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# Assessing level of awareness of atrial fibrillation among general public: a cross-sectional study

Arbindra Joshi<sup>1</sup>, Durga Bista<sup>1\*</sup> and Rajani Shakya<sup>1</sup>

## Abstract

**Background** Patients with atrial fibrillation (AF) are at increased risk of stroke. Poor knowledge of AF in general population contributes to under-detection and treatment delay. Therefore, this study aimed to assess level of awareness of AF among general public in Dhulikhel municipality, Nepal.

**Methods** This was a cross sectional study involving quantitative approach using self-administered questionnaire. Participants of age  $\geq 50$  years from wards 4, 5, 6 and 7 of Dhulikhel municipality were enrolled. English version of AFKAT (Atrial Fibrillation Knowledge Assessment Tool) was translated and validated which was then used to assess the level of awareness of AF.

**Results** In total 355 respondents were recruited. The mean age group was found to be  $65.57 \pm 9.99$  years. Mean percentage score of level of awareness of AF was found to be only 2.61%, which was very poor. Only 2.54% ( $n=9$ ) had good level of knowledge about AF. 95.77% ( $n=340$ ) had very poor level of awareness. Significant difference of mean awareness level was found between group with AF and without AF. Respondent with AF had 58.70% score compared with just 2.29% score of non-AF group. Knowledge deficits were more in older participants. The knowledge score of AF was found to be 3.55%, 4.21%, 0.05%, 1.21% and 0% among age groups 50–59 years, 60–69 years, 70–79 years, 80–89 years and  $\geq 90$  years respectively. Only 2.54% (9 out of 355) correctly identified that AF can lead to blood clot and stroke. Just 2.82% (10 out of 355) respondents recognized that anticoagulants are used to prevent stroke in AF patients.

**Conclusions** The level of awareness of AF among general public of Dhulikhel was found to be very poor. Appropriate interventions need to be applied to educate risk groups about AF to reduce future risk of stroke and minimize public health burden.

**Clinical trial number** Not applicable.

**Keywords** Atrial fibrillation, General knowledge, Awareness, Nepal

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## Background

Atrial Fibrillation (AF) is a type of abnormal heart rhythm or arrhythmia in which rapid and irregular beating of atrial chambers of the heart occurs [1]. Individuals suffering from AF are at increased risk of morbidity and mortality from events such as heart failure, sudden cardiac death, and ischemic stroke. Atrial fibrillation increases the risk of occurrence of stroke by five folds [2]. Coronary artery disease (CAD) is often found to be coexistent in patients with symptomatic non-valvular AF [3]. These condition share common risk factors and disease progression mechanism so deterioration of either one of them is usually followed by faster advancement of other [4, 5]. From the clinical perspective, AF represents a highly heterogeneous group of diseases having wide range of symptoms and severity which makes it challenging to estimate AF [6]. Prevalence and incidence of AF are rising worldwide. The prevalence of AF increased by three times in last fifty years as per the data from FHS (Framingham Heart Study) [7]. The worldwide population afflicted with AF is estimated to be approximately 33.5 million in 2010 and has been on the rise since the 1990s in both incidence and prevalence [8]. Due to the significant increase in incidence, prevalence, and high lifetime risk, AF has become a disease associated with high morbidity, mortality and high medical costs in the population [9].

The risk of AF increases with age [10]. The literature suggests that approximately 30% of older people are not able to identify signs of AF, and nearly 50% are not aware of AF as a medical condition. Patients with a new diagnosis of AF may have limited knowledge regarding AF symptoms, and approximately 40% of these patients report being unaware of AF prior to their diagnosis [11]. Prior research has shown that many individuals who are diagnosed with AF may lack awareness of their disease [12].

In Nepal, very few studies have been conducted related to AF. The awareness level of AF among Nepalese public has not been studied till date. Due to this the screening and awareness campaign AF is not being done. Lots of lives are lost due to stroke related to AF so in order to assess this situation the level of awareness should be evaluated for further studies. The rationale of this study is to assess awareness level of AF among general public so that in future appropriate interventions can be developed to educate people and decrease AF associated morbidity and mortality.

## Methods

This was a cross sectional study involving quantitative approach using a self-administered questionnaire.

## Selection criteria

Participants of age 50 years and above from ward number 4, 5, 6 and 7 of Dhulikhel Municipality, Nepal were recruited.

