Knowledge of Atrial Fibrillation and Stroke Prevention: Development of Questionnaire and Validation of Results

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Abstract

Background: Atrial fibrillation (AF) patients are 5 times more likely to have stroke than non-AF patients. Stroke prevention (SP) using anticoagulation therapy was recommended in AF patients. Knowledge about AF and SP (KAFSP) is one of the essential factors that can improve patients' adherence. Yet no established studies were found to determine patients' KAFSP among AF patients. **Objectives:** To develop and validate the questionnaire used to measure KAFSP. **Methods:** A cross-sectional survey was conducted in 4 hospitals in Malaysia. The psychometric of the KAFSP Questionnaire (KAFSP-Q) were performed using content validity index (CVI), internal consistency, test-retest, exploratory factor analysis (EFA), and sensitivity test. **Results:** A total of 304 patients completed a face-to-face interview to answer the KAFSP-Q. Content and face validity was assessed by 6 experts who are knowledgeable in this field and 15 AF patients, respectively. The KAFSP-Q had good CVI and were well understood by AF patients. The KAFSP-Q also had good reliability and stability with Cronbach's α of .83 and intraclass correlation coefficient values in test-retest for stability of .9. The EFA results indicated that there were 6 factors with factor loadings above .30. The low correlations between subscales ranged between .01 and .48, which indicated that good discriminant and construct validity were achieved. The scale was able to differentiate between patients' knowledge levels before and after counseling given. **Conclusions:** The KAFSP-Q is reliable and valid to measure patients' KAFSP. Further validation studies are recommended to validate the KAFSP-Q in different contexts and in other languages.

Keywords

atrial fibrillation, stroke prevention, knowledge, anticoagulant therapy, questionnaire validation, Malay

Introduction

Atrial fibrillation (AF) has become a major global health problem due to the growing population of elderly patients, and the prevalence has increased over the years in this population. Furthermore, AF is highly related with stroke and death.¹ Knowledge about AF and its consequences is one of the essential factors that can improve patients' adherence.² Patients should be equipped with knowledge of various prevention measures available to reduce the likelihood of getting stroke and other complications. The probability of AF patients getting stroke is 5 times higher compared to non-AF patients. Anticoagulation therapy (ACT) has been widely used to prevent stroke among AF patients.^{3,4} However, AF patients have a lack of knowledge about stroke prevention (SP).⁵ In addition, they also have little understanding of the consequences and treatment of AF.⁶ Hence, there is a large gap of knowledge about AF and SP (KAFSP) among AF patients, especially regarding the higher stroke risk associated with AF.⁷

To date, very few studies have been published about patients' knowledge of AF.^{2,8,9} Among these studies, only one study¹⁰ has reported proper questionnaire validation. However, due to the nature of the instrument (only 11 items), this questionnaire did not achieved the recommendation of internal consistency because its Cronbach's α did not exceeded .6.¹⁰ Furthermore, most of the studies were found to have focused solely on patients' knowledge of AF in general, recognition of symptoms, and AF therapy. No studies have sought to focus on knowledge of SP among AF

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patients including identification and recognition of the symptoms and risk of stroke. Understanding of AF and SP is crucial to optimize the benefit of ACT. Hence, this study was conducted with the aim to develop and validate the English and Malay versions of a KAFSP Questionnaire (KAFSP-Q) used to measure patients' KAFSP.

Methods

This study was divided into 3 phases: (1) the development of the KAFSP-Q, (2) face and content validity, and (3) construct and reliability testing. The development of the KAFSP-Q was similar to the procedure undertaken in a previous study,¹⁰ and validation followed the standard guidelines, including content and face validity, construct validity, and reliability testing.¹¹

A cross-sectional survey using a convenient sampling technique was carried out at the Warfarin-Medication Therapy Adherence Clinic (W-MTAC) at 4 hospitals in Malaysia. AF patients who were 18 years and older, only use warfarin for SP, able to communicate in Malay or English, and gave written consent were recruited to this study. Ethical approval was granted by the Ministry of Health, Malaysia. Sample size was calculated based on a 1:5 item-subject ratio for the validation process.¹² Face-to-face interview was conducted according to respondents' availability. Data were analyzed using IBM SPSS Statistics Version 21.0.

