EUROPEAN ACADEMIC RESEARCH
ISSN 2286-4822
www.euacademic.org

EUROPEAN ACADEMIC RESEARCH
Vol. VIII, Issue 6/ September 2020

Impact Factor: 3.4546 (UIF)
DRJI Value: 5.9 (B+)

Knowledge on Alzheimer's disease among diabetic patients in selected hospital in Dhaka City

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Abstract

A recent important global public health issue in the recent world is Alzheimer's disease. A cross sectional study was done to assess Alzheimer's disease knowledge among the 229 diabetic patients who visited the outdoor of the Life & Care Hospital, Hajaribug and Kamrangirchor Upazila Health Complex, Kamrangirchor, Dhaka. Sample was taken by systemic sampling technique of 5 patient interval and data collected by 30-items validated Alzheimer's disease Knowledge Scale (ADKS) questionnaire. Data were analyzed by SPSS software version-26. It was found that majority (52.4%) of the respondents were women. Almost all of the respondents (96.9%) were married. Majority (52%) of the respondents had others level of education that include below HSC, below SSC, below Primary, and also illiterate. Most (81.7%) of the respondents were Muslim. Majority (43.2%) of the respondent had diabetes for 3-5 years. Two third (64.2%) respondents had family history of diabetes mellitus. Majority (94.9%), (96.8%), (96.7%), (96.4%), (97.6%), (97.2%), (94.9%) of the respondents don't know about the course, life impact, care giving, treatment and management, assessment and diagnosis, symptom and risk factor respectively. Based on the study it is found poor levels of knowledge on risk factors, sign and symptoms,

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assessment and diagnosis of AD, treatment and management of AD, care giving of AD, life impact of AD and course of Alzheimer's disease. The study revealed that overall knowledge of AD among diabetic patients was poor, an indication that more public health emphasis on education campaigns in teaching people about Alzheimer's disease particularly in diabetic patients.

Key words: Alzheimer's disease, diabetic patients, hospitals, Dhaka City

BACKGROUND:

A recent important global public health issue in the recent world is Alzheimer's disease. All the patients in psychiatric hospitals and in nursing homes, 20 percent makes the cases of AD. (Biller et al., 2008). International Alzheimer's disease Report in 2015 estimated 47 million people lived with AD worldwide. (Alzheimer's disease International, 2015). Gradually the Alzheimer's disease is seen to be worsening. (S. D. Joshi, 2009) Alzheimer disease is a progressive disease and gradually the dementia gets worse over the years. (K. Sullivan, 2007) In the initial stage of the disease mild of memory loss occurs but as the disease progress to late-stage individual tends to lose the ability of verbal commutations and respond to environmental stimuli. (P. Jane 2011) Alzheimer's disease patient lives on an average of eight years before others notice their symptoms and their survivability ranges from 4-20 years which depends some factors like age and other health comorbidities. (B. D. Carpenter, 2011) Age seems to be the most significant potential risk factors of AD. However various studies of epidemiological have found there is a strong link between type 2 diabetes mellitus with AD. (Kroner Z, 2009; Butterfield, 2014). Life expectancy is increasing around the world and so is prevalence of AD. (Swerdlow, 2007; Weller and Budson, 2018), and it is important to have proper knowledge and attitude regarding AD. A systematic review on cross-national studies reported only fair to moderated level of knowledge and understanding of AD among general people. (Cahill et al., 2015). One of the major public health issues in Bangladesh is Diabetes and data showing around 8-10% Bangladeshi population has Diabetes. (Akter et al., 2014; Biswas et al., 2016; and World Health

Organization, 2016). Both urban and rural population of Bangladesh tends to show increasing trend of prevalence of Diabetes. However, when compared between the urban population and rural population, the age-adjusted prevalence of diabetes is higher among the urban population. (Akter et al., 2014; Biswas et al., 2016). Risk decreasing medications and supplements are not available. (T. Maharaj, 2017)

Some treatments are provides temporarily improvement of the symptoms but can't stop or reverse progression. (B. D. Carpenter, 2011) The affected people increasingly rely on others for assistance, often placing a burden on the caregiver; the pressures can include social, psychological, physical, and economic elements. (L. A. Anderson,2014) To address the public health challenges of AD and different forms of dementias it is essential to have proper knowledge on AD. (Carpenter et al., 2011). Family members are also face different types of troubles frequently as the affected patients themselves. (Rahman et al., 2017) Study done among students of many universities in Dhaka have fairly poor knowledge about AD (Tania, 2017). Therefore, the huge number of diabetic patients in Bangladesh along with having higher age is in the potentially higher risk of development of AD. In view of this important concern diabetic patients of Bangladesh need to have adequate knowledge on AD. Bangladesh is at very initial stage of creating awareness on AD. The population lacks sufficient and comprehensive information knowledge and attitude regarding AD. So this study was conducted to assess the knowledge on Alzheimer's disease among adult diabetic patient.

