

Understanding the use of evidence-based medical therapy in patients with peripheral artery disease: A qualitative study using the Tailored Implementation for Chronic Diseases Framework

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ABSTRACT

Introduction: The global burden of peripheral artery disease (PAD) has been increasing. Guidelines for PAD recommend evidence-based medical therapy (EBMT) to reduce the risks of cardiovascular events and death but the implementation of this is highly variable. This study aimed to understand the current practices regarding EBMT prescription in PAD patients and the key barriers and facilitators for implementing PAD guidelines.

Method: A qualitative study was conducted in the largest tertiary hospital in Singapore from December 2021 to March 2023. The participants included healthcare professionals and in-patient pharmacists involved in the care of PAD patients, as well as patients with PAD who had undergone a lower limb angioplasty revascularisation procedure. Data were collected through in-depth, individual semi-structured interviews conducted face-to-face or remotely by a trained research assistant. Interviews were audio-recorded, transcribed and systematically coded using data management software NVivo 12.0. The Tailored Implementation for Chronic Diseases (TICD) framework was used to guide the interviews and analysis.

Results: Twelve healthcare professionals (4 junior consultants, 7 senior consultants, and 1 senior in-patient pharmacist) and 4 patients were recruited. Nine themes in 7 domains emerged. Only a small proportion of doctors were aware of the relevant guidelines, and the generalisability of guidelines to patients with complicated conditions was the doctors' main concern. Other barriers included cost, frequent referrals, lack of interprofessional collaboration, not being the patients' long-term care providers, short consultation time and patients' limited medication knowledge.

Conclusions: Findings from this study may inform strategies for improving healthcare professionals' adherence to guidelines and patients' medication adherence.

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Keywords: barriers, evidence-based medical therapy, facilitators, guideline implementation, peripheral artery disease, qualitative study

CLINICAL IMPACT

What is New

- Using the Tailored Implementation for Chronic Diseases (TICD) framework, this qualitative study examines healthcare workers' and patients' perceptions of the implementation of evidence-based medical therapy (EBMT) in the treatment of peripheral artery disease (PAD).

Clinical Implications

- This qualitative study highlights existing barriers to the use of EBMT in PAD patients, including lack of guideline awareness, frequent referrals, the limited generalisability of the guidelines to all patients, and cost.
- Future interventions, such as collaborative care and focused training, are needed to enhance EBMT utilisation in PAD management.

INTRODUCTION

The global burden of peripheral artery disease (PAD) has been increasing, with 237 million adults living with PAD worldwide in 2015,¹ rising from 202 million in 2010.² A population-based study in Singapore found the overall prevalence in Chinese, Malays and Indians to be 3.5%, 5.2% and 5.6%,

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respectively.³ Given the increasing prevalence of diabetes in Singapore,⁴ it is unsurprising that there is an increasing number of PAD cases in the country. Apart from the risk of major amputation, PAD is strongly associated with increased cardiovascular morbidity and all-cause mortality.⁵ Despite its rising prevalence and adverse impact on quality of life, this condition remains underdiagnosed and undertreated.^{6,7} As part of the evidence-based PAD risk management, pharmacotherapy recommended by various internal guidelines includes antiplatelet therapy and statin agents in all PAD patients as well as antihypertensive and anti-diabetic medications as secondary preventative therapies.⁸⁻¹⁰

Despite clear guideline recommendations, EBMT implementation for PAD management is inadequate. A local drug utilisation study of EBMT in chronic limb-threatening ischaemia (CLTI) patients revealed that the use of statins and antiplatelets at admission for angioplasty was only 66% and 47%, respectively.¹¹ Similarly, data from Danish nationwide administrative registries also showed that relative to coronary artery disease alone, patients with PAD and without history of coronary artery disease were less likely to use any antiplatelet or statins at 18 months after diagnosis.¹² However, EBMT use at discharge was strongly associated with 6-month post-procedural use for recommended medications.¹³ A retrospective analysis of EBMT use in patients undergoing lower limb angioplasty in our institution also found suboptimal EBMT use, especially statins, at discharge, indicating a potential opportunity for improvement.¹¹

There have been studies examining the factors of non-adherence to cardiovascular disease guidelines,^{14,15} but there are few focusing on PAD guidelines. Moreover, most studies focused on patient factors alone,^{16,17} rather than taking a more systemic approach to investigate other factors that could potentially affect EBMT adherence. Using a comprehensive checklist, the Tailored Implementation for Chronic Diseases (TICD) checklist,¹⁸ allows us to study various determinants of the implementation of clinical practice guidelines systematically. The TICD checklist includes 57 potential determinants in 7 domains, namely, individual health professional factors, professional interactions, guideline factors, patient factors, incentives and resources, capacity for organisational change, and social, political and legal factors.

