

Original Research Article

KNOWLEDGE, ATTITUDE, PRACTICE, AND PERCEIVED BARRIERS REGARDING THE USE OF ANKLE-BRACHIAL INDEX FOR SCREENING OF PERIPHERAL ARTERIAL DISEASE AMONG HEALTHCARE WORKERS IN SELECTED TERTIARY CARE HOSPITALS OF KOLKATA

Anupama Yadav¹, Sigymol K. K², Santosh V. Thoke³

¹M.Sc Nursing Student (Community Health Nursing), College of Nursing, Command Hospital, EC Alipore, Kolkata, West Bengal, India.

²Professor, Department of Community Health Nursing, College of Nursing, Command Hospital, EC Alipore, Kolkata West Bengal, India.

³Classified Medicine Specialist, Base Hospital, Delhi Cantt, New Delhi, India.

Received : 25/08/2026
Received in revised form : 22/10/2026
Accepted : 03/10/2026

Corresponding Author:

Ms. Anupama Yadav,
M.Sc Nursing Student (Community Health Nursing), College of Nursing, Command Hospital, EC Alipore, Kolkata, West Bengal, India.
Email: anuyadav2200@gmail.com

DOI: 10.70034/ijmedph.2026.4.48

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (4); 321-327

ABSTRACT

Background: Peripheral arterial disease (PAD) is an important manifestation of systemic atherosclerosis, while the ankle-brachial index (ABI) is a simple, non-invasive and inexpensive method used for screening and risk stratification. The aim is to assess knowledge, attitude, practice and perceived barriers regarding the use of ABI for screening of PAD among healthcare workers in selected tertiary care hospitals of Kolkata.

Materials and Methods: An institution-based cross-sectional questionnaire survey was conducted among 120 healthcare workers. A branching question regarding prior knowledge of ABI was used; 41 (34.2%) reported that they knew about ABI and completed the KAP and barrier sections.

Results: Among these 41 participants, mean knowledge score was $7.98 \pm 1.93/10$; 28 (68.3%) had good, 10 (24.4%) moderate and 3 (7.3%) poor knowledge. Mean attitude score was $38.27 \pm 13.79/50$, with 30 (73.2%) favourable. Mean practice score was $30.56 \pm 11.78/50$, with 12 (29.3%) demonstrating good practice. All 41 participants reported at least one barrier; the mean barrier count was 7.22 ± 1.93 . The most frequent barriers were lack of awareness of ABI recommendations and indications (40, 97.6%), limited emphasis on PAD screening in routine practice (38, 92.7%), lack of institutional protocols (35, 85.4%), preference for Doppler ultrasonography over ABI (35, 85.4%), and lack of trained supporting staff (31, 75.6%).

Conclusion: Participants who knew about ABI demonstrated good knowledge and generally favourable attitudes, but reported practice was comparatively low and substantial barriers were present. Because of the branching structure, KAP findings apply to 41 respondents and should not be generalized to all 120 respondents.

Keywords: Ankle-brachial index; Peripheral artery disease; Healthcare professionals.

INTRODUCTION

Peripheral artery disease (PAD) is a common manifestation of systemic atherosclerosis characterized by partial or complete obstruction of arteries supplying the lower extremities. It is associated with functional impairment, non-healing

ulcers, limb loss, myocardial infarction, stroke, and increased cardiovascular mortality. The major risk factors for PAD include advanced age, diabetes mellitus, smoking, hypertension, dyslipidaemia, chronic kidney disease, and established cardiovascular disease. However, PAD frequently remains undiagnosed because many affected

individuals are asymptomatic or present with atypical lower-limb symptoms rather than classical intermittent claudication. Consequently, reliance only on symptoms and peripheral pulse examination may delay diagnosis and appropriate risk-reduction therapy.^[1,2]

The ankle-brachial index (ABI) is a simple, safe, inexpensive, and non-invasive test used to detect lower-extremity PAD. It is calculated by dividing the higher systolic pressure measured at the dorsalis pedis or posterior tibial artery in each leg by the higher brachial systolic pressure. An ABI value of ≤ 0.90 is generally considered abnormal and diagnostic of PAD, whereas values of 0.91-0.99 are considered borderline, 1.00-1.40 normal, and >1.40 suggest non-compressible arteries. Current clinical guidelines recommend resting ABI measurement in patients with a history or physical examination findings suggestive of PAD and consider it reasonable among individuals at increased risk.^[1,3]

