.9%
People who have dementia may develop problems with visual perception (understanding or recognizing what they see)	341	88.1%	12	3.1%	34	8.8%
Sudden increases in confusion are characteristic of dementia	224	57.9%	109	28.2%	54	14.0%

Table 3. Attitude and perception towards dementia among medical students, Western region, Saudi Arabia

Attitude items	Strongly disagree N(%)	Disagree N(%)	Slightly Disagree N(%)	Neutral N(%)	Slightly agree N(%)	Agree N(%)	Strongly Agree N(%)
It is rewarding to work with people who have ADRD	92(23.8%)	54(14.0%)	52(13.4%)	98(25.3%)	19(4.9%)	45(11.6%)	27(7.0%)
I am afraid of people with ADRD	144(37.2%)	125(32.3%)	37(9.6%)	44(11.4%)	21(5.4%)	7(1.8%)	9(2.3%)
People with ADRD can be creative	66(17.1%)	74(19.1%)	63(16.3%)	87(22.5%)	42(10.9%)	39(10.1%)	16(4.1%)
Feel confident around people with ADRD	72(18.6%)	62(16.0%)	55(14.2%)	114(29.5%)	28(7.2%)	37(9.6%)	19(4.9%)
I am comfortable touching people with ADRD	67(17.3%)	53(13.7%)	53(13.7%)	71(18.3%)	29(7.5%)	60(15.5%)	54(14.0%)
Feel uncomfortable being around people with ADRD	117(30.2%)	100(25.8%)	49(12.7%)	61(15.8%)	33(8.5%)	16(4.1%)	11(2.8%)
Every person with ADRD has different needs	67(17.3%)	37(9.6%)	36(9.3%)	40(10.3%)	45(11.6%)	80(20.7%)	82(21.2%)
I am not very familiar with ADRD	80(20.7%)	72(18.6%)	40(10.3%)	78(20.2%)	46(11.9%)	40(10.3%)	31(8.0%)
I would avoid an agitated person with ADRD	90(23.3%)	58(15.0%)	44(11.4%)	68(17.6%)	45(11.6%)	49(12.7%)	33(8.5%)
People with ADRD like having familiar things nearby	74(19.1%)	51(13.2%)	29(7.5%)	86(22.2%)	44(11.4%)	55(14.2%)	48(12.4%)
It is important to know the past history of people with ADRD	67(17.3%)	45(11.6%)	26(6.7%)	55(14.2%)	29(7.5%)	64(16.5%)	101(26.1%)
It is possible to enjoy interacting with people with ADRD	62(16.0%)	58(15.0%)	41(10.6%)	59(15.2%)	48(12.4%)	59(15.2%)	60(15.5%)
I feel relaxed around people with ADRD	68(17.6%)	66(17.1%)	49(12.7%)	108(27.9%)	42(10.9%)	34(8.8%)	20(5.2%)
People with ADRD can enjoy life	67(17.3%)	60(15.5%)	40(10.3%)	75(19.4%)	49(12.7%)	59(15.2%)	37(9.6%)
People with ADRD can feel when others are kind to them	69(17.8%)	44(11.4%)	31(8.0%)	67(17.3%)	45(11.6%)	68(17.6%)	63(16.3%)
I feel frustrated because I do not know how to help people with ADRD	69(17.8%)	63(16.3%)	43(11.1%)	78(20.2%)	57(14.7%)	52(13.4%)	25(6.5%)
I cannot imagine taking care of someone with ADRD	101(26.1%)	83(21.4%)	45(11.6%)	73(18.9%)	37(9.6%)	32(8.3%)	16(4.1%)
I admire the coping skills of people with ADRD	72(18.6%)	46(11.9%)	39(10.1%)	113(29.2%)	26(6.7%)	50(12.9%)	41(10.6%)
We can do a lot now to improve the lives of people with ADRD	76(19.6%)	39(10.1%)	34(8.8%)	54(14.0%)	45(11.6%)	61(15.8%)	78(20.2%)
Difficult behaviors may be a form of communication for people with ADRD	72(18.6%)	54(14.0%)	37(9.6%)	92(23.8%)	43(11.1%)	49(12.7%)	40(10.3%)

