Assess the public awareness, knowledge, and attitude towards Alzheimer's disease in Medina Saudi Arabia

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Abstract

Background There is an increasing number of individuals with dementia due to the rapid aging process worldwide. AD is a major public health problem and the most prevalent form of dementia. It affects mainly older people and causes a significant decline in cognitive abilities, thus affecting the quality of life and independence. Understanding AD is fundamental for early diagnosis and reducing caregiver burden.

Aim and objective to assess the public awareness, knowledge, and attitude toward AD in Medina City, Saudi Arabia.

Methods A cross-sectional study of a convenient sample from Madina city, Saudi Arabia collected via validated Arabic face-to-face interviews conducted in shopping malls in Al-Madina city, KSA from August 2022 to September 2022. This study included only Madina's residents, between the age of 20 and 65. Data collected via the interview included sociodemographic, knowledge, and attitude towards Alzheimer's disease.

Results The study included 391 participants with a mean age between 18–29 years. The majority of the participants were able to identify aging and AD as causes of memory loss (86.2% and 65.7%) respectively. The overall AD knowledge was measured out of 12 points given to correct responses to the marked questions in table 2. The mean knowledge level was 7 ± 2 out of 12 possible points. Simple linear regression models were performed for the following predictors: age group, gender, and educational level. Data showed that only age groups (B = -0.351, SE = 0.103 (95% CI: -0.553 to -0.149), $p < 0.001$, $R2 = 0.029$), predicted the total awareness level related to AD (Table 3). 72.4% of the participants believed that Alzheimer's patients are not capable of making decisions. Furthermore, 83.4% believe that Alzheimer's patients need continuous monitoring and 70.8% think they may cause a psychological or societal burden.

Conclusion Knowing the signs and symptoms of AD can allow clinicians to early diagnoses, treatment, preventing complications and decreasing the burden on families. So, it's important to guarantee enough public awareness of AD and the importance of managing risk factors that can minimize the risk of AD.

Introduction

Dementia is a clinical condition with a progressive decline in cognitive ability and the capacity for functioning and living independently (1). It is a major neurodegenerative disorder (2). It affects memory, behavior, thinking, and the capacity for performing daily activities, and it is a major contributor to disability in older people (1). Alzheimer's disease (AD) is the most common type of dementia. Other neurodegenerative dementias include vascular cognitive impairment and dementia (VCID), Lewy body dementias (LBDs), and frontotemporal lobar dementia (FTLDs) (1). Dementia has emerged as a major global public health issue as a result of the ageing population (3).

AD is the leading cause of dementia in later life (4). It is a disease with gradual and progressive impairment of cognitive and behavioral functions including memory, language, comprehension, attention,

judgment, and reasoning (5). Risk factors for cognitive impairment such as age, hypertension, cardiovascular diseases, and low level of education (6).

Overall, 40 million individuals are estimated to suffer from dementia around the world, and this number is expected to double every 20 years until around 2050 (7). AD is responsible for at least two-thirds of dementia cases in people 65 years old and older (5). It affects 50 million people worldwide (8). Its prevalence relatively high in low-middle income countries (8). In Saudi Arabia, dementia prevalence is estimated at 6.4% (6).

The aim of our study is to assess the public awareness, knowledge, and attitude toward AD in Medina City, Saudi Arabia

Methods

Study design and population

A cross sectional data of a convenient sample from Madina city, Saudi Arabia was collected via validated Arabic face-to-face interviews conducted in shopping malls in Al-Madina city, KSA from August 2022 to September 2022. This study included only residents of Madina city, between the age of 20 and 65. Alzheimer's patients were excluded.

Data collection

Data collected via the interview included sociodemographic (age, gender, education level, Data concerning the awareness about AD included are the definition, symptoms, risk factors, and effect on life. Also, the knowledge towards AD (assessment and diagnosis, course, treatments) and the attitude towards AD (caregiving dealing with different behaviors changes and insomnia)

Statistical analysis

Descriptive statistics presented in this study were expressed as frequency and percentage. Linear regression analyses were performed to explore if sociodemographic characteristics predict the score of knowledge toward AD. Two-tailed tests were used in this study with significant level of 95%. The Statistical Package for the Social Sciences was used to analyze data presented in this study (SPSS 29, SPSS Inc., Chicago, IL).