Despite its clinical usefulness, ABI remains underutilized in routine practice. Limited knowledge regarding indications, lack of familiarity with the standard measurement technique, difficulty interpreting ABI values, inadequate equipment, insufficiently trained staff, time constraints, and uncertainty regarding referral pathways may restrict its use. Previous research has identified time limitations, inadequate staffing, reimbursement issues, and lack of training as important barriers to ABI performance.^[4] Structured training has been shown to improve healthcare professionals' knowledge, confidence, and technical competence in ABI measurement.^[5]

AIM

To assess knowledge, attitudes, practices, and perceived barriers regarding the use of the ankle-brachial index for screening of peripheral arterial disease among healthcare workers.

Objectives

1. To assess the knowledge of healthcare workers regarding the use of Ankle-Brachial Index for screening of Peripheral Arterial Disease.
2. To assess the attitude of healthcare workers towards the use of Ankle-Brachial Index in clinical practice.
3. To identify perceived barriers to the utilization of Ankle-Brachial Index among healthcare workers.
4. To determine the association between knowledge, attitude, practice scores and selected professional characteristics of healthcare workers.
5. To assess the practice regarding the use of Ankle-Brachial Index for screening of Peripheral Arterial Disease.

MATERIALS AND METHODS

The study participants were healthcare workers working in selected tertiary care hospitals of Kolkata during the data-collection period. The Google Form

captured demographic and professional characteristics from 120 respondents.

Source of Data: The study participants were healthcare professionals working at the study institution during the data-collection period. They included medical officers, resident doctors, consultants, nursing personnel, and other eligible healthcare professionals involved in evaluating or managing patients at risk of PAD. Information was obtained directly from participants using a structured, pre-tested questionnaire developed after review of relevant literature and guideline.

Study Design: The study was conducted among healthcare workers working in selected tertiary care hospitals of Kolkata.

Study Location: The study was conducted in the departments of General Medicine, General Surgery, Orthopaedics, Emergency Medicine, Community Medicine, Endocrinology/Diabetic Clinic, and other relevant clinical departments.

Study Duration: The study was carried out over six months, including protocol preparation, ethical approval, questionnaire development and validation, recruitment, data collection, data analysis, and report preparation.

Sample Size: The sample size was calculated using the single-population proportion formula,

$$n = \frac{Z^2 \times p \times q}{d^2}$$

Assuming an anticipated proportion of 50%, 95% confidence level ($Z=1.96$), and absolute precision of 9%, the minimum sample size was approximately 119, rounded to 120.

Where:

- n = required sample size
- $Z_{1-\alpha/2}$ = 1.96 at a 95% confidence level
- p = anticipated proportion of adequate knowledge/practice regarding ABI, taken as 50% because no reliable local estimate was available
- $q=1-p=50\%$
- d = absolute precision, taken as 9%.

$$n = \frac{(1.96)^2 \times 50 \times 50}{(9)^2}$$

$$n = \frac{3.8416 \times 2500}{81} = 118.57$$

Healthcare workers were approached consecutively until 120 responses were obtained. The Google Form contained an initial question asking whether the participant knew about ABI. Participants who answered "Yes" proceeded to the KAP and perceived-barrier sections.

Sampling Technique: Healthcare workers working in the selected tertiary care hospitals during the data-collection period were included.

The respondent categories represented in the Google Form were Nursing Officers and Medical Officers.

Participants with at least six months of clinical work experience were included, as specified in the study protocol.

Medical officers, resident doctors, consultants, nurses, and other professionals involved in assessing or treating patients at risk of PAD were included. Participants with at least six months of clinical work experience were included.

Participants who provided written informed consent were included.

Participants who completed the questionnaire adequately were included in the final analysis.

Exclusion Criteria

Healthcare professionals who were absent during the study period because of leave, deputation, or training were excluded.

Interns, undergraduate students, and non-clinical administrative personnel were excluded.

Individuals who declined to provide informed consent were excluded.

The study instrument was a structured questionnaire administered through Google Forms. It consisted of five sections:

Questionnaires with more than 20% missing responses were excluded from the final analysis.

Section A: Socio-demographic and professional characteristics, including age, gender, designation, highest educational qualification, and duration of clinical experience.

Section B: A 10-item knowledge questionnaire on ABI and PAD. Each item had four response options with one predefined correct answer.

Section C: A 10-item attitude scale towards the use of ABI for PAD screening, using a five-point Likert response format: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree.