Results

Development of the Questionnaire

A narrative literature review was conducted to retrieve all information needed. The questionnaire items were adapted from previous studies,^{2,8-10,13,14} and additional items were added to ensure that the objectives of the study would be achieved. A total of 67 questions were compiled and presented to experts and patients during a focus group discussion. This focus group discussion was conducted to seek opinions from experts and patients and to determine whether there would be other information that had been left out. No further item was added to the first draft of the questionnaire, and this draft was sent to another group of experts for content validity (see the appendix for details of the KAFSP-Q).

Content and Face Validity

Content Validity. Content validity index (CVI) of the 67 questions was performed by 7 experts (1 cardiologist, 2 medical officers, 2 clinical pharmacists, and 2 cardiology nurses) who were experts in this field. The following 4-point scale was used to rate the questions: 1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, and 4 = *highly relevant*. Item CVI (I-CVI) was then computed, and I-CVI $\geq .78$ would be the minimum acceptable value if the items had been rated by

6 to 10 experts.¹⁵ From 67 items, 18 items that fulfilled the I-CVI $\geq .78$ requirement were retained. Thus, it can be said that content validity was achieved as the measurement items used in this study reflected the intended scales of KAFSP. To minimize guessing of answers, KAFSP-Q used single- and multi-select multiple-choice question (MCQ) format. For single-select MCQs, only one correct answer needed to be selected by the patients, whereas for multi-select MCQs, patients could choose more than one answer and one mark would be given for each correct answer. Since the KAFSP-Q had multi-select MCQs, the original 18 items were expanded and the total number of items became 44.

Face Validity. Face validity of the 44 items KAFSP-Q in the target language was performed among 15 AF patients to check the clarity of the questions, instructions, and the response format. Most of the patients ($n = 13$) gave comments that they did not know that they had AF. Patients revealed that their health care providers (HCPs) did not mention about AF but they knew that they had fast heartbeats, which required them to undergo ACT. In general, KAFSP-Q was well understood as all patients could understand the instructions, response format, and the wording used.

The readability was also checked using the Flesch Reading Ease score, which was determined by the Flesch-Kincaid formula calculated using Microsoft Word. The questionnaire was written at fifth-grade reading level with reading ease score 76.1%. Lower grade reading level (4.7th) and higher Reading Ease score (85.2%) were obtained after removing all medical terms such as *arrhythmia* and *rhythm*. To ensure all questions were equivalent in terms of content and meaning and could be adapted to the local population, the English and Malay versions of KAFSP-Q were developed simultaneously and evaluated by a group of bilingual clinical experts comprising physicians and pharmacists.

Patients' Characteristics

A total of 304 patients were recruited. Patients' mean (SD) age was 61.92 (9.44) years. Almost 60% of the patients were aged 61 years and older, and the majority were Malays. Two thirds of the patients had AF for more than 5 years and had been using ACT since then. Patients' characteristics are summarized in Table 1.

Construct Validity

An instrument that can measure accurately what it is supposed to measure is considered to have good construct validity.¹⁶ The construct validity of the KAFSP-Q was measured using factor loadings and discriminant validity.

Factor Loading. Exploratory factor analysis (EFA) involving the principle component analysis with varimax rotation was

Table 1. Patients' Demographic Data.