## Data collections tools

Atrial Fibrillation Knowledge Assessment Tool (AFKAT) developed and validated by the author Ibrahim Jatau Abubakar and his team was used for the purpose of assessing the level of awareness of AF after getting the permission [13]. After the completion of validation studies, the validated questionnaire was used to assess the AF awareness level in sample size 355. Questions 7 and 9 of the AFKAT were designed to have similar response so that discrepancy between the responses of these two questions indicated meaningless response. All such meaningless responses were also excluded in the study. The AF knowledge scope covered by this tool included basic AF information, risk factors, detection, prevention, and management. In addition to that socio-demographic data (age, sex, address, educational status), whether the respondent was previously diagnosed with AF and suffering from any other type of cardiovascular disease(s) was collected. Written consent was obtained from the participants before providing the questionnaire for filling. The English version of case report form was translated into local Nepali language. During the translation upon recommendation of the translators 21 items AFKAT was made into 23 items. One of the items of AFKAT was separated into 3 items to increase the understandability of the questionnaire made in Nepal. Thus, the final Nepali version contained 23 items meant for assessing level of awareness of AF. Preliminary testing of the translated version was carried out before the original study. Few changes were made to the questionnaire based on the response obtained. The questionnaire was developed so that the participants could understand the items and response easily and cover more items in limited time. Most responses were "Yes/No/I Don't Know" type for ease of answering.

## Pilot test for validation of the questionnaire

For validation purpose sample size of 1:5 item-subject ratio was used. Since there were 29 items in the questionnaire which included 23 items for AF awareness assessment and 6 items related to demographics, the sample size was calculated to be 145. Internal consistency was measured using Cronbach's alpha. Alpha value of at minimum 0.70 is required for ensuring that the internal consistency is adequate [14].

## Sample size

The target population for this study were people of Dhulikhel municipality of age 50 years and above.

**Table 1** Sociodemographic characteristics of the participants (N = 355)

Demographic characteristics	Frequency (N)	Percentages (%)
<b>Age group (years)</b>		
50–59	103	29.01
60–69	122	34.37
70–79	92	25.92
80–89	36	10.14
≥ 90	2	0.56
<b>Sex</b>		
Male	203	57.18
Female	152	42.82
<b>Education</b>		
No Formal Education	200	56.34
SLC	123	34.65
12 class or above	32	9.01
<b>Comorbidity</b>		
Cardiovascular Disease(s)	236	66.48
No Cardiovascular Disease	119	33.52
<b>Previous AF history</b>		
With AF	2	0.56
Without AF	353	99.44

Convenience sample method was used. Wards 4, 5, 6 and 7 of Dhulikhel municipality were selected. The population data was obtained from Dhulikhel municipality office which showed a total of 3,150 populations of age 50 years among the 7734 people from the voter list of wards 4, 5, 6 and 7. Using this data sample size was calculated by using sample size calculator provided online by calculator.net [15]. Sample size for this study was calculated to be 355. Data collection was done from January 2022 to May 2022.

### Statistical analysis

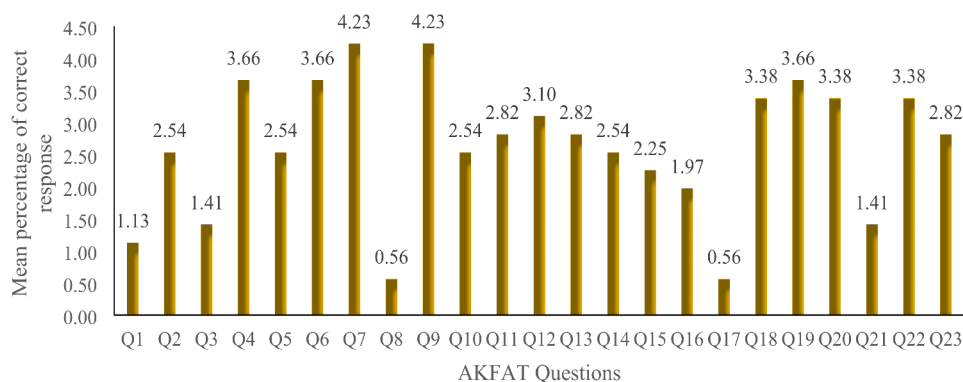
Data analysis was done in SPSS version 20 and in excel. AF knowledge level was calculated as mean percentage using excel. To check the association between various variables one way ANOVA was used as statistical tool using SPSS.