Section D: A 10-item practice scale regarding the use of ABI for PAD screening, using the response categories Always, Often, Sometimes, Rarely, and Never.

Section E: A 10-item perceived-barrier checklist using Yes/No responses. The barrier items addressed awareness, equipment, confidence, time, interpretation, reliability, institutional protocols, trained staff, preference for Doppler ultrasonography, and emphasis on PAD screening.

Scoring System

Knowledge: Each correct response was assigned one mark and each incorrect response zero. The maximum knowledge score was 10. The aggregate Google Form responses permit calculation of the mean item-level score, but individual-level knowledge categories cannot be derived from the available graphs.

Attitude: Responses were scored from 1 (Strongly Disagree) to 5 (Strongly Agree). The maximum score was 50. Individual favourable/unfavourable classifications cannot be derived from aggregate graphs alone.

Practice: Responses were scored from 1 (Never) to 5 (Always), with a maximum score of 50. Individual good/inadequate practice classifications cannot be derived from aggregate graphs alone.

Perceived barriers: Each “Yes” response was counted as a reported barrier. Participants could report more than one barrier.

Moderate knowledge: 50-74%

The Google Form used a branching structure in which only participants reporting prior knowledge of ABI proceeded to the KAP sections. Therefore, KAP results are based on 41 respondents rather than all 120 participants.

Attitude items were assessed using a five-point Likert scale ranging from “strongly disagree” to “strongly agree.” Negatively phrased items were reverse-scored. An attitude score of $\geq 75\%$ was classified as favourable, while a score below 75% was classified as unfavourable.

Practice questions were scored according to the reported performance of recommended activities. Responses indicating regular/appropriate practice were scored 1; responses indicating occasional, absent or inappropriate practice were scored 0. A practice score of $\geq 75\%$ was considered good practice. After obtaining the necessary ethical and administrative approval, eligible healthcare workers were invited to participate. Written informed consent was obtained before completion of the Google Form. Demographic information was collected from all 120 respondents. Participants who answered “Yes” to the initial ABI-awareness question then completed the knowledge, attitude, practice and perceived-barrier sections.

Procedure and Methodology: Responses were collected electronically through Google Forms. The exported response summaries were reviewed and the frequencies and percentages displayed in the Google Form graphs were used for descriptive analysis.

Each consenting participant received the questionnaire in a quiet and convenient setting. Participants completed it independently without consulting colleagues, textbooks, or electronic sources. Approximately 15-20 minutes were allowed for completion. The investigator remained available to clarify procedural doubts without influencing responses.

Completed questionnaires were collected immediately and checked for completeness. No participant names were recorded. Each questionnaire was assigned a unique identification number to maintain confidentiality. Participants’ knowledge, attitude, practice, and barrier responses were scored according to the predetermined scoring system.

Sample Processing: No blood, tissue, or other biological specimen was collected because this was a questionnaire-based study. Therefore, laboratory sample collection, transportation, storage, and processing were not applicable. Completed questionnaires constituted the primary study records. They were checked, coded, securely stored, and accessed only by the investigators.

The collected information included socio-demographic and professional characteristics for 120 participants and KAP/barrier responses for the 41 participants who reported prior knowledge of ABI.

Data were summarized from the Google Form response graphs.

Data were collected using the structured, pre-tested questionnaire developed after review of relevant literature and guidelines. The principal investigator or a trained research assistant distributed and collected the questionnaires. Data quality was maintained through daily scrutiny for completeness, consistency, duplicate entries, and missing information.

The primary descriptive outcomes were knowledge, attitude, practice and perceived barriers regarding ABI among respondents who proceeded to the relevant sections.

Independent variables included age, gender, designation, highest educational qualification and duration of clinical experience.

The primary outcome variables were levels of knowledge, attitude, and practice regarding ABI. The secondary outcomes included the frequency and types of barriers to routine ABI use.

Descriptive analysis was performed using frequencies and percentages. Knowledge, attitude and practice scores were calculated for the 41 participants who completed the respective sections and summarized using mean and standard deviation. Knowledge was categorized as good ($\geq 75\%$; 8–10), moderate (50–74%; 5–7), or poor ($< 50\%$; 0–4). Attitude was categorized as favourable at $\geq 75\%$ of the maximum score ($\geq 37.5/50$), and practice as good at $\geq 75\%$ of the maximum score ($\geq 37.5/50$).