Characteristic	Hospital 1 (n = 120), n (%)	Hospital 2 (n = 11), n (%)	Hospital 3 (n = 88), n (%)	Hospital 4 (n = 85), n (%)	Total (N = 304), n (%)
Age group (years)					
<50	17 (14.2)	0	3 (3.4)	8 (9.4)	28 (9.2)
50-60	42 (35.0)	1 (9.1)	32 (36.4)	21 (24.7)	96 (31.6)
>61	61 (50.8)	10 (99.9)	53 (60.2)	56 (65.9)	180 (59.2)
Gender					
Male	64 (53.3)	9 (81.8)	29 (33.0)	41 (48.2)	128 (42.1)
Female	56 (46.7)	2 (18.2)	59 (67)	44 (51.8)	176 (57.9)
Race					
Malays	115 (95.8)	11 (100)	68 (77.3)	63 (74.1)	257 (84.5)
Others	5 (4.2)	0	20 (22.7)	22 (25.9)	47 (15.5)
Duration of AF					
<1 year	42 (35.0)	2 (18.2)	10 (11.4)	13 (15.3)	67 (22.0)
1-5 years	49 (40.8)	3 (27.3)	39 (44.3)	37 (43.5)	128 (42.1)
>5 years	29 (24.2)	6 (54.5)	39 (44.3)	35 (41.2)	109 (35.9)
Duration of ACT					
<1 year	55 (45.8)	3 (27.3)	10 (11.4)	15 (17.6)	83 (27.3)
1-5 years	39 (32.5)	2 (18.2)	39 (44.3)	35 (41.2)	115 (37.8)
>5 years	26 (21.7)	6 (54.5)	39 (44.3)	35 (41.2)	106 (34.9)
Education level					
Tertiary	7 (5.8)	0	27 (3.7)	6 (7.1)	40 (13.2)
Secondary	51 (42.5)	3 (27.3)	35 (39.8)	34 (40.0)	123 (40.5)
Primary	38 (31.7)	7 (63.6)	10 (1.4)	32 (37.6)	87 (28.6)
No education	24 (20.0)	1 (91)	16 (18.2)	3 (15.3)	54 (17.8)

Abbreviations: AF, atrial fibrillation; ACT, anticoagulation therapy.

used to evaluate the construct validity of the instrument. The adequacy of FA was checked by the Kaiser-Meyer-Olkin coefficient (KMO) with the acceptable limit of $>.5$.¹² The EFA for 44 items resulted in a KMO of .75, and the Bartlett measure of sphericity was significant ($\chi^2 = 3675.24$, $df = 946$, $P < .0001$), indicating that the FA can be conducted. Based on the scree plot,^{12,17} 6 factors were retained and 2 items that loaded less than .3 were deleted.¹⁸ A factor loading above .3 was used to confirm the construct validity¹⁸ and the unidimensionality of the KAFSP-Q (Table 2).

Discriminant Validity. Discriminant validity is proven when scales that are not conceptually related to each other show low correlation ($r < .5$) with other scales.^{11,17} A correlation value of less than .5 is an indication of substantial low correlation between the scales, demonstrating that the scales are distinct from each other.^{11,17} Result showed that the correlation was low, ranging from .01 to .5, which met the discriminant validity (Table 3). This supports the discriminant validity of the KAFSP-Q.

Reliability

The consistency of an instrument to measure an attribute over time is a good indicator to prove that the instrument is

reliable and stable. The score produced by a reliable instrument should be consistent even though the instrument is used later at a different time.¹⁹ In clinical practice, this element is crucial as it will have an impact on the decision-making process by HCPs. Reliability of the instrument was tested for internal consistency, corrected item-total correlations (CITC), and test-retest reliability. Internal Consistency and Corrected Item-Total Correlations.

The value of Cronbach's α was good ($\alpha = .83$), which would be acceptable for a new instrument.¹⁹ Nevertheless, stroke symptoms and AF knowledge in general subscales had lower value of Cronbach's α , which could not be improved by deleting the items in any of the 2 subscales (Table 4). Furthermore, the reliability of the instrument was supported by the CITC. The CITC values $>.3$ were considered to be adequate to indicate a tool as reliable.¹¹ The CITC values in this study were between .3 and .7, which met the requirement to indicate that the KAFSP-Q would be a reliable tool (Table 4).

