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Proportion of Alzheimer's Disease among Adult Person Attending in a Selected Hospital in Dhaka City

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ABSTRACT

This descriptive type of cross sectional study was conducted to assess the proportion of Alzheimer disease among adult person attendening in a selected hospital in Dhaka city, Dhaka with a sample size of 206. Study found that 34.5%, 33.5%, 17.5%, 14.5% of the respondents belonged to age group 50-59 years, 60-69 years, 40-49 years and 70-79 years respectively with mean age 56.83± 8.966.Study also showed that 67.5% respondents were male and 32.5% were female. 60.2% of the respondents live in urban area and 39.8% were in rural area. Most of the respondents (90.3%) did not hear about Alzheimer disease previously where as 9.7% had heard about it. Study showed that 30% respondents was describe Alzheimer disease is a common form of dementia, both 25% describe AD was a neurologic disease & loss of mental ability and 20% opined that AD lasting at least six months and not present from birth respectively. Study revealed that 55% respondents had knowledge on Alzheimer disease occurs in old age and 45% respondents had no knowledge about it. Study showed that 45% respondents answered false answer, 33% respondents answered doesn't know answer and 22% respondents answered true answer regarding knowledge on Alzheimer disease related question. Study showed that, 97.6% had no Alzheimer disease and only 2.4% had it. Awareness should be created among the public about Alzheimer disease and encourage them to take preventive measure to avert Alzheimer disease.

Keywords: *Alzheimer's disease, Adult Person, Dhaka City*

INTRODUCTION

Alzheimer's disease was first identified more than 100 years ago, but research into its symptoms, causes, risk factors and treatment has gained momentum only in the last 30 years. Although research has revealed a great deal about Alzheimer's, the precise physiologic changes that trigger the development of Alzheimer's disease largely remain unknown.[1]

The only exceptions are certain rare, inherited forms of the disease caused by known genetic mutations. Alzheimer's disease affects people in different ways, but the most common symptom pattern begins with gradually worsening ability to remember new information. This occurs because disruption of brain cell function usually begins in brain regions involved in forming new memories. As damage spreads, individuals experience other difficulties.[2]

The following are warning signs of Alzheimer's disease: memory loss that disrupts daily life; challenges in planning or solving problems; difficulty completing familiar tasks at home, at work or at leisure; confusion with time or place; trouble understanding visual images and spatial relationships; new problems with words in speaking or writing; misplacing things and losing the ability to retrace steps; decreased or poor judgment; withdrawal from work or social activities; and changes in mood and personality.[3,4]

As the disease progresses, the individual's cognitive and functional abilities decline. In advanced Alzheimer's disease, people need help with basic activities of daily living, such as bathing, dressing, eating and using the bathroom. Those in the final stages of the disease lose their ability to communicate, fail to

recognize loved ones and become bed-bound and reliant on around-the-clock care. When an individual has difficulty moving because of Alzheimer's disease, they are more vulnerable to infections, including pneumonia (infection of the lungs).[5,6]

Alzheimer's disease includes the elderly forms and younger forms and these forms are compatible with World Health Organization protocol. The disease onset is difficult to determine. Dementia in Alzheimer's disease is described in Mental and behavioral disorders, containing the classification group F00-F99 of mental development disorders. Dementia in Alzheimer's disease is specified in F00.Early-onset dementia in Alzheimer's disease under the age of 65 is characterized by rapid progress and associated with numerous disorders of higher functions of the cerebral cortex, including thinking, learning ability, linguistic capacity and judgments.[7, 8]

Dementia in Alzheimer's disease with an onset over the age of 65, usually in the late 70s or later in life and slow in its course, is characterized by impaired orientation, comprehension and others, with memory impairment as the major feature. The pathogenesis of Alzheimer's disease is socio- demographic, culture, nationality, family behavior patterns and geographic regional location lead to the disease prevalence. Alzheimer's disease develops in stages, each stage being characterized by enhanced disorders in the following three areas: cognition, behavior and activities of daily living performance (ADLs).[9]

The long-term nursing home care is provided regularly by nurses at patients' homes as part of health benefits. The service is offered to chronically ill and dysfunctional patients regardless of age, number and type of chronic diseases, whose Barthel ADL Index does not exceed the score of 40. This scale allows the assessment of the level of independence to perform basic activities of daily living such as eating, moving around, mobility, and the ability to maintain personal hygiene and to control physiological functions. Terms of contracting services of long-term nursing home care are defined by the National Health Fund managing health insurance finances.[10, 11]