METHODOLOGY:

A cross-sectional study that was explored on AD among 229 diabetic patients who visited the out of doors of the Life & Care Hospital, Hajaribug and Kamrangirchor Upazila Health advanced, Kamrangirchor, Dhaka from january to december 2019. Sample was taken by systemic sampling technique of 5 patient interval and data collected by 30-items validated Alzheimer's disease Knowledge Scale (ADKS) questionnaire. The sample size was 229 and split into 2 sections. A hundred and fifteen samples were selected from Life & Care Hospital. Around fifty diabetic patients daily visited the outdoor department of diabetology of Life & Care Hospital. It took twelve days to gather the sample from Life & Care Hospital. For remainder of the

sample that was 114 samples were collected from Kamrangirchor Health complex. There have been average sixty diabetic patients visited the outdoor department of diabetology of Kamrangirchor Health complex. It took ten days to gather the sample from Kamrangirchor Health complex. Data were collected by interviewer administered semi-structured questionnaire which was adopted from thirty items validated Alzheimer's disease knowledge Scale (ADKS) questionnaire (Carpenter et al., 2009). The form comprised of socio-demographic characteristic (such as sex, age, marital status, education, occupation, religion), diabetes related factors (such as duration of suffering from diabetes (DM), family history of DM, knowledge related data towards AD and physical measurement (height, weight and waist-hip circumference). The ADKS conceptually split into the subsequent seven content domains: risk factors (items two, 13, 18, 25, 26 and 27), symptoms (items nineteen, 22, 23 and 30), assessment and diagnosis (items four, 10, twenty and twenty one) treatment and management (items nine, 12, 24 and 29), life impact (items one, 11 and 28), care giving (items five, 6, 7, fifteen and 16) and course of the disease (items three, 8, 14 and 17). The original form had 2 options for thirty questions (True, False) but to get better response don't know option was added in the questionnaire. Data was analyzed with SPSS-26 as correct (1), incorrect (2) and don't Know (3). Data analyses were done by descriptive and inferential statistics and were presented in the form of tables, graphs and diagrams. Frequency and percentage analysis were done for demographic variables and diabetes related information. Inferential statistics analysis were done to find out the association between knowledge on risk factor, symptoms and life Impact of AD on ADKS scale and level of education.

ETHICAL CONSIDERATIONS:

Ethics Review Committee of Bangladesh University of Health Sciences issued the Ethical clearance and ethics was maintained strictly throughout the study. A letter of cooperation written from the respective department to the institute where data collection was taken was involved in this study prior to the data collection period. Personal information of the participants was kept confidential. An Informed consent sheet in Bengali was given to each participant to read and it

was also explained by the investigator and was signed by the participant. Ethics was maintained strictly throughout the study.

RESULT:

In table 1 it is shown that majority (52.4%) of the respondents were women compared to its men (47.6%) counterpart. Almost all of the respondents (96.9%) of this study were married. In terms of level of education, it is seen that noticeable proportion (28.8%) of the respondents were HSC passed or equivalent level, however, majority (52%) of the respondents had others level of education that include below HSC, below SSC, below Primary, and also illiterate. In the table is also seen that 81.7% of the respondent's religion were Islam followed by Hinduism (15.7%), Christian 2.2% and only 0.4% were Buddhist.

Figure 1 shows that in terms of age category of the respondents, majority (36.7%) were with their 41-45 years followed by 36-40 years (21.0%), 46-50 years (20.1%), and others.

Figure 2 shows that nearly half (46.7%) of the respondents were housewives followed by businessmen (29.3%) and others.

In table 2 it is shown that majority (43.2%) of the respondent reported that they were suffering from diabetes for 3-5 years, 29.3% suffering for 1-2 years, 26.2% suffering for 6-10 years 1.3 % suffering from diabetes mellitus which are above 10 years. The table also shows that **a**mong all of the respondent 64.2% respondents of the study reported that they had family history of diabetes mellitus and others 35.8% respondent reported that they do not have family history of diabetes mellitus.