Ethical consideration

This study was approved by the Research Ethics Committee at the College of Medicine, Taibah University and Participants approval to participate was obtained before the interview.

Results

Sample characteristics

A total of 391 participants were included in the final analysis of this study after excluding 9 participants (2.25%) who were < 18 years. Sixty-two percent (n = 242) of the study sample were females. Fifty-eight percent (n = 228) of the study sample aged between 18–29 years, while 6.10% (n = 24) aged 50 years or over. Proportion of participants with Bachelor's degree or higher was 66.0% (n = 258).(Table 1)

Knowledge toward Alzheimer's disease

The knowledge related to AD is described in Table 2. Most participants correctly identified AD as memory loss (95.7%). Atrophy to brain cells, language difficulties, difficulty performing common task and personality changed were identified by 47.1%, 40.7%, 35.8% and 26.6% respectively. The majority of the participants were able to identify aging and AD as causes for memory loss (86.2% and 65.7%) respectively. Participants correctly identified the following as risk factors for AD: Aging (90.5%), Genetics (64.7%), hypertension (24.3%) and hypercholesteremia (13.6%). The majority (81.6%) correctly identified that supervised medication is the way to stabilize the disease. However, 58.6% believed that recitation of Quran could also stabilize the disease. Seventy six percent indicated that malnutrition could worsen the disease symptom. The overall AD knowledge was measured out of 12 points given to correct responses to the marked questions in Table 2. The mean knowledge level was 7 ± 2 out of 12 possible points. The participants source of information about Alzheimer were mainly from physicians, social media, medical books or journals, family and friends and television (51.4%, 49.9%, 41.2%, 31.5% and 16.9%) respectively. Only 25.6% knew the Saudi Alzheimer's Association.

Predictors of Alzheimer's disease knowledge

Simple linear regression models were performed for the following predictors; age group, gender and educational level. Data showed that only age groups (B = -0.351, SE = 0.103 (95% CI: -0.553 to -0.149), $p < 0.001$, $R2 = 0.029$), predicted the total awareness level related to Alzheimer's disease (Table 3).

Attitude toward Alzheimer's disease

The majority of the participants believe AD in uncurable (66.2%) and 72.4% of the participants believed that the Alzheimer's patients are not capable of making decisions and 45.3% think that Alzheimer's patients have aggressive behaviours. Moreover 79% think they should visit public places with Alzheimer's patient and 30.9% would hide the fact that they have an Alzheimer patient in the family. (76.5%) won't use traditional medicine for memory loss. The majority of the participants think that using medication is the appropriate way to deal with Alzheimer's patients aggressive behaviours and insomnia (63.9% and 59.6%) respectively. Furthermore, 83.4% believes that Alzheimer's patients need continuous monitoring and 70.8% think they may cause psychological or societal burden. Almost 70% of the participants will remind the Alzheimer's patient about repeating the same sentence or question whereas 58.8% will ignore them. Seventy one percent thinks that electronic notes will help the patients in remembering. All data explaining attitudes toward AD are described in Table 4.

Table 1
Sample characteristics (n = 391).

	n	%
Sex		
Male	149	38.1
Female	242	61.9
Age group		
18–29 years	228	58.3
30–39 years	81	20.7
40–49 years	58	14.8
≥ 50 years	24	6.1
Education level		
≤ High school	133	34.0
Bachelor's degree	247	63.2
Postgraduate	11	2.80

Table 2
Knowledge towards Alzheimer's disease (n = 391).

Knowledge towards Alzheimer's disease		
	n	**%**
Do you know what Alzheimer's disease is?		
Yes	384	98.2
No	7	1.80
What is Alzheimer's disease?		
* Atrophy to brain cells	184	47.1
* Memory loss	374	95.7
* Personality change	104	26.6
* Language problem (e.g. forget meaning of simple words)	159	40.7
* Apraxia (impaired ability to perform skilled motor task)	140	35.8
What are the causes of memory loss?		
Aging	337	86.2
Strokes	165	42.2
Head injury or trauma	190	48.6
Brain tumors	143	36.6
Medications	78	19.9
Alcoholism	110	28.1
Vitamin B12 deficiency	79	20.2
Hypothyroidism	32	8.20
* Alzheimer's disease	257	65.7
IDK	11	2.80
What are the factors that may increase the risk of developing Alzheimer's?		
* Elevated cholesterol levels	53	13.6
* Hypertension	95	24.3
* Aging	354	90.5
* Genetics	253	64.7
IDK	14	3.60