The Podlaskie province is located in the north-east of Poland, in the geographical center of Europe and at the border with Belarus of over 200 kilometers (the border of the EU) and Lithuania of over 100 kilometers long. According to the Statistical Office in Bialystok (the capital city of the Podlaskie province), there were 1,201,000 people living in the Podlaskie province in 2012.[12,13]

Women accounted for 53.8% and men for 46.2% of the disabled. The predominant population of the Podlaskie province (92.1%) shared a homogeneous Polish national identity. Only 1.3% of the Province inhabitants declared other than Polish national identity that 2.8% had only non-Polish nationality and ethnicity, with some people identifying themselves with two non-Polish nationalities. Nationality was not defined in 3.8% of the Province inhabitants. Among the foreigners living in the Podlaskie province, Belarussians are the predominant group (46.9% of their total number), followed by Russians (13.8%), Ukrainians (6.7%) and Armenians (5.0%).The majority of the province population (except for the Polish nationality) most often identify themselves to be of Belarusian, Lithuanian and Ukrainian nationality. The vast majority of Podlaskie inhabitants speak only Polish language (88.6%) in households, 3.2% other than Polish and 0.7% one or two non-Polish languages. Additionally, in some towns there are nursery and primary schools with Belarusian language of teaching, mainly in Bielsk Podlaski and Hajnowka.[14]

OBJECTIVES OF THE STUDY

General Objectives:

To assess the proportion of Alzheimer's disease among adult person attending in a selected hospital in Dhaka city, Dhaka.

Specific Objectives:

1. To determine the socio-demographic characteristics of the respondents.
2. To determine the knowledge, attitude and practice related variables of the respondents.
3. To assess the disease related variables of the respondents.

RESEARCH QUESTIONS

What is the proportion of Alzheimer's disease among adult person attending in a selected hospital in Dhaka city?

METHODOLOGY

Study design: The study was a descriptive type of cross-sectional study.

Target population and sample population:
Target population: All respondents who were 40 up adult attended in a selected hospital in Dhaka city, Dhaka.

Sample population: The sample population was all the respondents who was present at the time of data collection in the selected hospital in Dhaka city, Dhaka.

Study site: The study was carried out at Dhaka Medical College Hospital, Dhaka.

Study area: Dhaka Medical College and Hospital (DMCH) established in 1946 during the British colonial rule. It is situated in the Bakshibazar area of the city, close to the University of Dhaka and the Bangladesh University of Engineering and Technology. It is the biggest hospital in Bangladesh (2300 beds), occupying an area of 4.50.000 square feet in the heart of Dhaka city. It has played a pioneering role in the development of medical science, health care delivery and in nation building activities of the country.

Study period: Study period was 4 months from January 2018 to April 2018.

Sample size: The sample size was calculated by using the following formula:

$n = \frac{Z^2pq}{d^2}$

Here,
n = desired sample size
z = the standard normal deviate usually set at 1.96 which corresponds to 95% CI
p = Prevalence is 74% = $0.74^{(45)}$
q = 1- p = 1- 0.74 = 0.26
d = degree of accuracy set or margin of error 5% = 0.05

The required sample size is:

$n = \frac{(1.96)^2 \times (.74 \times .26)}{(0.05)^2}$

n = 295.65
But the researcher took 206 sample size due to time constrain and shortage of budget, with the kind consent of guide.

Inclusion and Exclusion Criteria:
Inclusion criteria:

- All patient who were 40 up adult attended in selected government hospital Dhaka city, Dhaka.
- The respondents who were willing to participate in the study.

Exclusion criteria:

- Respondents who were not willing to give consent.
- Respondents who were mentally retarded or handicapped.

Sampling Technique: Non randomized purposive sampling technique was adopted for the study.

Data collection Tools: Data was collected by pretested and modified, self-administered semi-structured questionnaire.

Data collection technique: Data was collected by face to face interview.

Data management and analysis plan:

- All questionnaires were checked for its completeness and correctness.
- Coding and classification were done.
- The analysis was carried out with the help of SPSS (Statistical package for social science) Windows software program version 19.Cross tabulation and association will be determined by use of chi-square test.