Test-Retest Reliability. The stability of the questionnaire was determined using test-retest reliability. The intraclass correlation coefficients (ICC) for test-retest reliability were calculated. The ICC values of $>.7$ for all tested subscales in a sample size of at least 50 patients with maximum duration

Table 2. Summary of the Exploratory Factor Analysis for the KAFSP-Q.

	Factors					
	1	2	3	4	5	6
<i>1. Bleeding Knowledge</i>						
I-20 INR out of range	.50					
I-21 Informing health care providers	.53					
I-22 Bleeding symptom—Bruises	.52					
I-23 Bleeding symptom—Hematuria	.69					
I-24 Bleeding symptom—Gum bleeds	.43					
I-25 Bleeding symptom—Nose bleeds	.69					
I-26 Bleeding symptom—Black stools	.75					
I-27 Bleeding symptom—Coughing up blood	.47					
<i>2. Complications of Atrial Fibrillation</i>						
I-4 Sudden death		.64				
I-5 Heart attack		.72				
I-6 Hospitalization		.48				
I-7 Heart failure		.42				
I-8 Blood clots		.55				
I-9 Stroke		.48				
I-10 Hypertension		.53				
I-11 Atrial fibrillation is permanent disease		.45				
<i>3. Stroke Risk and Stroke Prevention</i>						
I-17 Purpose of anticoagulant			.71			
I-18 Anticoagulant should be taken for life			.32			
I-36 Prevention from permanent stroke			.53			
I-37 Stroke risk—Diabetes			.60			
I-38 Stroke risk—Hypertension			.59			
I-39 Stroke risk—Age above 65 years			.57			
I-40 Stroke risk—Heart failure			.62			
I-41 Stroke risk—History of stroke			.42			
I-42 Stroke risk—Atrial fibrillation			.37			
<i>4. Stroke Symptoms</i>						
I-31 Numbness or weakened part of the limb				.45		
I-32 Difficulty speaking				.43		
I-33 Loss of balance				.63		
I-34 Very severe headache				.45		
I-35 Vision disorders				.53		
<i>5. Atrial Fibrillation Symptoms</i>						
I-12 Shortness of breath					.48	
I-13 Palpitation					.67	
I-14 Fatigue					.71	
I-15 Chest pain					.78	
I-16 Irregular heartbeats					.64	
<i>6. Atrial Fibrillation Knowledge in General</i>						
I-1 Indication of anticoagulant						.44
I-2 Checking pulse daily						.47
I-3 Normal value of pulse rate						.46
I-19 INR target						.63
I-28 The importance of atrial fibrillation treatment						.30
I-29 Stress triggers atrial fibrillation						.56
I-30 Anxiety triggers atrial fibrillation						.44
Eigenvalue	5.79	3.33	2.63	2.01	1.88	1.69
% of variance	13.47	7.45	6.13	4.68	4.38	3.93

Abbreviations: AF, atrial fibrillation; KAFSP-Q, Knowledge of AF and Stroke Prevention Questionnaire; INR, international normalized ratio; I, item.

Table 3. Correlation Between the Subscales of the KAFSP-Q.

Factor	1	2	3	4	5	6
1. Bleeding knowledge	1.00	.13*	.26**	-.02	.09	.32*
2. Atrial fibrillation complication		1.00	.48*	.30*	.27*	.16*
3. Stroke risk and prevention			1.00	.28*	.14*	.23*
4. Stroke symptoms				1.00	-.01	.01
5. Atrial fibrillation symptoms					1.00	.13*
6. Atrial fibrillation knowledge in general						1.00

Abbreviations: AF, atrial fibrillation; KAFSP-Q, Knowledge of AF and Stroke Prevention Questionnaire.