Knowledge towards Alzheimer's disease		
What can be done to help stabilize the case of an Alzheimer's patient?		
None	16	4.10
* Medication under medical supervision	319	81.6
Recitation of Quran	229	58.6
Herbal Therapy	29	7.40
Traditional cauterization	12	3.10
Electric shock	22	5.60
Yoga and meditation exercises	84	21.5
Other	20	5.10
*** Can malnutrition worsen symptoms of Alzheimer's disease?**	298	76.2
Where do you get your information about Alzheimer's disease?		
Family and friends	123	31.5
Social media	195	49.9
Medical books and journals	161	41.2
Television	66	16.9
Health physicians	201	51.4
Others	5	1.30
Do you know the Saudi Alzheimer's Association?	100	25.6

* Correct response counted for the overall knowledge score.

Table 3
Predictors of overall knowledge level related to Alzheimer's disease

	B	SE	*p*-value	95% CI	R2
Gender	-0.345	0.201	0.086	-0.740 to 0.49	0.008
Age group	-0.351	0.103	< 0.001	-0.553 to -0.149	0.029
Educational level	-0.055	0.172	0.751	-0.392 to 0.283	0.000

Table 4
Attitudes towards Alzheimer's disease (n = 391).

Attitude towards Alzheimer's disease		
	Yes (%)	No (%)
Do you think Alzheimer disease is curable?	132 (33.8)	259 (66.2)
Do you think Alzheimer's patients are able to make decisions about their health or financial matters?	108 (27.6)	283 (72.4)
Do you think Alzheimer's patients have aggressive behaviors?	177 (45.3)	214 (54.7)
Do you think it's possible to visit public places with an Alzheimer's patient?	309 (79)	82 (21)
Would you rather hide the fact that a family member has been diagnosed with Alzheimer's disease from society?	121 (30.9)	270 (69.1)
Would you use traditional medicine if symptoms such as memory loss and dementia appear in a family member?	92 (23.5)	299 (76.5)
Do you think Alzheimer's patient remembers new events better than old ones?	104 (26.6)	287 (73.4)
In your opinion, what is the best way to deal with aggressive attacks of Alzheimer's patients?		
Ignorance	121 (30.9)	270 (69.1)
Medication	250 (63.9)	141 (36.1)
Restraining	36 (9.2)	355 (90.8)
IDK	72 (18.4)	319 (81.6)
In your opinion, what is the best way to deal with insomnia experienced by Alzheimer's patients?		
Medication	198 (50.6)	193 (49.4)
Herbs	89 (22.8)	302 (77.2)
Ignorance	22 (5.6)	369 (94.4)
Increase level of physical activity during the day	153 (39.1)	238 (60.9)

Attitude towards Alzheimer's disease		
Consult a doctor	211 (54)	180 (46)
IDK	39 (10)	352 (90)
Do you think Alzheimer's patients need continuous monitoring?	326 (83.4)	65 (16.6)
Do you think Alzheimer's disease may cause a psychological or societal burden?	277 (70.8)	114 (29.2)
Do you think it's better for Alzheimer's patients to live in nursing homes?	76 (19.4)	315 (80.6)
What is the right action to do when people with Alzheimer's disease repeat the same question or story several times?		
Remind them that they are repeating the same question	119 (30.4)	272 (69.6)
Ignore them	161 (41.2)	230 (58.8)
Be angry at them	4 (1)	387 (99)
IDK	77 (19.7)	314 (80.3)
In your opinion, what are the things that may help an Alzheimer's patient to remember?		
Paper notes	226 (57.8)	165 (42.2)
Electronic notes	112 (28.6)	279 (71.4)
Help of others	317 (81.1)	74 (18.9)

Discussion

There are a few published research that evaluate the knowledge and attitude of the society toward AD in Saudi Arabia. This community-based study was designed to investigate the knowledge, awareness, and attitude of Madinah city residents toward AD, which include basic levels of public knowledge on AD definition, risk factors, symptoms, and treatments, source of information. In general, the majority of the participants have heard about AD (98.2%) which is higher in comparison to a study done in Uganda by Phillip Musoke et al., 78% of the participants(9). Furthermore, in our study, 95.7% were able to identify one correct manifestation related to AD.