RESULTS

The descriptive type of cross sectional study was carried out in order to assess the prevalence of Alzheimer Disease among 40 up adult person attending in a selected hospital in Dhaka city, Dhaka with a sample size of 206.A pre tested modified interviewer administrated semi structured questionnaires was used to collect the information. All the data were entered and analyzed by using Statistical packages for social science (SPSS) software version 16.0 (chicago).

Table 1: Distribution of the respondents by age (n=206)

Age(years)	Frequency	Percentage
40-49	36	17.5
50-59	71	34.5
60-69	69	33.5
70-79	30	14.5
Total	206	100.0
Mean ± SD		56.83 ± 8.966

Table no 1 shows that 34.5% of the respondent were in age group 50-59 years than 33.5% were in age group 60-69 years than 17.5% were in age group 40-49 years and 14.5% were in age group 70-79 years mean age 56.83 ± 8.966.

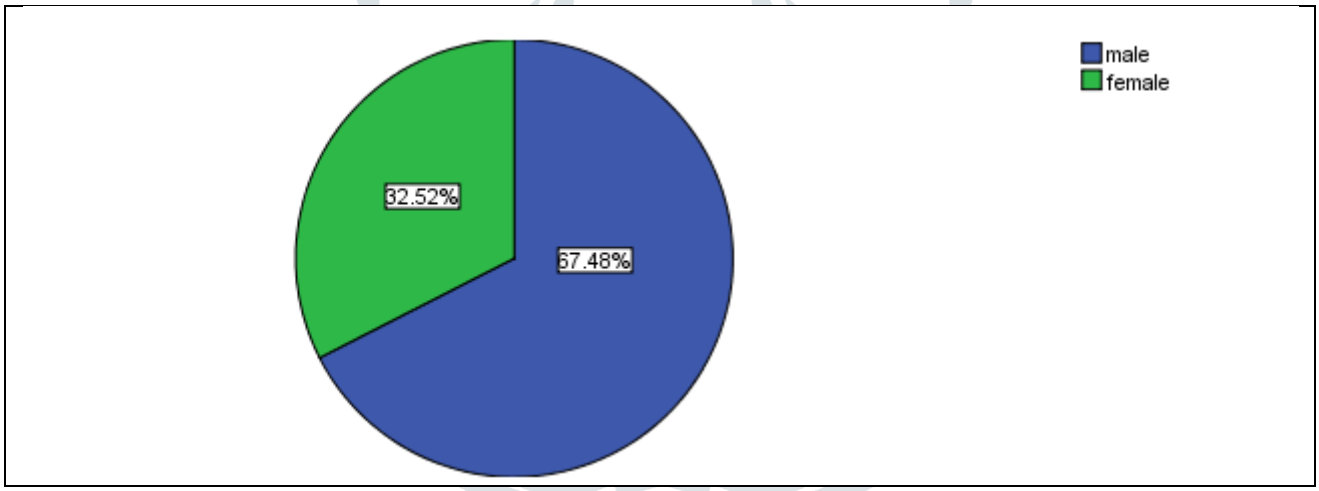

Figure 1: Distribution of respondents by gender (n=206)

Figure no 1 reveals that 67.5% of the respondents were male and 32.5% were female.