### Results

The Cronbach's alpha was calculated to be 0.90 which was greater than 0.7 so the translated questionnaire had good reliability.

Total of 355 participants were recruited as shown in Table 1. It was found that there were more male participants than female. More than half of participants i.e., 57.18% (203 of 355 participants) were male whereas remaining 42.82% of the participants were female. 99.44% (353 out of 355) respondents reported that they have not been previously diagnosed with AF. There was total 236 participants (66.48%) reported that they have suffered from some sort of cardiovascular disease(s). Majority age groups were 50–59 years and 60–69 years which included 103 (29.01%) and 122 (34.37%) respondents respectively. There were 92 (25.92%), 36 (10.14%) and 2(0.56%) respondents from age groups 70–79 years, 80–89 years and ≥ 90 years respectively. 56.34% (200 out of 355 participants) did not have any formal education. 34.65% (123 out of 355) had studied up to SLC. Only 9.01% (32 out of 355) had studied up to 12 class or above.

There was total of 23 questions in atrial fibrillation knowledge assessment tool. Figure 1 shows the mean percentage score for each of these items. Only 1.13% (4 out of 355) correctly answered question number 1 which is related to heart rate in AF. Remaining 351 participants could not identify that in AF heart beat is not slower than normal. This shows that major number of respondents were unaware about even basic knowledge about heart rate in AF. It was found that in question number 2, only 2.54% (9 out of 355) correctly identified that AF can lead to blood clot showing poor knowledge level about blood clotting as a complication of AF. Only 1.41% (5 out of 355) accurately replied the question number 3 related to detection of AF i.e., episodes of AF are not predictable. Among 355 participants only 13 participants i.e., 3.66% correctly responded to question number 4 which stated that AF patients can still live active life. For question number 5, only 2.54% (9 out of 355) responded correctly that surgery is not just

**Fig. 1** Mean Percentage of Correct Response for Each of AFKAT Items

the management option for AF. Such low level of knowledge score shows that information on management of AF is not adequate among the respondents. Just 3.66% (13 out of 355) correctly answered question 6 which stated that episodes of AF can be recurrent. About response by participants for question 7, it was found that 340 respondents could not recognize that early diagnosis and management of AF can prevent stroke. Only 4.32% (15 out of 355) correctly answered the question number 7. 355 respondents incorrectly answered that low blood pressure increase risk of developing AF which was stated in question number 8. Only 0.56% (2 out of 355) answered this question correctly. 340 respondents could not recognize that AF increases risk of stroke which was stated in question number 9. Only 4.32% (15 out of 355) correctly answered this question. Just merely 2.54% (9 out of 355) correctly answered question number 10 which states that AF can also occur in people without prior signs of heart diseases. Remaining 346 participants believed that AF occurs only in people with prior signs of heart diseases. Question number 11 is related to symptoms of AF i.e., shortness of breath and fainting can be symptoms of AF. Merely 2.82% (10 out of 355) accurately answered this question. 344 out of 355 respondents had false belief that AF occurs only in old age which was presented in question number 12. The correct response was given by only 2.82%. After analysis it was established that 2.82% (10 out of 355) correctly answered the question number 13 which is related to symptoms of AF i.e., someone could have AF without having any symptoms. Only 2.54% (9 out of 355) correctly answered the question number 15 i.e., symptoms of AF may be occasional. Just 2.25% (8 out of 355) gave correct answer to question number 15 i.e., symptoms of AF may be persistent. Similarly, 1.97% (7 out of 355) correctly answered the question number 16 which is symptoms of AF may be permanent. These questions 14, 15 and 16 expressed about symptoms of AF. Out of 355 respondents, 353 could not correctly answer question number 17 related to mental health of AF patients. Only 0.56% (2 out of 355) recognized that AF does not have major psychological effects on people's lives. This also shows low knowledge level on basic matters of AF. Question number 18 is related to prevention of AF. Only 3.38% (12 out of 355) correctly answered this question i.e., risk of atrial fibrillation can be reduced with lifestyle changes. For question 19, 3.66% (13 out of 355) recognized that AF can be detected by checking regularity of pulse. Majority (342 out of 355) respondents could not correctly answer it showing poor knowledge on detection of AF. Only 3.38% (12 out of 355) responded that AF screening is safe which stated in question number 20 was. Other 343 respondents are unaware about the safety of AF screening procedures. It was found after analysis that just 1.41% (5 out of 345) responded the question number