Figure 3 shows that majority (94.9%), (96.8%), (96.7%), (96.4%), (97.6%), (97.2%), (94.9%) of the respondents don't know about the course, life impact, care giving, treatment and management, assessment and diagnosis, symptom and risk factor respectively.

In table 3, it shows that there was significant relationship ($p = 0.00$) between knowledge on risk factor of AD on ADKS scale (Mental exercise can prevent AD, AD can be in 30 years, High cholesterol may increase risk of developing AD, High blood pressure may increase a risk of developing AD and only Gene can partially relate to development of AD) and level of education. It also shows significant relationship ($p = 0.002$) knowledge on risk factor of AD on ADKS scale (Prescription drug that prevent AD are available) and level of education.

In table 4, it shows that there was significant relationship (p = 0.00) between knowledge on symptoms of AD on ADKS scale (Tremor or shaking of the hands or arms is a common symptom in people with AD and mostly recent memory is better in AD patients than happened in the past) and level of education. It also shows significant relationship (p = 0.001) between knowledge on risk factor of AD on ADKS scale (handling money is difficult or paying bill is a general early symptom of AD and AD patients believes that other people are stealing one's thing) and level of education.

In table-5, it shows that there was significant relationship (p = 0.00) between knowledge on life impact of AD on ADKS scale (AD patient are prone to depression, most AD patient live in nursing home and driving is safe for AD patient if they have companion) and level of education.

DISCUSSION:

Current study evaluated Alzheimer's disease knowledge based on the Alzheimer's disease Knowledge Scale (ADKS) questionnaire among the diabetic population in Dhaka city of Bangladesh. Total 229 respondents were recruited in this study. The study done to assess the knowledge Alzheimer's disease among diabetic population in Dhaka city in Bangladesh. Overall, the participant's knowledge was poor on Alzheimer's disease based on ADKS. Majority (92.1%) respondents answered that they didn't know that gene cannot partially account for developing Alzheimer's disease. Other study done in Australia states that half (51.1%) of the f respondents stated very important risk factor for AD to be genetics. (Smith, Ali and Quach, 2014). Other studies (Werner P, 2001; Ayalon L, Arean PA. 2004) have recommended that greater levels of knowledge about Alzheimer's disease are associated with higher levels of education. This difference in knowledge might be due to respondents having low level of education. One study done in USA shows that family with low educational level should be given intervention and educational services to increase the knowledge on Alzhiemer's diseases. (Ayalon L, Arean PA. 2004). Regarding knowledge on treatment and management majority of the respondents (96.5%) answered that they didn't know that Alzheimer's disease is incurable. Study done in Denmark found that respondents of Turkish (69%) and Pakistani (45%) believed dementia can be cured. (T. Rune

Nielsen, Gunhild Waldemar, 2016). The might be due to the of low level of education among the respondents of this study. In this study the majority of the respondents (93.9%) answered that they didn't apprehend individuals will have Alzheimer's sickness in their 30s and just one respondent (0.4%) answered properly that folks will have Alzheimer's sickness in their 30s and solely five.7% respondent answered incorrectly that folks cannot have Alzheimer's sickness in their 30s. Disparity were found in perceptions of Alzhiemer's diseases among Turkish and Pakistani individuals who thought Alzhiemer's diseases to be a traditional a part of aging and to carry a stigmatized view of AD as a sort of mental illness. (T. graphic symbol Nielsen, Gunhild Waldemar, 2016). Previous qualitative and quantitative studies show similar findings among Turkey and Asian migrant teams within the USA and also the UK. (Ayalon and Arean, 2004; Zhan, 2004; Jones et al., 2006; Mackenzie, 2006; Sahin et al., 2006; grey et al., 2009; Jang et al., 2010; Lee et al., 2010). This study shows negligible proportion (3.5%) of the respondents answered properly that folks with Alzheimer's sickness do well with easy directions given step by step. Only one (0.4%) of the respondent gave correct answer that once individuals with Alzheimer's sickness begin to possess issue taking care of themselves, caregivers shouldn't take over quickly. A negligible proportion (1.7%) of the respondent answered properly that if an individual with Alzheimer's sickness becomes aware and tensed at midnight an honest approach is to create a certain environment during the day time so that the individual gets lots of physical activity. Only one (0.4%) of the respondents answered properly that after individuals have Alzheimer's sickness they're capable of constructing up on selections concerning their own care. All of the respondents (100%) answered that they didn't apprehend that folks with Alzheimer's sickness are notably susceptible to depression. Only 14 (6.1%) answered properly that, most of the people with Alzheimer's sickness don't board nursing homes. As in most alternative studies of ethnos teams done among Turkish (69%) and Pakistani (31%) individuals , it was stated Alzheimer's sickness is stigmatized as a sort of mental illness leading to delayed identification and receiving health assistance and further causing health burden. (Braun et al., 1995; Hinton et al., 2000; Leong and Lau, 2001; Lee et al., 2010).