*Spearman's ρ , $P < .05$.

of 4 weeks¹¹ would be an acceptable value²⁰ and accepted time interval for retesting. The ICC value of the test-retest using 55 patients within a 4-week duration was good (ICC = .9), supporting the stability of the KAFSP-Q

Sensitivity. A good instrument not only can measure what it is supposed to measure, but can also detect a small change over time that can give a clinically meaningful change in the current practice.^{10,21} A clinically meaningful change could be defined as the minimal but important changes from the perspective of the patients, and this change may allow the patients to perform some essential task more efficiently.²¹ A P value of $<.05$ was considered a significant change. Of 304 patients, 77 patients agreed to be interviewed after receiving formal counselling by a pharmacist. There was a significant difference in the KAFSP at baseline and after they received counselling (59% vs 76%, $P = .001$). Thus, the KAFSP-Q can be used to detect a change in knowledge from baseline to post education.

Discussion

The importance of identifying patients' KAFSP was undeniable. The present study found that the availability of an instrument to assess KAFSP was very limited. Yet instruments to measure patients' knowledge of ACT were easily available as this was highlighted by many authors.²²⁻²⁴ The whole management of AF was to ensure that patients had good knowledge and understanding of AF as well as the need for ACT for SP. Most of the available questionnaires did not focus on SP and patients' knowledge about this was poor.¹⁰ Much of the research among patients has either solely focused on knowledge of ACT²²⁻²⁴ or AF in general^{2,8-10,14,25} rather than on KAFSP. Therefore, this study sought to focus on KAFSP, which cover a wide variety of knowledge related to AF in an attempt to fill the gap by adding questionnaire items regarding AF and SP. However, the KAFSP would not be reliable and valid if a nonvalidated instrument was used; hence, using the validated instrument must not be neglected at any expense.

The high I-CVI proved that the KAFSP-Q had good content that can measure the KAFSP. A good instrument needed

to have unidimensionality and substantial noncollinearity to ensure that it was measuring the same construct. A correlation value of less than .9 should be used as an indication of substantial noncollinearity between the subscales,¹⁶ or the value of a correlation coefficient above .4 between an item and its own scale would be considered as an adequate evidence to ensure unidimensionality of the construct.¹¹ It was found that the KAFSP-Q met the requirements of both criteria.

The construct validity was confirmed by good factor loading, wherein all items had factor loading above .3 and good discriminant validity as the correlations between the scale measurements were $<.5$. The highest correlation between the subscales was between AF complication and stroke risk and prevention ($r = .48$).

Compared with Hendriks et al¹⁰ ($\alpha = .58$), the KAFSP-Q had good reliability ($\alpha = .83$). The values of Cronbach's α for each of the subscales of KAFSP-Q were also above .7, which was acceptable. The good reliability of KAFSP-Q was further supported by test-retest reliability. By comparing the first and the second scores of KAFSP-Q among 55 patients within a 4-week duration, the KAFSP-Q showed good stability (ICC = .89).

The sensitivity of the KAFSP-Q was tested in terms of the ability of the KAFSP-Q to distinguish patients' knowledge levels. Administration of the KAFSP-Q among 77 AF patients at W-MTAC to identify KAFSP before and after counselling showed a significant increase in patients' KAFSP (57% vs 75%, $P = .001$). Patients who received education displayed better knowledge, which leads to good anticoagulation control. The findings of the present study have been consistent with those of a previous study conducted by Khan et al,²⁶ which found that compared with the results from 6 months prior to their study, patients' international normalized ration was in time in therapeutic range more often following education. In addition, another study conducted by Maciel et al²⁷ also produced similar results. The KAFSP-Q items were written at the 4.7th-grade reading level with the Flesch Reading Ease score of 85.2%, which increases the number of AF patients that should understand the questionnaire.

Table 4. Reliability Test and Corrected Item-Total Correlation of 42 Items of the KAFSP-Q.