For exploratory association analysis, Mann–Whitney U tests were used for two-group comparisons and Kruskal–Wallis tests for comparisons involving more than two groups. A p value < 0.05 was considered statistically significant. These analyses were exploratory because the KAP sample comprised only 41 participants and several subgroups were small.

Barrier responses were analyzed as multiple-response Yes/No items. In three raw entries recorded as “Yes, No”, the presence of “Yes” was counted as selection

of the barrier, while the remaining responses were counted as No. This preserves the information present in the raw Google Form export.

Knowledge, attitude, and practice scores were calculated and categorized according to the predetermined criteria. The chi-square test or Fisher’s exact test was used to assess associations between categorical variables. The independent-samples t-test or Mann-Whitney U test was used to compare continuous scores between two groups. One-way analysis of variance or the Kruskal-Wallis test was used for comparisons involving more than two groups.

Variables associated with adequate knowledge or good practice at $p < 0.20$ in univariable analysis were considered for multivariable binary logistic regression. Adjusted odds ratios with 95% confidence intervals were reported. The internal consistency of the attitude and barrier scales was assessed using Cronbach’s alpha. All tests were two-tailed, and a p value < 0.05 was considered statistically significant.

RESULTS

Note: KAP-domain results were based on the 41 participants (34.2%) who reported that they knew about ABI.

Among 120 respondents, 91 (75.8%) were aged 21–30 years, 22 (18.3%) were aged 31–40 years and 7 (5.8%) were aged 41–50 years. Females constituted 109 (90.8%) and males 11 (9.2%). Nursing Officers represented 105 (87.5%) and Medical Officers 15 (12.5%). Undergraduate qualification was reported by 103 (85.8%), postgraduate by 15 (12.5%), super-specialization by 1 (0.8%) and diploma by 1 (0.8%). Clinical experience was < 5 years in 77 (64.2%), 5–10 years in 27 (22.5%), 11–15 years in 10 (8.3%), 16–20 years in 2 (1.7%) and > 20 years in 4 (3.3%).

Table 1: Socio-demographic and professional characteristics of participants (N=120)

Variable	Category	n	%
Age (in years)	21-30	91	75.8
Age (in years)	31-40	22	18.3
Age (in years)	41-50	7	5.8
Gender	Female	109	90.8
Gender	Male	11	9.2
Designation	Nursing Officer	105	87.5
Designation	Medical Officer	15	12.5
Highest educational Qualification	Undergraduate	103	85.8
Highest educational Qualification	Postgraduate	15	12.5
Highest educational Qualification	Super specialization	1	0.8
Highest educational Qualification	Diploma	1	0.8
Duration of clinical experience (yrs)	< 5	77	64.2
Duration of clinical experience (yrs)	5-10	27	22.5
Duration of clinical experience (yrs)	11-15	10	8.3
Duration of clinical experience (yrs)	> 20	4	3.3
Duration of clinical experience (yrs)	16-20	2	1.7
Do you know about ABI?	No	79	65.8
Do you know about ABI?	Yes	41	34.2

Among the 41 participants who proceeded to the KAP sections, mean knowledge score was $7.98 \pm 1.93/10$. Good knowledge was observed in 28 (68.3%), moderate knowledge in 10 (24.4%), and poor knowledge in 3 (7.3%).

Table 2

Knowledge item	Correct n	Incorrect n	Correct %
1. What does ABI stand for, and which instrument is commonly used to measure it?	35	6	85.4
2. ABI is calculated as:	32	9	78.0
3. ABI is primarily used for:	33	8	80.5
4. Which of the following patient groups would most benefit from routine ABI screening?	38	3	92.7
5. The major advantage of ABI in primary and community healthcare settings is:	35	6	85.4
6. Why is Peripheral Arterial Disease (PAD) often underdiagnosed among diabetic patients?	36	5	87.8
7. Which factor most commonly affects the accuracy of ABI in diabetic patients?	17	24	41.5
8. Which of the following ABI values is generally considered normal?	28	13	68.3
9. Which of the following is the most appropriate interpretation of an ABI of 0.82 in an asymptomatic diabetic patient?	34	7	82.9
10. Early identification of PAD using ABI may help prevent:	39	2	95.1

Mean attitude score was $38.27 \pm 13.79/50$. Thirty (73.2%) participants had favourable attitude and 11 (26.8%) had unfavourable attitude according to the $\geq 75\%$ criterion.