Knowledge

In the current study, identifying hypertension, high cholesterol level as risk factors for AD was only recognized by (24.3%, 13.6%) of the participants respectively. This was quite similar to a study done in Aseer region (10), were 15.7%, 14.9% for hypertension and Hypercholesterolemia, respectively. In different study done in Ohio by Hicks and Miller et al., (11)reported that 25% of the respondents were aware that hypertension and high cholesterol level increase the individual's risk of developing dementia (11). (12)

The current study also revealed that more than half of the participants (64.7%) know that genetics could be a risk factor for developing AD. This result was contradicted by the work of Adel et al., (10) who found that only (38%) knew that genetics increase the risk of AD. These differences could be explained by that, variety of information sources for individual is more in the present time, for instance, social media help to distribute the information faster and more efficient.

Knowing of the age attribution as a risk factor for dementia seems good in most studies reviewed (13) and, in our population, it reached 90%. Also, in our study we demonstrate that knowledge towards genetic predisposition for AD as a risk factor was significantly higher than a similar study was done in Aseer region(10).

There is a significant inverse association between overall knowledge and the age group, as younger participants have higher knowledge compared to older ones. In our study, 58% of the respondents had great or fair (the mean level of knowledge was 7 ± 2 out of 12 possible points.) knowledge of AD. This is consistent with the results of knowledge among public hospitals and health clinics pharmacists in Malaysia(14). Furthermore, participants' awareness of AD symptoms and their familiarity with risk factors and other aspects of the disease were both good (13).

Attitude

When our population were asked about their attitudes towards AD, there was a high agreement that persons with dementia are unable to make decisions about their health or financial matters (72.4%) which was similar to a study done among primary health care attenders in Lebanon (15). Also, it was found that 23.5% of our sample agreed on using traditional medicine if symptoms such as memory loss and dementia appear in a family member which is quite low but not as low as a study done in Uganda(16)(3.2%) (15). Around 79% of the respondents in the current study was fine with going to a public place with persons with AD, in contrast to a nearby study done in Jeddah city which reported 54% (17). More than half of the participants 70.8% of this study think that AD led to psychological and societal burden, which was more common than a study done in Jeddah (45.8%).

Moreover, our study revealed that (69.1%) said that they would not hide the reality of Alzheimer's disease in a family member which was similar (72%) to a study done in Jeddah (17).

The majority of this study participants (83.4%) believed that people with AD should be watched constantly and more than 80% of the participants think that persons with AD should not be admitted to

the nursing home which is more than what was reported by H. Algahtani et al., (17) (56.2%) which could indicate societal differences between Madinah and Jeddah residents, respectively.

More than half of the participants received their information about AD from physicians which is very high in comparison to a study done in Jeddah by H. Algahtani et al (17)(6.3%) but was similar to a study done in Makkah 68% by N. Alorfi et al.(18), and these findings could indicate the strong rule of physicians in advocating of AD in our region and society.

Finally, only 25.6% of our sample knew about Saudi Alzheimer's Disease Association.

Conclusion

Knowing the signs and symptoms of AD can allow clinicians for early diagnosis and treatment, preventing complications and decrease burden on families. So, it's important to guarantee enough public knowledge AD and the important of managing risk factor which can minimize the risk for AD.

To our knowledge, this is the first study to describe the knowledge and attitude towards AD among Madinah residents with an overall acceptable level of knowledge and attitude. However, more public awareness is indeed recommended. Also, the doctors needs to direct their AD patient relatives and caregivers towards rights sources of information to deal with AD patient for instance Saudi Alzheimer's Disease Association website.

Furthermore, it was difficult to compare any gender differences because the sample's majority of participants were women. It is important to recognize the limitations of the current study, for instance small sample size and lack of unified scale to have a fair comparison between studies.

Declarations

Ethical Approval

This study was approved by the Research Ethics Committee at the College of Medicine, Taibah University and Participants approval to participate was obtained before the interview.

Competing interest

no competing interest for all authors either financially or personal nature

Authors' contributions

All authors are contributed to this manuscript very much equally

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Availability of data and materials

Data are available upon request

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