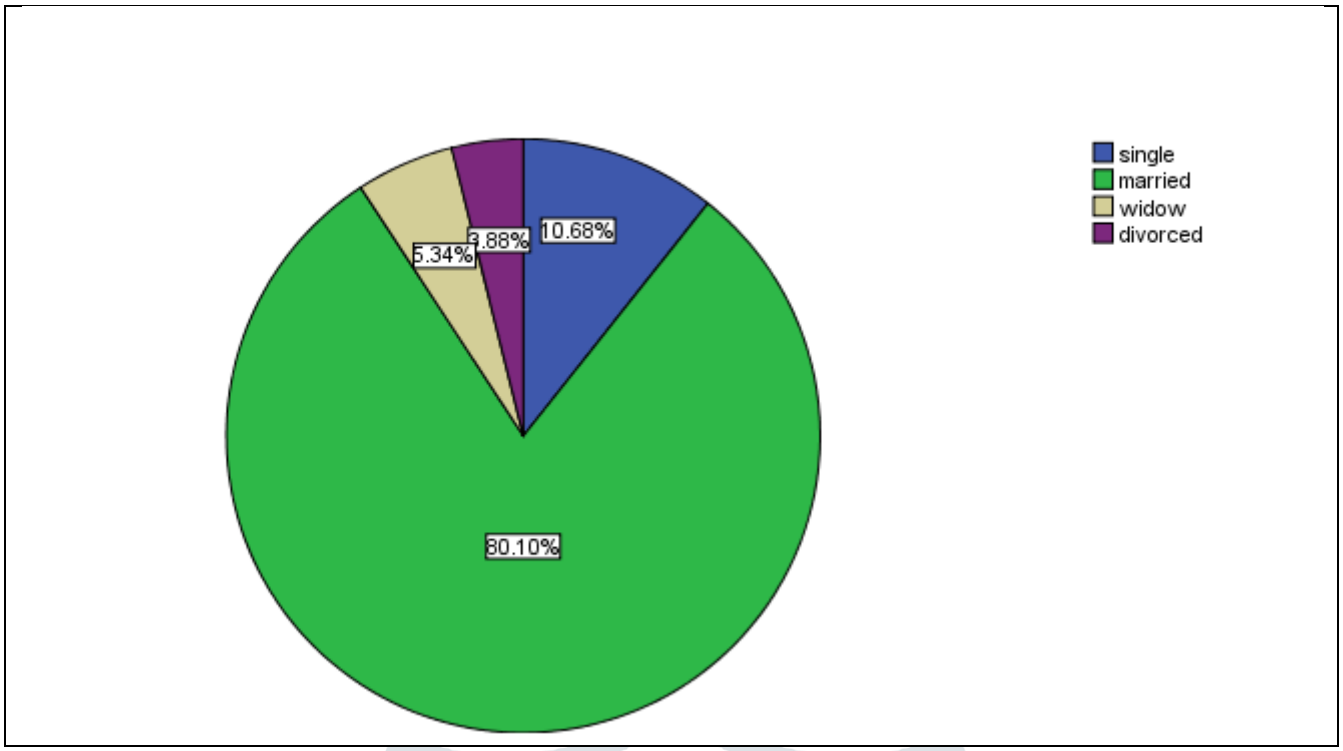

Figure 2: Distribution of respondents by marital status (n=206)

Figure no 2 shows that 80.1% of the respondents were married, 10.7% were single, 5.3% were widow and 3.9% were divorced.

Table 2: Distribution of respondents by religion (n=206)

Religion	Frequency	Percentage
Muslim	126	61.2
Hindu	42	20.4
Christian	24	11.6
Buddhist	14	6.8
Total	206	100.0

Table no 2 finds that 61.2% of the respondents were Muslim followed by 20.4%, 11.6%, 6.8% respondents were Hindu, Christian and Buddhist respectively.

Table 3: Distribution of respondents by educational qualification (n=206)

Education level	Frequency	Percentage
S.S.C	55	26.7
H.S.C	48	23.3
B.Sc/B.A	29	14.0
Masters	9	4.4
Illiterate	65	31.6
Total	206	100

Table no 3 shows that the educational levels of the respondents was illiterate 31.6% where rest of them had S.S.C 26.7%, H.S.C 23.3%, B.Sc/B.A 14% and only 9% had masters respectively.

Table 4: Distribution of the respondents by occupation (n=206)

Occupation	Frequency	Percentage
Housewife	51	24.8
Student	2	1.0
Govt. service	45	21.8
Private service	20	9.7
Farmer	52	25.2
Day labor	36	17.5
Total	206	100

Table no 4 finds that 25.2% of the respondents were farmer and 24.8%, 1.0%, 21.8%, 9.7%, 17.5% were housewife, student, govt. service, private service and day labor respectively.