21 correctly. Other 350 respondents falsely believed that if once effected by AF, it is always lifelong condition. For question number 22, just 3.38% (12 out of 355) respondents correctly responded that AF can be treated with medication which shows very poor knowledge of public on management of AF. It was found that merely 2.82% (10 out of 355) respondent recognized that anticoagulants are used to prevent stroke in AF patients which was asked in question number 23. (Fig. 1)

Only 2.54% (9 out of 355) correctly identified that AF can lead to blood clot and stroke. Just 2.82% (10 out of 355) respondent recognized that anticoagulants are used to prevent stroke in AF patients. (Table 2)

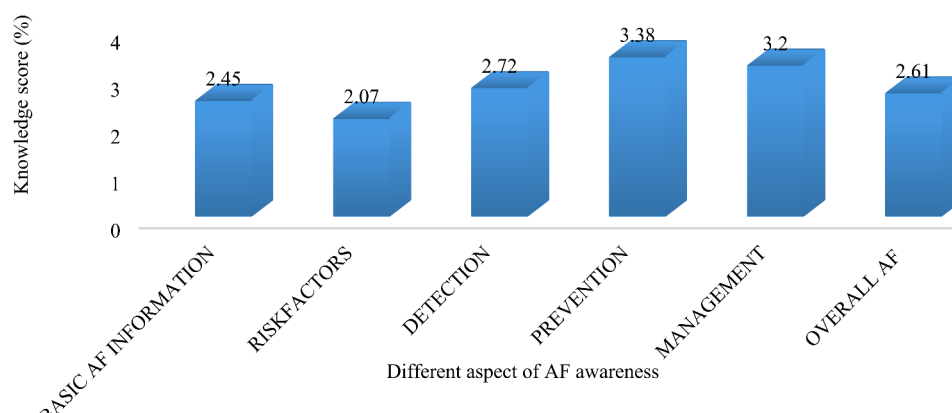
The present study assesses awareness about 5 different aspects of AF which are basic AF information, risk factors, detection, prevention and management. There were in total 7, 3, 9, 1 and 3 items related to basic AF information, risk factors, detection, prevention and management of AF respectively in questionnaire. The average knowledge score was found to be just 2.45%, 2.07%, 2.72%, 3.38% and 3.10% for basic AF information, risk factors, detection, prevention and management of AF respectively. The mean percentage score of level of awareness of AF in general was found to be only 2.61%. (Fig. 2)

Since previous studies had no clear classification for terminologies to be used for various level of AF knowledge so for the purpose of qualitatively determining the AF awareness level from obtained mean percentage score AF knowledge level was classified into very poor, poor, average, good and very good as per percentage score as shown in Table 3.

Table 3 illustrated level of awareness about basic AF information. Only 1.41% (5 respondents) had good level of knowledge on basic AF information. 95.49% (339 respondents) had very poor level of knowledge on basic AF information. The average knowledge score was found to be only 2.45% which falls in very poor category. (Fig. 2). Just 0.56% (2 respondents) had very good level of knowledge about risk factors. As illustrated in Table 3, 1.41% (5 respondents), 1.69% (6 respondents) and 96.34% (342 respondents) had very good, poor and very poor level of knowledge respectively. There is very poor awareness about detection of AF. It was calculated that barely 0.85% (3 respondents) had very good level of knowledge about detection of AF. While studying about awareness on prevention of AF, it was determined that 2.25% (8 respondents) had very good level of knowledge about prevention of AF. Remaining 97.75% (347 respondents) had very poor level of knowledge. Only few numbers of respondents had adequate level of knowledge on management of AF. Just 2.25% (8 respondents) had very good level of knowledge about management of AF. 1.69% (6 respondents) and 96.06% (341 respondents) had average and very poor level of knowledge respectively. Knowledge