ADRD: Alzheimer's disease and related dementias

Table 4. Factors associated with medical students' knowledge about dementia, Western region, Saudi Arabia

Factors	Overall knowledge level				p-value
	Poor		Good		
	No	%	No	%	
Gender					
Male	69	40.8%	100	59.2%	.025*
Female	114	52.3%	104	47.7%	
Age in years					
19-20	17	51.5%	16	48.5%	.245
21-23	133	49.3%	137	50.7%	
24+	33	39.3%	51	60.7%	
Study year					
4th	74	60.7%	48	39.3%	.001*
5th	91	53.2%	80	46.8%	
6th	18	19.1%	76	80.9%	
University					
Batterjee Medical College	38	50.0%	38	50.0%	.094\$
College of medicine at Alfarabi university	0	0.0%	1	100.0%	
College of Medicine at Jeddah University	21	56.8%	16	43.2%	
College of Medicine at King Abdulaziz University	10	58.8%	7	41.2%	
College of Medicine at King Saud bin Abdulaziz University in Jeddah	9	27.3%	24	72.7%	
College of medicine at Taibah University	46	54.8%	38	45.2%	
College of Medicine at Umm Al-Qura University	22	36.7%	38	63.3%	
College of medicine in Taif university	12	52.2%	11	47.8%	
Fakeeh College of Medical Sciences	1	100.0%	0	0.0%	
Ibn Sina National College for Medical Studies	24	43.6%	31	56.4%	
GPA					
1.75-2.74	3	50.0%	3	50.0%	.887\$
2.75-3.49	17	44.7%	21	55.3%	
3.5-4.49	65	50.0%	65	50.0%	
4.5-5	98	46.0%	115	54.0%	

P: Pearson X^2 test

\$: Exact probability test

* $P < 0.05$ (significant)

Discussion

This study evaluated the cognitive understanding and perspective of dementia among medical students in the advanced stages of their clinical training, who are currently residing in the western part of Saudi Arabia. The findings of the current study suggest that although the majority of students possess a satisfactory level of knowledge, a significant proportion still require additional instruction and training. Irrespective of their education year, the entire sample had a favorable disposition towards dementia.

According to this study, 47.3% of the entire sample obtained an average score of fewer than 60% right answers, indicating a lack of understanding of dementia. Similarly, a prior study conducted in 2017 in Brazil examined final year medical students who achieved an average score of 6.9 out of 14 (10). However, a separate study conducted at Jazan University revealed that around 75% of the participants exhibited inadequate understanding (11). The study identified educational deficiencies in students' training as the primary cause for their lack of understanding. This conclusion is backed by the fact that 81.7% of participants reported no prior training in dementia, and 92.9% reported no involvement in extracurricular courses on the issue.

Abuawad et al. (12) found that medical students in Palestine had a limited understanding of Alzheimer's disease and related dementia. The average score on the Alzheimer's Disease Knowledge Scale (ADKS) was 18.91, which corresponds to 63% of the correct answers. This discovery exhibited similarities to the discoveries documented in other research conducted in Jordan (13), Western India (14), and China (15, 16). A further study carried out in Hong Kong utilized an alternative assessment called the Alzheimer's Disease Knowledge (ADK) test, which revealed a lack of understanding among medical students regarding Alzheimer's disease and other forms of dementia (17).

The current study revealed that 80.9% of 6th year students demonstrated a proficient comprehension of dementia, marking a substantial enhancement

compared to the 39.3% exhibited by 4th year students. The neurology course, which is covered in the advanced stages of the program, can elucidate the significant disparity in the percentage. In the study conducted by Abuawad et al. (12), it was found that there was a notable disparity in the ADKS scores between pre-clinical and clinical students in Palestine. The clinical students achieved higher ADKS scores compared to the pre-clinical students. This can be attributed to the greater frequency of clinical students' exposure to courses relating to dementia compared to pre-clinical students. Wang et al's (15) study revealed a substantial correlation between the understanding of dementia among Chinese medical students and their clinical practice as well as their education or training on dementia.