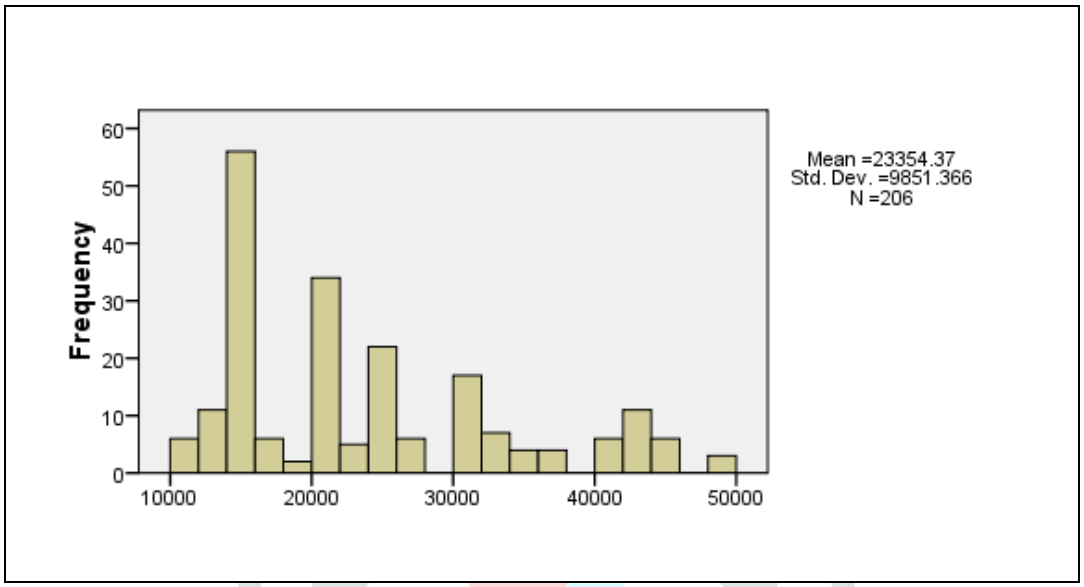

Figure 3: Distribution of respondents by monthly income (n=206)

Figure no 3 reveals that 39.3% of the respondents monthly family income had BDT 10,000- 19,000, followed by 32.5% , 15.5% , and 12.7% respondents had monthly family income BDT 20,000-29,000, BDT 30,000-39,000 and BDT 40,000-49,000 respectively.

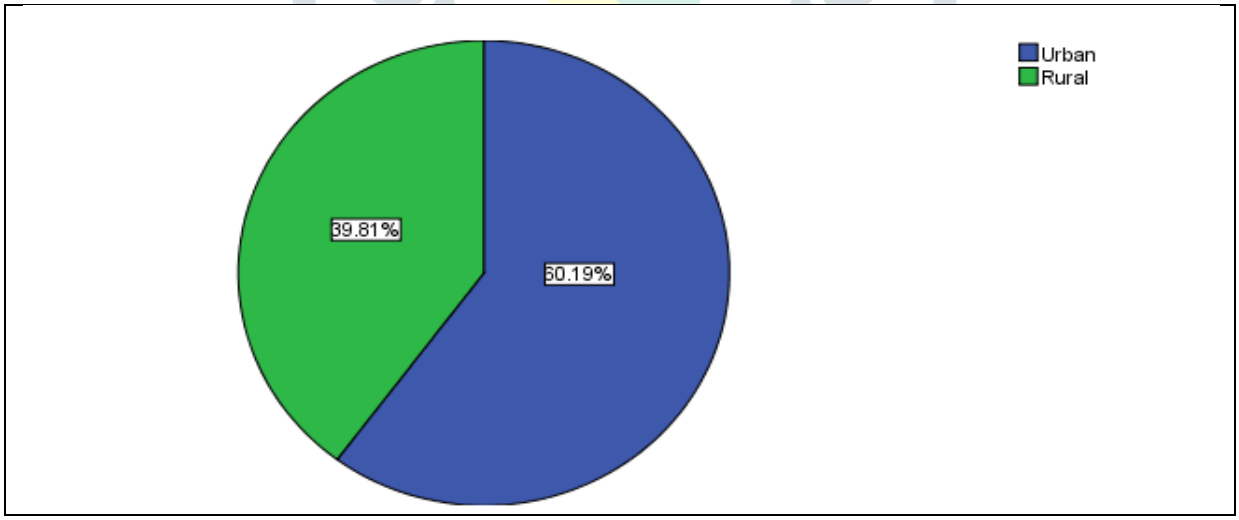

Figure 4: Distribution of the respondents by the place of residence (n=206)

Figure no 4 shows that 60.2% of the respondents used to live in urban area and 39.8% in rural area.

Table 5: Distribution of the respondents by type of family (n=206)

Type of family	Frequency	Percentage
Joint family	49	23.8
Nuclear family	157	76.2
Total	206	100

Table no 5 finds that majority of the respondents (76.2%) were lived in nuclear type family and 23.8% were joint type family.