**Table 2** Correct response score for each AFKAT questions

S.N.	Questions	Correct Answer	Number of correct answer	Number of I don't know answer	Number of in-correct answer
1	Atrial fibrillation is a medical condition where the heart beats slower than normal.	FALSE	4	343	8
2	Atrial fibrillation may cause blood clots in the heart.	TRUE	9	343	3
3	Episodes of atrial fibrillation are predictable.	FALSE	5	345	5
4	People with atrial fibrillation can still have an active life.	TRUE	13	341	1
5	Atrial fibrillation can only be treated with surgery.	FALSE	9	344	2
6	Episodes of atrial fibrillation can be recurrent.	TRUE	13	340	2
7	Early diagnosis and management of atrial fibrillation can prevent stroke.	TRUE	15	340	0
8	Low blood pressure increases the risk of developing atrial fibrillation.	FALSE	2	345	8
9	Atrial fibrillation significantly increases the risk of stroke.	TRUE	15	339	1
10	Atrial fibrillation occurs only in people with prior signs of heart disease.	FALSE	9	344	2
11	Shortness of breath and fainting can be potential symptoms of atrial fibrillation.	TRUE	10	345	0
12	Atrial fibrillation occurs only in old age.	FALSE	11	343	1
13	Someone could have atrial fibrillation without having any symptoms.	TRUE	10	345	0
14	Symptoms of atrial fibrillation may be occasional only.	TRUE	9	346	0
15	Symptoms of atrial fibrillation may be persistent.	TRUE	8	346	1
16	Symptoms of atrial fibrillation may also be permanent.	TRUE	7	347	1
17	Atrial fibrillation usually has major psychological effects on people's lives.	FALSE	2	343	10
18	The risk of developing atrial fibrillation can be reduced with lifestyle changes.	TRUE	12	343	0
19	Atrial fibrillation can be detected by checking the regularity of the pulse.	TRUE	13	342	0
20	Screening for atrial fibrillation is safe.	TRUE	12	342	1
21	Once present, atrial fibrillation is always a lifelong condition.	FALSE	5	345	5
22	Atrial fibrillation can be treated with medications.	TRUE	12	342	1
23	Anticoagulants ("blood thinners") are often used to reduce the risk of stroke in people with atrial fibrillation.	TRUE	10	343	2

**Fig. 2** Average Knowledge Score on Different Aspects of AF (%)**Table 3** Level of awareness on basic AF information

AF knowledge level	Mean percentage score	(% ) Knowledge about					
		Basic AF information	Risk Factors of AF	Detection of AF	Prevention of AF	Management of AF	AF in general
Very Poor	Less than 20%	95.49	96.34	95.77	97.75	96.06	95.77
Poor	20 to 39%	0.28	1.69	0.85	0.00	0.00	0.28
Average	40 to 59%	2.82	0.00	0.56	0.00	1.69	1.41
Good	60 to 79%	1.41	1.41	1.97	0.00	0.00	2.54
Very Good	≥ 80%	0.00	0.56	0.85	2.25	2.25	0.00



**Table 4** Level of awareness across variables

		Knowledge level (%)						One way ANOVA
		Basic AF information	Risk factors of AF	Detection of AF	Prevention of AF	Management of AF	AF in general	P-value
Age (years)	50–59	3.88	2.91	3.24	4.85	3.88	3.55	0.133
	60–69	3.28	3.28	4.92	4.92	5.33	4.21	
	70–79	0	0	0.12	0	0	0.05	
	80–89	1.98	0.93	0.62	2.78	1.39	1.21	
	90 and above	0	0	0	0	0	0	
Gender	Male	2.74	2.79	2.90	2.96	3.45	2.89	0.621
	Female	2.08	1.10	2.49	3.95	2.63	2.23	
Education	No Formal Education	2.21	1.83	2.39	3.5	3.25	2.37	0.876
	SLC	2.90	2.44	3.43	3.25	2.85	3.08	
	12 class or above	2.23	2.08	2.08	3.13	3.13	2.31	
Comorbidity	Cardiovascular disease	2.78	2.26	3.20	3.81	3.60	3.00	0.401
	No cardiovascular disease	1.80	1.68	1.77	2.52	2.10	1.83	
Previous AF History	With AF	71.43	50	44.44	100	75	58.70	0.000*
	Without AF	2.06	1.79	2.49	2.83	2.69	2.29	

\*At 0.05 level of significance revealed that there was statistically significant difference in the mean awareness level between groups with and without AF

level about AF in general which includes all the 5 aspects depicts the true awareness level about AF. Only 2.54% (9 respondents) had good level of knowledge about AF in general. 1.41% (5 respondents), 0.28% (1 respondents) and 95.77% (340 respondents) had average, poor and very poor level of knowledge respectively. (Table 3)

Statistical analysis using ANOVA showed that there was no significant difference of mean awareness level about AF among different age groups, gender, education status groups and between group with and without cardiovascular disease(s) as shown in Table 4. But significant difference of mean awareness level about AF was found between group with AF and without AF. Group with AF had higher knowledge level than those without AF. Respondent with AF had 58.70% score compared with just 2.29% score of non-AF group.