Table 3

Attitude statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
ABI should be routinely incorporated into diabetic risk assessment.	20	9	4	1	7
ABI is a valuable tool for detecting asymptomatic PAD.	16	12	6	2	5
ABI screening should be included in diabetes clinics.	19	11	3	3	5
ABI can facilitate earlier referral and intervention.	17	13	5	1	5
ABI has an important role in community-based screening.	20	10	3	3	5
Routine ABI assessment can reduce PAD-related complications.	18	11	4	3	5
ABI is underutilized in current clinical practice.	17	11	5	1	7
More training on ABI measurement and interpretation is required for healthcare professionals.	19	11	3	2	6
Institutional protocols should include ABI screening for high-risk patients.	15	14	4	0	8
ABI is a cost-effective strategy for PAD screening.	21	10	2	1	7

Mean practice score was $30.56 \pm 11.78/50$. Twelve (29.3%) participants demonstrated good practice and 29 (70.7%) had inadequate practice.

Table 4

Practice statement	Always	Often	Sometimes	Rarely	Never
I assess diabetic patients for PAD risk factors during routine clinical practice.	4	8	10	7	12
I recommend ABI assessment for high-risk diabetic patients.	13	8	6	7	7
I use ABI findings while making referral decisions.	6	8	6	6	15
I educate patients regarding PAD and its complications.	10	13	11	2	5
I educate patients regarding foot care and lifestyle modification.	14	13	9	1	4
I refer patients with abnormal ABI findings for further vascular evaluation.	11	11	4	5	10
I document PAD risk assessment in patient records.	4	13	8	6	10
I participate in screening or awareness activities related to PAD.	8	10	4	10	9
I discuss ABI findings with patients and caregivers.	5	10	7	8	11
I incorporate PAD screening into routine diabetic care.	10	6	7	7	11

All 41 participants reported at least one barrier. The mean number of barriers was 7.22 ± 1.93 , ranging from 3 to 10. Thirty-three (80.5%) participants reported six or more barriers.

Table 5

Barrier	Yes n	No n	Yes %
Lack of awareness regarding ABI recommendations and indications	40	1	97.6
Lack of equipment required for ABI assessment	14	27	34.1
Lack of confidence in performing ABI assessment	24	17	58.5
Lack of time during routine patient care	29	12	70.7
Difficulty in interpreting ABI findings	23	18	56.1
Concerns regarding the reliability/accuracy of ABI findings	27	14	65.9
Lack of institutional protocols for ABI screening	35	6	85.4
Lack of trained supporting staff	31	10	75.6
Preference for Doppler Ultrasonography over ABI	35	6	85.4
Limited emphasis on PAD screening in routine clinical practice	38	3	92.7

Table 6

Domain	n	Mean ± SD	Category 1	Category 2	Category 3
Knowledge	41	7.98 ± 1.93	Good: 28 (68.3%)	Moderate: 10 (24.4%)	Poor: 3 (7.3%)
Attitude	41	38.27 ± 13.79	Favourable: 30 (73.2%)	Unfavourable: 11 (26.8%)	—
Practice	41	30.56 ± 11.78	Good: 12 (29.3%)	Inadequate: 29 (70.7%)	—
Barrier burden	41	7.22 ± 1.93	≥6: 33 (80.5%)	<6: 8 (19.5%)	—
KAP domain	Characteristic	Test		p value	
Knowledge	Age (in years)	Kruskal–Wallis		0.591	
Knowledge	Gender	Mann–Whitney U		0.122	
Knowledge	Designation	Mann–Whitney U		0.023	
Knowledge	Highest educational Qualification	Kruskal–Wallis		0.113	
Knowledge	Duration of clinical experience (yrs)	Kruskal–Wallis		0.365	
Attitude	Age (in years)	Kruskal–Wallis		0.411	
Attitude	Gender	Mann–Whitney U		0.753	
Attitude	Designation	Mann–Whitney U		0.866	
Attitude	Highest educational Qualification	Kruskal–Wallis		0.027	
Attitude	Duration of clinical experience (yrs)	Kruskal–Wallis		0.026	
Practice	Age (in years)	Kruskal–Wallis		0.043	
Practice	Gender	Mann–Whitney U		0.805	
Practice	Designation	Mann–Whitney U		0.768	
Practice	Highest educational Qualification	Kruskal–Wallis		0.105	
Practice	Duration of clinical experience (yrs)	Kruskal–Wallis		0.004	

DISCUSSION

The present study assessed knowledge, attitude, practice and perceived barriers regarding ABI use for PAD screening among healthcare workers in selected tertiary care hospitals of Kolkata. Demographic information was obtained from 120 respondents; however, the Google Form branching structure resulted in only 41 respondents completing the KAP and barrier sections.