Items	Subscale	CITC	α of Subscale
α of total scale = .83			
I-20 INR out of range	Bleeding	.73	.75
I-21 Informing health care providers	Knowledge	.73	
I-22 Bleeding symptom—Bruises		.73	
I-23 Bleeding symptom—Hematuria		.70	
I-24 Bleeding symptom—Gum bleeds		.75	
I-25 Bleeding symptom—Nose bleeds		.71	
I-26 Bleeding symptom—Black stools		.69	
I-27 Bleeding symptom—Coughing up blood		.74	.74
I-4 Sudden death	Atrial Fibrillation	.72	
I-5 Heart attack	Complication	.71	
I-6 Hospitalization		.70	
I-7 Heart failure		.72	
I-8 Blood clots		.73	
I-9 Stroke		.70	
I-10 Hypertension		.71	.75
I-11 Atrial fibrillation is permanent disease		.72	
I-17 Purpose of anticoagulant	Stroke Risk	.71	
I-18 Anticoagulant should be taken lifelong	and Stroke	.71	
I-36 Prevention from permanent stroke	Prevention	.71	
I-37 Stroke risk—Diabetes		.73	
I-38 Stroke risk—Hypertension		.73	
I-39 Stroke risk—Age above 65 years		.74	.63
I-40 Stroke risk—Heart failure		.75	
I-41 Stroke risk—History of stroke		.69	
I-42 Stroke risk—Atrial fibrillation		.75	
I-31 Numbness or weakened part of the limb	Stroke Symptoms	.58	
I-32 Difficulty speaking		.57	
I-33 Loss of balance		.59	
I-34 Very severe headache		.56	.72
I-35 Vision disorders		.62	
I-12 Shortness of breath	Atrial Fibrillation	.72	
I-13 Palpitation	Symptoms	.67	
I-14 Fatigue		.66	
I-15 Chest pain		.62	
I-16 Irregular heartbeats		.69	
I-1 Indication of anticoagulant	Atrial Fibrillation	.54	.57
I-2 Checking pulse daily	Knowledge in	.50	
I-3 Normal value of pulse rate	General	.52	
I-19 INR target		.52	
I-28 The importance of atrial fibrillation treatment		.57	
I-29 Stress triggers atrial fibrillation		.53	
I-30 Anxiety triggers atrial fibrillation		.57	

Abbreviations: AF, atrial fibrillation; KAFSP-Q, Knowledge of AF and Stroke Prevention Questionnaire; CITC, corrected item-total correlations; INR, international normalized ratio; I, item.

Overall, the knowledge about SP including stroke symptoms in this study was poor as the majority of patients were unable to answer these items. This result was expected because education about stroke symptoms was not a priority in our W-MTAC. Similar patterns were displayed for items that asked patients about risks of stroke. This result was in line with that of a previous

study in which only 33%¹⁴ and 53%¹³ of the patients sampled had the knowledge that AF would increase the risk of stroke. According to Frankel et al,⁷ AF patients lack knowledge about stroke, they are not familiar with stroke symptoms, and also lack awareness of stroke risks associated with AF. In addition, stroke survivors also revealed that their physicians had not informed them that AF would

increase stroke risks until they experienced it.⁷ A study by McCabe et al²⁸ supported this finding as patients were reported to have revealed that their physicians had not told them about what to expect on being diagnosed with AF and had not acknowledged the negative influence of AF on the patients' lives. Early detection of stroke can allow preventive treatments to be implemented, which eventually reduces the risks of permanent stroke and the burden of treating severe stroke²⁹ as well as attenuate stroke severity.³⁰ Hence, this KAFSP-Q would be useful in helping HCPs to identify the knowledge gap about AF and SP for each patient.

Our findings in this article nonetheless had a few limitations. First, this questionnaire is only suitable for patients with AF who are specifically on warfarin for SP and does not include other anticoagulants. Second, data collection only took place among AF patients at outpatients W-MTAC and the survey was administered using face-to-face interviews. Third, the findings of the present study were limited by the use of a cross-sectional design and did not employ a longitudinal design. Finally, nonprobability convenience sampling technique was employed. All these may limit the generalization of our findings.