## Discussions

The mean age of the participants was  $65.57 \pm 9.99$  years which is similar to another AF awareness related study conducted in Japan [16]. Majority age groups were 50–59 years and 60–69 years which included 103 (29.01%) and 122 (34.37%) respondent respectively. Education level not only affects individual's socioeconomic status but also health literacy [17, 18]. In a study by Sztaniszlav et al. there was significant reduction in relative risk of all-cause mortality in individuals with AF with higher level of education [19]. 56.34% (200 out of 355 participants) did not have any formal education. This shows the poor education background of the participants could be contributing to very poor level of AF knowledge in general. Majority of the participants i.e., 66.48% suffered from

some sort of cardiovascular disease which shows the poor health status of people above 50 years of age. The percentage of participants who have suffered from AF was only 0.56% (2 out of 355 participants). Overall, very less number of correct responses were obtained for all of the 23 items. 95.49% (339 out of 355 respondents) replied with “I don't know” option for all 23 AFKAT items of this study. In another study by Yan BP et al. 12.3% had any knowledge of AF whereas in this study only 4.51% (16 out of 355) had any knowledge about AF [20].

Only 1.41% (5 respondents) had good level of knowledge on basic AF information. The average knowledge score was found to be only 2.45% which falls in very poor category. It was found that age groups 50–59 years and 70–79 years had more average knowledge score i.e., 3.88% and 3.28% respectively compared to other age groups. Respondents with cardiovascular disease had more average score i.e. 2.78% compared to 1.80% score of non-cardiovascular disease group. Respondent with AF had 71.43% score compared with 2.06% score of non-AF group. All this current data shows poor knowledge of general public about basic information of AF. In study by Lee et al. 25% knowledge score was found about similar questions related to basic AF information [21].

Just 0.56% (2 respondents) had very good level of knowledge about risk factors. Age groups 50–59 years and 70–79 years had more average knowledge score i.e., 2.91% and 3.28% respectively compared to other age groups. Respondents with cardiovascular disease had slightly more average score i.e., 2.26% compared to 1.68% score of non-cardiovascular disease group. There was found to be significant difference in score of respondents

with AF compared with non-AF group. Respondent with AF had 50% score compared with 1.79% score of non-AF group. All this current data shows poor knowledge of general public about risk factors of AF. With an average score of just 2.07% it was a very poor result. A survey conducted by Aaron M. Wendelboe found that respondents' level of awareness about risk factors ranged from 8 to 52% among the respondent which is very high compared to just 2.07% in this current cross sectional survey [22].

It was calculated that barely 0.85% (3 respondents) had very good level of knowledge about detection of AF. It was found that age groups 50–59 years and 70–79 years had more average knowledge score i.e. 3.24% and 4.92% respectively compared to other age groups. Respondents with cardiovascular disease had more average score i.e. 3.20% compared to 1.77% score of non-cardiovascular disease group. There was found to be significant difference in score of respondents with AF compared with non-AF group. Respondent with AF had 44.44% score compared with 2.49% score of non-AF group. All this current data shows poor knowledge of general public about detection of AF. The average score was found to be just 2.72% which is very poor. In study by Lee et al. 50% knowledge score was found about similar questions related to basic AF information [21].

While studying about awareness on prevention of AF, it was determined that 2.25% (8 respondents) had very good level of knowledge about prevention of AF. Respondent with AF had 100% score compared with just 2.83% score of non-AF group. It was found that age groups 50–59 years and 70–79 years had more average knowledge score i.e., 4.85% and 4.92% respectively compared to other age groups. An extremely low average score of just 3.38% was discovered.

Just 2.25% (8 respondents) had very good level of knowledge about management of AF. 1.69% (6 respondents) and 96.06% (341 respondents) had average and very poor level of knowledge respectively. Similar to other aspects of AF knowledge, age groups 50–59 years and 70–79 years had high knowledge score i.e., 3.88% and 5.33% respectively compared to other age groups. Respondents with cardiovascular disease had slightly more average score i.e., 3.60% compared to 2.10% score of non-cardiovascular disease group. Respondent with AF had significantly higher score of 75% compared with just 2.69% score of non-AF group. The average score was only 3.10% which was very poor. Result of other study by Kaufman BG et al. was very drastic where 45.6% and 50% had high understanding on use and benefits of warfarin and DOACs respectively in AF [23].