The present study also demonstrated that male students had superior knowledge in comparison to female pupils. Furthermore, Wang et al. (15) discovered a substantial correlation between gender and the level of awareness about dementia among Chinese medical students. Abuawad et al. (12) found no substantial disparities in ADKS scores between males and females, indicating that gender does not have a significant impact on the understanding of dementia among medical students. This discovery was comparable to the results documented in the research carried out by Gong et al among the health professional students pursuing their undergraduate studies in China (16).

The present investigation demonstrated that the entire sample exhibited favorable attitudes about dementia. Elmahdy et al. (11) demonstrated that participants in Jazan exhibited predominantly favorable opinions, therefore corroborating other research indicating that medical students often hold good attitudes about dementia (8-10). Nevertheless, they noted that there are still aspects that might be enhanced, such as the fact that nearly a quarter (24.9%) of participants stated that "Managing dementia tends to be more exasperating than rewarding."

The general populace, particularly in underdeveloped nations, lacks sufficient

understanding of dementia as a growing health concern (18, 19). In order to alter the social stigma and societal attitude towards dementia, it is imperative for the general community to comprehend the distinction between normal aging and dementia, acquire pertinent knowledge about the condition, and cultivate a caregiving disposition towards those with dementia. The primary conduit between the general population and their comprehension of dementia consists of basic healthcare providers such as MBBS physicians and family doctors. Neurologists primarily focus on diagnosing and assessing dementia, particularly by excluding reversible causes and administering pharmaceutical treatment. Primary care physicians and MBBS doctors should primarily be responsible for managing patients with dementia and instructing caregivers on key steps to assist patients in their daily activities. Hence, it is imperative to assign a significant role to dementia care and management in the academic curriculum for medical undergraduates. Incorporating the significance of care and emphasizing students' attitude from the outset of their medical training will enhance and shape their perspective, enabling them to develop a more positive attitude and closer connection when providing care to elderly patients with dementia in their professional practice (20). Based on our study findings, we propose that didactic conferences, lectures, or symposiums can enhance medical students' awareness and theoretical knowledge of the illness. To increase students' mindset and improve their ability to manage dementia patients, it is essential for them to have practical exposure to these patients. Engaging in activities such as participating in outpatient dementia/neurology clinics, overseeing patients with dementia in inpatient wards, and doing home visits for patients with dementia. Implementing such tactics has the potential to ultimately alter healthcare professionals' view and attitude towards patients with dementia, leading to an improvement in the overall care provided to this population.

This study is the first to examine the knowledge and attitude of medical students regarding dementia in the Western Region of Saudi Arabia. An advantage

of the study is its focus on participants in the clinical years of medical school who had adequate understanding of Neurology and dementia. Unlike the younger students who would lack it (14). However, the study did have several drawbacks. The study sample only consisted of students who lived in the Western Region. Subsequent research should take into account the incorporation of a more extensive cohort of pupils. An important constraint of this study is the absence of precise information regarding the timing and methodology employed in teaching the subject of dementia. Additional information on this matter could offer valuable insights into the factors that contributed to the exceptional performance of a certain educational institution, namely King Saud School. In general, this school stands out since it has a hospital affiliated with it. However, this factor alone does not account for the approximately 20% deviation it has from the average of most other institutions. Although our purpose did not include investigating the differences across schools, this outcome should encourage future reports that provide specific data on what distinguishes King Saud University, particularly in areas that can be replicated in other schools.

Conclusion

Our study revealed that even though many medical students in their clinical years have a good knowledge and positive attitude towards dementia, there is still an opportunity for improvement, as a notable percentage of participants displayed poor knowledge. The findings highlight the importance of enhancing dementia education within the medical curriculum to ensure that future healthcare professionals are well-equipped to address the challenges associated with this condition. More studies into how and when the topic is taught, how clinical exposure is provided, are important to make those curricula changes appropriately.

Disclosure

Conflict of Interest

The authors declare no conflict of interest.

Funding

None

Ethical Consideration

An ethical approval was first obtained with approval number (HAPO-02-K-012-2023-04-1585). Electronic consent was obtained from all participants before filling out the questionnaire.

Data Availability

All the data related to this study is available upon request.

Authors' contributions

All authors contributed equally to conceptualization, drafting, data collecting, writing, analyzing the data and proofreading the final draft.

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