CONCLUSION

The study revealed that overall knowledge of Alzheimer's disease among diabetic patients were poor; indications that care of individuals with dementia raises moral, ethical and clinical issues. As a consequence, these individuals are highly vulnerable and significantly more public health emphasis should be given on education campaigns in teaching people about Alzheimer's disease particularly in diabetic patients'.

Conflict Of Interest

Authors have declared that there is no conflict of interest.

REFERENCES

1. Akter, S., Rahman, M. M., Abeb, S. K, Sultana, P. (2014). Prevalence of diabetes and prediabetes and their risk factors among Bangladeshi adults: a nationwide survey. *Bull WorldHealthOrgan*,92,204213A.doi:http://dx.doi.org/10.2471/BLT.13.128371
2. Alzheimer's Disease International. (2015). World Alzheimer's report 2015. Available fromhttps://www.alz.co.uk/research/WorldAlzheimerReport2015.pdf.
3. Ayalon L, Arean PA. 2004. Knowledge of Alzheimer's disease in four ethnic groups of older adults. Int J Geriatr Psychiatry 19: 51 –57
4. B. D. Carpenter, S. M. Zoller, S. Balsis, P. G. Otilingam, and M. Gatz, "Demographic and contextual factors related to knowledge about Alzheimer's disease," *American Journal of Alzheimer's Disease & Other Dementiasr*, vol. 26, no. 2, pp. 121–126, 2011
5. Biswas, T., Islam, A., Rawal, L. B and Islam, S. M. (2016). Increasing prevalence of diabetes in Bangladesh: a review. *Public Health*, 138, 4-11. doi: 10.1016/j.puhe.2016.03.025
6. Braun KL, Takamura JC, Forman SM, Sasaki PA, Meininger L. 1995. Developing and testing outreach materials on Alzheimer's disease for Asian and Pacific Islander Americans. Gerontologist 35: 122–126.
7. Cahill, S., Pierce, M., Werner, P., Darley, A. and Bobersky, A. (2015). A systematic review of the public's knowledge and understanding of Alzheimer's disease and dementia. *Alzheimer Dis Assoc Disord*, 29(3) 255-75. doi: 10.1097/WAD.0000000000000102