Knowledge level about AF in general which includes all the 5 aspects depicts the true awareness level about AF. Only 2.54% (9 respondents) had good level of knowledge

about AF in general. It was found that age groups 50–59 years and 70–79 years had more average knowledge score i.e., 3.55% and 4.21% respectively compared to other age groups. Knowledge deficits were more in older participants. Similar finding was found in study by Colleen Sedney in which participant age 75 years and above had low AF knowledge compared to participants from 65 to 75 years old. Respondents with cardiovascular disease had slightly more average score i.e., 3.00% compared to 1.83% score of non-cardiovascular disease group. The average score was calculated to be just 2.61% which is very poor compared to another similar research. Study carried out by Ibrahim Jatau Abubakar in Tasmania using AFKAT tool found 53.3% knowledge level among public which is significantly higher than result obtained in this study [13]. In global scale survey by Aaron M. Wendelboe overall awareness of AF was found to be 48%. In a study conducted by Colleen Sedney et al. the awareness level measured by JAKQ tool was found to be 68.7% and 78% has lower AF knowledge which also indicates that awareness level is very poor in general public of Dhulikhel [24]. In the study by Lien Desteghe et al., 28.8% of subjects not being aware about the medical term AF which is better than the current study as 64.79% (230 out of 255) responded that they have never heard about AF previously [25]. In study by Hisanao Akiyama et al. 27.5% from all age groups reported to have never heard term AF before. All these low levels of correct response is due to very poor level of knowledge of the respondents [16].

We found that even those with cardiovascular comorbidity had severe knowledge gaps and significant education needs. Poor knowledge of AF among these patients can have major impact on the timely disease diagnosis, treatment and pose barrier to therapy adherence.

### Limitations

Convenience sampling method was used instead of random sampling which can cause biasness and error in data collection. Small sample size in this study can lead to sampling bias so it is recommended to conduct larger-scale study on wider range of population regarding level of awareness of AF in the future.

### Conclusions

In conclusion, the level of awareness of AF in general population of Dhulikhel was observed to be very poor. There was no significant difference in mean awareness level about AF among different age groups, genders, education status groups and between group with and without cardiovascular disease(s). But significant difference in mean awareness level about AF was found between group with AF and without AF. Group with AF had higher knowledge level than those without AF. Groups with AF had average knowledge about overall AF. Older

groups had more deficits in knowledge level. Very poor awareness level was found about all five aspects of AF i.e., basic AF information, risk factors, detection, prevention and management. Very few were able to answer correctly that AF leads to stroke and anticoagulants are used to prevent stroke in AF. As more than half of the participants reported to have cardiovascular disease(s), it shows declining health status in older age groups. Also, poor educational backgrounds may be responsible for such poor awareness level. Increasing awareness using various strategies can enhance the public level of awareness regarding AF. Therefore, large scale campaigns should be conducted to increase the level of awareness of AF and reduce risk of AF related morbidity and mortality among the general public.

#### Abbreviations

AF	Atrial fibrillation
AFKAT	Atrial fibrillation knowledge assessment tool
COPD	Chronic obstructive pulmonary disease
FHS	Framingham heart study
IRC	Institutional review committee
JAKQ	Jessa atrial fibrillation knowledge questionnaire
MEDLINE	Medical literature analysis and retrieval system online
NHRC	Nepal health research council
SP	Stroke prevention

#### Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12872-025-04720-v>.

Supplementary Material 1

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#### Author contributions

D.B contributed to the study conception and design and overall supervision and manuscript finalization. Data collection, analysis and manuscript preparation were performed by A.J. R.S contributed for overall supervision and approval of the project.

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#### Data availability

The data supporting this study are available from the corresponding authors upon request.

#### Declarations

##### Ethics approval and consent to participate

Approval from Institutional Review Committee (IRC), Kathmandu University School of Medical Sciences, Dhulikhel (ref no 104/2021) was taken before the study. No rights of participants were harmed in any possible ways. Informed consent was taken from patients in written before data collection. The study

adhered to the ethical standards outlined in the Helsinki Declaration, ensuring patient data privacy and confidentiality.

##### Consent for publication

Not applicable.

##### Competing interests

The authors declare no competing interests.

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