Table 6: Distribution of the respondents by their number of family member (n=206)

Number of family member	Frequency	Percentage
3-4	106	51.5
4-8	60	29.1
8-12	27	13.1
More	13	6.3
Total	206	100

According to the table no 6 that, 51.5%, 29.1%, 13.1%, and 6.3% of the respondents had 3-4,4-8, 8-12 and More persons in their family respectively.

Table 7: Distribution of the respondents by their type of house (n=206)

Type of house	Frequency	Percentage
Kacha	8	3.9
Semi pacca	46	22.3
Tinshed	79	38.4
Building	73	35.4
Total	206	100

Table no 7 reveals that most of the respondents 38.4% lived in Tinshed type of house and 35.4%, 22.3% and 3.9% respondents lived in Building, Semi pacca and Kacha type of house.

Table 8: Distribution of respondents by knowledge on AD (n=206)

Knowledge on AD	Frequency	Percentage
Yes	20	9.7
No	186	90.3
Total	206	100

It is finds from table no 8 that majority of the respondents (90.3%) did not hear about alzheimer disease previously where as 9.7% had heard about it.

Table 9: Distribution of the respondents by the description on AD (n=20)

Description on AD	Frequency	Percentage
Common form of dementia	6	30
A neurologic disease	5	25
Loss of mental ability	5	25
Lasting at least six months and not present from birth	4	20
Total	20	100

Table no 9 shows that among the respondents 30% were describe AD is common form of dementia, both 25% describe AD was a neurologic disease & loss of mental ability and 20% opined that AD lasting at least six months and not present from birth.

Table 10: Distribution of respondents by knowledge on AD occurs in old age (n=20)

AD occurs in old age	Frequency	Percentage
Yes	11	55
No	9	45
Total	20	100

Table no 10 finds that 55% respondents had knowledge on Alzheimer disease occurs in old age and 45% respondents had no knowledge about it.

Table 11: Distribution of respondents by knowledge on AD related question (n=20)

Knowledge on AD related question	Answer	Frequency	Percentage
Decline in cognitive function(remembering, reasoning and planning)	True	4	20
	False	6	30
	Don't know	10	50
Any trouble understanding visual images and spatial relationships	True	3	15
	False	8	40
	Don't know	9	45
Withdrwal from social activities	True	6	30
	False	9	45
	Don't know	5	25
Have any problem with words in speaking or writing	True	9	45
	False	5	25
	Don't know	8	40
Takes daily lean protein	True	3	15
	False	8	40
	Don't know	9	45
Takes fresh vegetables and fruits	True	8	40
	False	6	30
	Don't know	6	30
Cigarette smoker	True	5	25
	False	7	35
	Don't know	8	40
Have any hallucination	True	4	20
	False	8	40
	Don't know	8	40
Alcohol consumption habit	True	1	5
	False	10	50
	Don't know	9	45

Table no. 11 reveals that majority of the respondents answered the false answer and don't know answer regarding knowledge on Alzheimer Disease related question.

Table 12: Distribution of respondents by risk factors related question (n=206)

Risk factors related question	Answers	Frequency	Percentage
Memory loss present	Yes	112	54.4
	No	94	45.6
Confusion about time/place present	Yes	86	41.7
	No	120	58.3
Changes in mood and personality present	Yes	105	51
	No	101	49
Multiple vitamin and mineral supplement absent in daily diet	Yes	155	75.2
	No	51	24.8
Regular exercise habit	Yes	18	8.7
	No	188	91.3
Decrease judgment	Yes	108	52.4
	No	98	47.6
Overweight/ Obesity Present	Yes	100	48.5
	No	106	51.5
Diabetes mellitus present	Yes	106	51.5
	No	100	48.5
Depression present	Yes	148	71.8
	No	58	28.2

Table no 12 shows that most of the respondents answered No answer regarding risk factors related question.

Table 13: Distribution of the respondents by having AD (n=206)

Having AD	Frequency	Percentage
Yes	5	2.4
No	201	97.6
Total	206	100

Table no 13 shows that most of the respondents (97.6%) had no Alzheimer disease and only 2.4% respondents had it.

Table 14: Distribution of respondents by source of information (n=206)

Source of information	Frequency	Percentage
Radio	6	2.9
TV	8	3.9
Hospital	6	2.9
Family Doctor	8	3.9
Health workers	10	4.9
Don't know	168	81.6
Total	206	100.0

Table no 14 reveals that most of the respondents (81.55%) source of information were they don't know, 4.85% were health worker, 3.88% were family doctor, 3.88% were tv, 2.91% were hospital and 2.91% were radio respectively.