8. Carpenter, B. D., Zoller, S. M., Balsis, S., Otilingam, P. G., Gatz, M. (2011). Demographic and contextual factors related to knowledge about Alzheimer's disease. *Am J Alzheimers Dis Other Demen*, 26(2), 121-6. doi: 10.1177/1533317510394157.
9. Gray HL, Jimenez DE, Cucciare MA, Tong HQ, Gallagher-Thompson D. 2009. Eth- nic differences in beliefs regarding Alzheimer's disease among dementia family caregivers. Am J Geriatr Psychiatry 17: 925–933
10. Hinton L, Guo Z, Hillygus J, Levkoff S. 2000. Working with culture: a qualitative analysis of barriers to the recruitment of Chinese-American family caregivers for dementia research. J Cross Cult Gerontol 15: 119–137.
11. Jang J, Kim G, Chiriboga D. 2010. Knowledge of Alzheimer's disease, feelings of shame, and awareness of services among Korean American elders. J Aging Health 22: 419–433.
12. Kroner, Z. (2009). The Relationship between Alzheimer's Disease and Diabetes: Type 2 Diabetes? *Alternative Medicine Review*, 14 (4), 373-379.
13. K. Sullivan, T. Muscat, and K. Mulgrew, "Knowledge of Alzheimer's disease among patients, carers, and noncarer Adults," *Topics in Geriatric Rehabilitation*, vol. 23, no. 2, pp. 137–148, 2007.
14. L. A. Anderson and R. Egge, "Expanding efforts to address Alzheimer's disease: the Healthy Brain Initiative," *Alzheimers & Dementia*, vol. 10, no. 5, pp. S453–S456, 2014.
15. Lee SE, Lee HY, Diwan S. 2010. What do Korean American immigrants know about Alzheimer's disease (AD)? The impact of acculturation and exposure to the disease on AD knowledge. Int J Geriatr Psychiatry 25: 66 –73
16. Leong FT, Lau AS. 2001. Barriers to providing effective mental health services to Asian Americans. Ment Health Serv Res 3: 201–214.
17. Mackenzie J. 2006. Stigma and dementia. East European and South Asian family carers negotiating stigma in the UK. Dementia 5: 233–247
18. P. Jane and W. Cui, "Looming dementia epidemic in Asia," *Bulletin of the World Health Organization*, vol. 89, no. 3, pp. 166-167, 2011.
19. Rahman, M. R., Tajmim, A., Ali, M., and Sharif, M. (2017). Overview and current status of Alzheimer's disease in Bangladesh. *Journal of Alzheimer's Disease Reports*, 1, 27–42. DOI 10.3233/ADR-170012
20. Sahin HA, Gurvit IH, Emre M, et al. 2006. The attitude of elderly lay people towards the symptoms of dementia. Int Psychogeriatr 18: 251–258.

21. S. D. Joshi and A. Mandal, "Alzheimer's disease and how the community responses in developing country," *Alzheimers & Dementia*, vol. 5, no. 4, pp. P232–P233, 2009.
22. Smith, B., Ali, S. and Quach, H. (2014). Public knowledge and beliefs about dementia risk reduction: a national survey of Australians. BMC Public Health, [online] 14(1), p.1. Available at: https://bmcpublichealth.biomedcentral.com /articles/10.1186/1471-2458-14-661 [Accessed 6 May 2017].
23. Swerdlow, R. H. (2007). Pathogenesis of Alzheimer's disease. *Clin Interv Aging*, 2(3), 347–359.
24. T. Maharaj, "Live-model simulation: improving nursing students' attitudes and knowledge of Alzheimer's disease," *Clinical Simulation in Nursing*, vol. 13, no. 9, pp. 446–451, 2017.
25. T. Rune Nielsen, Gunhild Waldemar, Knowledge and perceptions of dementia and Alzheimer's disease in four ethnic groups in Copenhagen, Denmark, Int J Geriatr Psychiatry 2016; 31: 222–230
26. Weller, J. and Budson, A. (2018). Current understanding of Alzheimer's disease diagnosis and treatment [version 1; peer review: 2 approved]. *F1000Research*, **7**(F1000 Faculty Rev), 1161.
27. Werner P (2001) Correlates of family caregivers' knowledge about Alzheimer's disease. Int J Geriatr Psychiatry 16: 32-38.
28. World Health Organization. (2016). Diabetes country profiles. Available from https://www.who.int/diabetes/country-profiles/bgd_en.pdf.
29. Zhan L. 2004. Caring for family members with Alzheimer's disease: perspectives from Chinese American caregivers. J Gerontol Nurs 30: 19 –29

RESULT

Table-1: Distribution of the respondents according to socio-demographic characteristics of the respondents (n=229)

Variable	Frequency	Percentage
Sex		
Men	109	47.6
Women	120	52.4
Total	**229**	**100**
Marital status		
Married	222	96.9
Unmarried	7	3.1
Total	229	100
Level of education		
Post-graduation	19	8.3
Graduation	25	10.9
HSC/equivalent	66	28.8
Others	119	52.0
Total	229	100
Religion		
Islam	187	81.7
Hinduism	36	15.7
Christian	5	2.2
Buddhist	1	0.4
Total	229	100

In table 1 it is shown that majority (52.4%) of the respondents were women compared to its men (47.6%) counterpart. Almost all of the respondents (96.9%) of this study were married. In terms of level of education, it is seen that noticeable proportion (28.8%) of the respondents were HSC passed or equivalent level, however, majority (52%) of the respondents had others level of education that include below HSC, below SSC, below Primary, and also illiterate. In the table is also seen that 81.7% of the respondent's religion were Islam followed by Hinduism (15.7%), Christian 2.2% and only 0.4% were Buddhist.