Conclusion

This study has shown that after psychometric testing, the 42-item KAFSP-Q in the present study had good reliability and construct validity. This is a major contribution to the field because no such study has been reported to have combined both aspects of knowledge on AF and SP within the same questionnaire. In addition, the questionnaire is also more comprehensive than any existing scale measuring knowledge of AF among AF patients. As the KAFSP-Q can be considered as a valid instrument, this study is beneficial in the sense that it provides a tool that can be used to determine the level of patients' knowledge about AF illness and its association with stroke.

Appendix

The Knowledge of Atrial Fibrillation and Stroke Prevention Questionnaire (KAFSP-Q).

Question Number	Item	Descriptions
1	I-1	Do you know what types of heart problems that requires you to take anticoagulation such as warfarin? a. Arrhythmia b. Palpitation c. Rhythm problem d. Heartbeat problem

(continued)

Appendix (continued)

Question Number	Item	Descriptions
		e. Irregular heartbeat f. Atrial fibrillation g. Don't know
2	I-2	Do you need to check the pulse every day? a. Yes b. No
3	I-3	What is the normal pulse rate? a. 60-100 beats per minute b. Less than 60 beats per minute c. More than 100 beats per minute d. Don't know
4		AF can cause complications such as . . . (Please tick all relevant answer(s))
	I-4	a. Sudden death
	I-5	b. Heart attack
	I-6	c. Rehospitalization
	I-7	d. Heart failure
	I-8	e. Blood clots
	I-9	f. Stroke
	I-10	g. Hypertension
5	I-11	AF is permanent for life, even if you don't have any symptoms a. Yes b. No
6		AF symptoms may include . . . (Please tick all relevant answer(s))
	I-12	a. Shortness of breath
	I-13	b. Palpitation
	I-14	c. Fatigue
	I-15	d. Chest pain
	I-16	e. Irregular heartbeats
7	I-17	Why is oral anticoagulation medication prescribed in certain patients with AF? a. To prevent hypertension b. To prevent stroke c. To prevent heart failure d. Don't know
8	I-18	Warfarin treatment should be taken life long? a. Yes b. No
9	I-19	What is your INR target range? The answer is based on patients' INR target which was determined by doctor a. 2 to 3 b. Others _____ c. Don't know
10	I-20	The risk of getting a stroke or bleeding is high if the INR value is outside the target range?

(continued)

Appendix (continued)

Question Number	Item	Descriptions
11	I-21	a. Yes
		b. No
12	I-21	Do you tell the doctor/pharmacist that you take warfarin when you seek treatment or buy any medication(s)?
		a. Yes
12	I-21	b. No
		Do the symptoms list below are the symptoms of bleeding? (Please tick all relevant answer(s))
13	I-22	a. Bruise
	I-23	b. Bloody urine
	I-24	c. Gum bleeds
	I-25	d. Nose bleeds
	I-26	e. Black-colored stools
	I-27	f. Coughing up blood
13	I-28	Why is it important to take my medication for AF properly?
		a. To improved blood circulation
14	I-28	b. To prevent complications caused by AF
		c. To improve heart function
		d. Don't know
		The following factors can trigger the recurrent of AF. (Please tick all relevant answer(s))
15	I-29	a. Stress
	I-30	b. Anxiety
15	I-31	The symptoms listed below are the symptoms of stroke. (Please tick all relevant answer(s))
		a. Numbness or weakened part of the limb
16	I-32	b. Difficulty speaking
	I-33	c. Loss of balance
	I-34	d. A very severe headache
	I-35	e. Vision disorders
	I-36	Permanent stroke can be prevented if you get treatment right away.
17	I-36	a. Yes
		b. No
17	I-36	The risk of getting a stroke will increase if you have the following factor(s). (Please tick all relevant answer(s))
		a. Diabetes
18	I-37	b. Hypertension
	I-38	c. Age above 75 years
	I-39	d. Heart failure
	I-40	e. History of stroke
	I-41	The risk of getting stroke is higher in AF than other diseases.
18	I-42	a. Yes
		b. No

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