DISCUSSION

This descriptive type of cross sectional study was conducted to access the prevalence of Alzheimer disease among 40 up adult person attendening in a selected hospital in Dhaka city, Dhaka with a sample size of 206..All the data entered and analyzed by using Statistical packages for social science (SPSS) software version 16.0 (Chicago).

Study found that 34.5%, 33.5%, 17.5%, 14.5% of the respondents belonged to age group 50-59 years, 60-69 years, 40-49 years and 70-79 years respectively with mean age 56.83± 8.966 years. Closely similar mean age was also found in a study done among Nepali student studding at Darjeeling in the year 2004.[34]

Study also showed that 67.5% respondents were male and 32.5% were female. Among the respondents most of the respondents (80.1%) were married,10.7% were single,5.3% were widow and 3.9% were divorced respectively.61.2% of the respondents were Muslim followed by 20.4%, 11.6%, 6.8% were Hindu, Christian and Buddhist. By education 31.4% of the respondents were SSC 26.7%, HSC 23.3%, B. Sc/B.A 14% and only 9% had Masters respectively. This findings almost similar with a study was done in Assam and Madhya Pradesh in India done in the year 2004 and 2002.[35,36]

Study revealed that 25.2% the respondents were farmer, 24.8%, 1%, 21.8%, 9.7% and 17.5% were housewife, student, government service, private service and day labor. This finding were almost similar with a study finding done in Maharashtra, India in the year 2002.[37]

Among the respondents 39.3%, 32.5%, 15.5% and 12.7% monthly family income had BDT 10000-19000, 20000-29000, 30000-39000 and BDT 40000-49000 respectively. Which is closely similar with the study It was found in a study done in the year 2007 in Manisa, Turkey.[38] 60.2% of the respondents live in urban area and 39.8% in rural area. Most of the respondents (90.3%) did not hear about Alzheimer disease previously where as 9.7% had heard. Among the respondents 97.6% had no Alzheimer disease and only 2.4% had Alzheimer disease. Quite dissimilar with study findings done in USA in the year 2012, where 60% respondents had Alzheimer disease and 40% had no Alzheimer disease. Probably as the education, social standard and social conference of USA were developed from Bangladesh.[39]

Study showed that most of the respondents answered the false answer and don't know answer regarding knowledge on Alzheimer disease related question. Majority of the respondents answered No answer regarding risk factors related question. These findings is similar to study findings done in Darjeeling in the year 2004 and Assam in the year 2004.[40,41]

Most of the respondent's 81.6% sources of information were they don't know, 4.9% were health worker, 3.9% were family doctor 3.9% were tv, 2.9% were hospital and 2.9% were radio respectively. These findings are consistent with a study findings conducted by Ogunlesi TA et al in Nigeria, in which it was reported that the source of information are closely similar to these present study.[42]

CONCLUSION

Alzheimer disease is mostly found aged person who have a lower socio-economic status. A few data are available about the number of AD patient in Bangladesh. There is no precise epidemiological data of AD in this country. Here, the awareness about AD is now in primary stage. Therefore, affected patient and their family members are facing different problems continuously. The fund for conducting research on AD is limited. A lower middle income country like Bangladesh is not yet prepared for the management of AD. Alzheimer disease affects people in different ways, but the most common symptom pattern begins with gradually worsening ability to remember new information. This occurs because disruption of brain cell function usually begins in brain regions involved in forming new memories. As damage spreads, individuals experience other difficulties. As the disease progresses, the individual's cognitive and functional abilities decline. In advanced Alzheimer's disease, people need help with basic activities of daily living, such as bathing, dressing, eating and using the bathroom. Those in the final stages of the disease lose their ability to communicate, fail to recognize loved ones and become bed-bound and reliant on around-the-clock care. When an individual has difficulty moving because of Alzheimer's disease, they are more vulnerable to infections, including pneumonia (infection of the lungs). So, it is high time to think about the disease and its management as a proactive manner and take necessary action in this regard.

RECOMMENDATION

1. The policy makers, health professional and allied groups should come forward to make national priority for Alzheimer disease in Bangladesh.
2. Government and NGO can, take initiatives to create awareness by giving health education for rural as well as urban people to prevent Alzheimer disease.
3. Health education program, social conference program can increase awareness which helps people to prevent Alzheimer disease.

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