Figure-1: Distribution of the respondents according to age of the respondents (n=229)

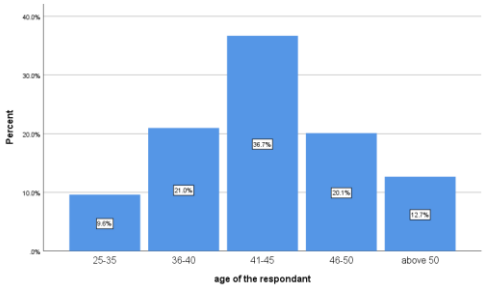

Figure 1 shows that in terms of age category of the respondents, majority (36.7%) were with their 41-45 years followed by 36-40 years (21.0%), 46-50 years (20.1%), and others

Figure-2: Distribution of the respondents according to occupations of the respondents (n=229)

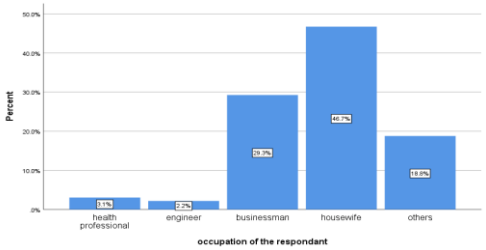

Figure 2 shows that nearly half (46.7%) of the respondents were housewives followed by businessmen (29.3%), health professional (3.1%), engineer (2.2%) and other professions (18.8%).

Table-2: Distribution of the respondents according to diabetes related information of the respondent (n=229)

Variable	Frequency	Percentage
DM status of the respondent		
Diabetic	229	100
Non diabetic	229	100
Total	**229**	**100**
Duration of the diabetes mellitus		
Less than 1 year	0	0
1-2 years	67	29.3
3-5 years	99	43.2
6-10 years	60	26.2
Above 10 years	3	1.3
Total	**229**	**100**
Family history of diabetes		
Yes	147	64.2
No	82	35.8
Total	**229**	**100**

In table 2 it is shown that majority (43.2%) of the respondent reported that they were suffering from diabetes for 3-5 years, 29.3% suffering for 1-2 years, 26.2% suffering for 6-10 years 1.3 % suffering from diabetes mellitus which are above 10 years. The table also shows that **a**mong all of the respondent 64.2% respondents of the study reported that they had family history of diabetes mellitus and others 35.8% respondent reported that they do not have family history of diabetes mellitus.

Figure 3: Distribution of the respondent according to knowledge based on combined ADKS domain

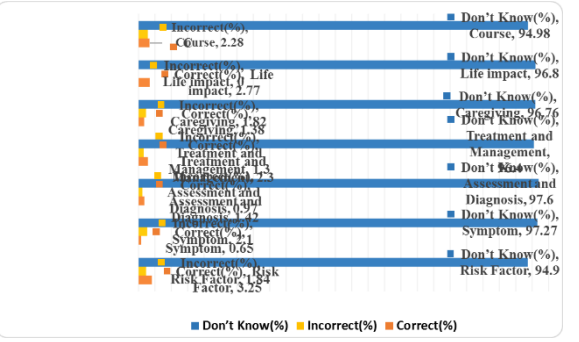

Figure 3 shows that majority (94.9%), (96.8%), (96.7%), (96.4%), (97.6%), (97.2%), (94.9%) of the respondents don't know about the course, life impact, care giving, treatment and management, assessment and diagnosis, symptom and risk factor respectively.

Table 3: Distribution of the respondent according to association between knowledge on risk factor of AD on ADKS scale and level of education (n=229)

ADKS domain	Variables		Level of Education					X^2	P value
			Post-Graduation	Graduation	HSC /equivalent	Others			
Risk factor	Mental exercise can prevent AD	Correct	50%	25%	25%	0%	100%	25.096	0.00
		Incorrect	33.3%	66.7%	0%	0%	100%		
		Don't know	7.2%	9.9%	29.3%	53.6%	100%		
	AD can be in 30 years	Correct	0%	100%	0%	0%	100%	42.893	0.00
		Incorrect	46.2%	30.8%	7.7%	15.4%	100		
		Don't know	6%	9.3%	30.2%	54.4%	100%		
	High cholesterol may increase risk of developing AD	Correct	41.7%	41.7%	16.7%	0%	100%	44.661	0.00
		Incorrect	50%	50%	0%	0%	100%		
		Don't know	6%	8.8%	29.8%	55.3%	100%		
	Prescription drug that prevent AD are available	Correct	50%	25%	25%	0%	100%	20.321	0.002
		Incorrect	50%	50%	0%	0%	100%		
		Don't know	7.2%	10.3%	29.1%	53.4%%	100%		
	High blood pressure may increase a risk of developing AD	Correct	22.2%	44.4%	33.3%	0%	100%	39.361	0.00
		Incorrect	100%	0%	0%	0%	100%		
		Don't know							