The sample was predominantly young, female and nursing-based. Participants aged 21–30 years constituted 75.8%, females 90.8%, and Nursing Officers 87.5%. Undergraduate qualification was reported by 85.8%, while 64.2% had less than five years of clinical experience.

Knowledge among the 41 respondents was relatively high, with a mean score of 7.98±1.93/10 and 68.3% classified as having good knowledge. Correct responses were strongest for the clinical relevance of ABI and prevention of diabetic foot ulceration and amputation, while the lowest correct response concerned medial arterial calcification affecting ABI accuracy in diabetes (41.5%).

Attitude was generally favourable: the mean score was 38.27±13.79/50 and 73.2% met the prespecified ≥75% favourable-attitude criterion. This indicates that most participants who already knew about ABI recognized its potential usefulness and the need for training and institutional support.

Practice was comparatively weak, with a mean score of 30.56±11.78/50 and only 29.3% meeting the criterion for good practice. The pattern suggests a gap between recognizing the value of ABI and routinely incorporating ABI-related assessment, documentation, referral and screening activities into clinical care.

Barriers were substantial. All 41 participants reported at least one barrier and 80.5% reported six or more.

Lack of awareness of ABI recommendations and indications was the leading barrier (97.6%), followed by limited emphasis on PAD screening (92.7%). Lack of institutional protocols and preference for Doppler ultrasonography were each reported by 85.4%, while lack of trained supporting staff was reported by 75.6%.

Exploratory non-parametric analysis identified significant differences in knowledge scores by professional designation ($p=0.023$), attitude scores by highest educational qualification ($p=0.024$) and duration of clinical experience ($p=0.026$), and practice scores by age group ($p=0.043$) and duration of clinical experience ($p=0.004$). These findings should be interpreted cautiously because the KAP sample was small and several subgroups contained very few participants.

The branching design is a major interpretive consideration. The 79 respondents who reported no prior knowledge of ABI did not answer the KAP questions. Therefore, the observed KAP results describe a subgroup already aware of ABI and may overestimate knowledge and favourable attitudes in the full sample.

The findings support structured ABI education, supervised practical training, availability of equipment, standardized institutional protocols and clear referral pathways. Larger studies with all eligible healthcare workers completing the KAP instrument are needed to confirm these findings.

The study demonstrated that among the 41 healthcare workers who reported prior ABI knowledge, mean knowledge was 7.98±1.93/10, with 68.3% having good knowledge. Mean attitude was 38.27±13.79/50, with 73.2% showing a favourable attitude. In contrast, mean practice was 30.56±11.78/50, with only 29.3% demonstrating good practice. Thus, a clear gap was observed between knowledge and positive attitude and reported clinical practice.

The main barriers were lack of awareness of ABI recommendations, limited emphasis on PAD screening, absence of institutional protocols, preference for Doppler ultrasonography and lack of trained supporting staff. Targeted training, practical competency development, standardized protocols and improved equipment availability may improve ABI utilization. Because KAP data were obtained only from respondents who already knew about ABI, the results should not be generalized to all 120 participants.

The study was based on responses from selected tertiary care hospitals; therefore, generalizability to other healthcare settings may be limited.

The cross-sectional design assessed responses at one point in time and could not establish temporal or causal relationships.

1. Practice responses were self-reported and were not verified by direct observation or assessment of actual ABI performance.
2. The KAP and barrier analyses included only 41 respondents because of the Google Form branching structure.
3. The sample was drawn from selected tertiary care hospitals and may not represent healthcare workers in other settings.
4. Practice was self-reported and was not verified by direct observation of ABI performance.
5. Several demographic subgroups among the 41 KAP respondents were small, limiting the stability of inferential comparisons.
6. The cross-sectional design does not permit causal inference.
7. Barrier questions permitted multiple selections, so the number of reported barriers can exceed the number of participants.
8. The study did not evaluate changes in KAP following an educational or competency-based intervention.

CONCLUSION

Participants who knew about ABI demonstrated good knowledge and generally favourable attitudes, but reported practice was comparatively low and substantial barriers were present. Because of the branching structure, KAP findings apply to 41 respondents and should not be generalized to all 120 respondents.

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