			6.9%	9.6%	28.9%	54.6%	100%		
	Gene can only partially account for development of AD	Correct	53.3%	26.7%	6.7%	13.3%	100%	56.554	0.00
		Incorrect	33.3%	0%	66.7%	0%	100%		
		Don't know	4.7%	10%	29.9%	55.5%	100%		

In table 3, it shows that there was significant relationship (p = 0.00) between knowledge on risk factor of AD on ADKS scale (Mental exercise can prevent AD, AD can be in 30 years, High cholesterol may increase risk of developing AD, High blood pressure may increase a risk of developing AD and Gene can only partially account for development of AD) and level of education. It also shows significant relationship (p = 0.002) knowledge on risk factor of AD on ADKS scale (Prescription drug that prevent AD are available) and level of education

Table 4: Distribution of the respondent according to association between knowledge on symptoms of AD on ADKS scale and level of education (n=229)

ADKS domain	Variables		Level of Education					X^2	P value
			Post-Graduation	Graduation	HSC /equivalent	Others			
Symptoms of AD	Tremor or shaking of the hands or arms is a common symptom in people with AD	Correct	0%	0%	0%	0%	100%	16.464	0.00
		Incorrect	0%	100%	0%	0%	100%		
		Don't know	8.4%	10.1%	29.1%	52.4%	100%		
	Trouble handling money or paying bill is a common early symptom of AD	Correct	50%	50%	0%	0%	100%	26.514	0.001
		Incorrect	50%	50%	0%	0%	100%		
		Don't know	7.2%	9.9%	29.6%	53.4%	100%		
	AD patients believes that other people are stealing one's thing	Correct	0%	0%	0%	0%	100%	24.559	0.001
		Incorrect	60%	40%	0%	0%	100%		
		Don't know	7.1%	10.3%	29.5%	53.1%	100%		
	AD patients mostly remember recent events better things that happened in the past	Correct	50%	0%	0%	50%	100%	40.928	0.00
		Incorrect	30%	60%	10%	0%	100%		
		Don't know	6.9%	8.8%	30%	54.4%	100%		

In table 4, it shows that there was significant relationship (p = 0.00) between knowledge on symptoms of AD on ADKS scale (Tremor or shaking of the hands or arms is a common symptom in people with AD and AD patients mostly remember recent events better things that happened in the past) and level of education. It also shows significant relationship (p = 0.001) between knowledge on risk factor of AD on ADKS scale (Trouble handling money or paying bill is a common early

symptom of AD and AD patients believes that other people are stealing one's thing) and level of education.

Table 5: Distribution of the respondent according to association between knowledge on Life Impact of AD on ADKS scale and level of education (n=229)

ADKS domain	Variables		Level of Education					X^2	P value
			Post-Graduation	Graduation	HSC /equivalent	Others			
Life Impact of AD	AD patient are prone to depression	Correct	0%	0%	0%	0%	0%	0	0.00
		Incorrect	0%	0%	0%	0%	0%		
		Don't know	8.3%	10.9%	28.8%	52.0%	100%		
	Most AD patient live in nursing home	Correct	42.9%	28.6%	7.1%	21.4%	100%	40.296	0.00
		Incorrect	50%	50%	0%	0%	100%		
		Don't know	5.6%	9.4%	30.5%	54.5%	100%		
	It is safe for AD patient to drive if they have companion	Correct	40%	40%	20%	0%	100%	24.222	0.00
		Incorrect	100%	0%	0%	0%	100%		
		Don't know	7.2%	10.3%	29.1%	53.4%	100%		

In table-5, it shows that there was significant relationship (p = 0.00) between knowledge on life impact of AD on ADKS scale (AD patient are prone to depression, most AD patient live in nursing home and it is safe for AD patient to drive if they have companion) and level of education.