With the guidance of the TICD framework, we conducted a qualitative study in patients with PAD and healthcare workers (HCWs) interacting with

PAD patients to understand the current practices regarding their EBMT prescription and investigate the key barriers and facilitators for implementing PAD guidelines.

METHOD

Study design and setting

A qualitative study was conducted in Singapore General Hospital, the largest tertiary hospital in Singapore, from December 2021 to March 2023. In-depth, semi-structured interviews were conducted individually in person or remotely. This study was approved by the SingHealth Centralised Institutional Review Board (CIRB) [Ref No.: 2021/2746]. The Consolidated Criteria for Reporting Qualitative Studies guideline was used to guide the reporting of qualitative research.¹⁹

Participants

Study participants were recruited using purposive (i.e. non-random) sampling. We invited doctors from departments of endocrinology, vascular surgery, vascular intervention, internal medicine, renal medicine, vascular and interventional radiology, as well as inpatient pharmacists who interacted with PAD patients to participate in the study via email. PAD patients who had undergone a lower limb angioplasty and returned for their first follow-up appointment were also invited to participate. Eligible patients were identified by doctors and approached by research coordinators. Those who were not able to converse in either English or Mandarin were excluded.

Study procedures

We developed 2 structured interview guides based on the TICD framework, for healthcare professionals and patients, respectively. Before the interview commenced, written informed consent was taken by the research coordinators. Interviews were conducted face-to-face or via Zoom. All interviews were conducted by one of the authors, a trained research assistant who had no pre-existing relationships with the participants. All the face-to-face interviews were carried out in a private and conducive environment in the hospital using the interview guide. For interviews conducted remotely, written informed consent was taken prior to the day of the interview in person where possible. Each interview lasted 30–45 minutes and was audio recorded. Each participant was reimbursed for their time. Recruitment was continued until data saturation, which was determined by discussion among team members.

Data analysis

Data management was performed by NVivo 12 (QRS International, Burlington, Massachusetts). All English or Mandarin interviews were transcribed from audio file format to text using Otter.ai (Otter.ai, Inc, CA) or Sonix.ai (Sonix Inc, CA), respectively. The transcriptions were then manually checked and edited. Transcripts for interviews conducted in Mandarin were translated into English. Two investigators familiarised themselves with the transcripts to get a better understanding of the interviews and generate codes individually. The codes were then compared for their similarities and differences. Similar codes were clustered to create categories and themes. All disagreements were resolved through discussions among the authors. Data analysis was performed simultaneously with data collection, which continued until data saturation was reached, where no new codes were identified.

RESULTS

A total of 12 healthcare professionals (4 junior consultants, 7 senior consultants, and 1 senior in-patient pharmacist) and 4 patients completed the interviews. The majority of the HCWs interviewed were doctors (11/12), including nephrologists, vascular surgeons and consultants. Participants' demographics are shown in Table 1. From the analysis, 9 themes in 7 TICD domains emerged (Table 2).

Domain 1: Individual health professional factors

Theme 1: Limited awareness of the relevant guidelines

The HCWs were familiar with the risks that PAD patients faced, in particular limb ischemia and limb amputation. They also cited that PAD patients had higher rates of cardiovascular outcomes and death and were more susceptible to infections. The participants were also familiar with PAD-related symptoms and the treatment. All the doctors interviewed reported that treatment consisted of statin and antiplatelets, as well as diabetic or blood pressure medications to treat the underlying cause.

Some participants, especially vascular surgeons, were aware of the relevant guidelines. One surgeon noted, "There is the European Society of Vascular Surgery the Society for Vascular Surgery, there is the American Heart Association, and I'm sure there are more" (SGH-HCW-013, vascular surgeon). However, other participants acknowledged that they were not aware of any guidelines, nor had they kept themselves updated on the latest guidelines due to certain reasons. First, due to the frequent referrals they made, they

Table 1. Participant demographics.

Variable	n = 16
Healthcare professionals (n=12)	
Gender, n (%)	
Female	5 (41.7)
Male	7 (58.3)
Department, n (%)	
Renal medicine	4 (33.3)
Internal medicine	4 (33.3)
Vascular intervention	2 (16.7)
Vascular surgery	1 (8.3)
In-patient pharmacy	1 (8.3)
Seniority, n (%)	
Consultant	3 (25.0)
Senior consultant	4 (33.3)
Associate consultant	4 (33.3)
Senior principal pharmacist	1 (8.3)
Patients (n=4)	
Age, mean ± SD	70 ± 3.6
Sex, %	
Female	75
Male	25
Ethnicity, %	
Chinese	100

did not find a need to read the guidelines. As a nephrologist said, "I do, however, know the basic principles of treating and when to refer the patients" (SGH-HCW-005, nephrologist). The second reason was that a major part of PAD management was to control cardiovascular risk factors. According to a nephrologist, "I didn't really go to search the guidelines. But as long as I know [sic], we usually give to control [sic] the cardiovascular risk factors, such as giving the antiplatelets and statins to control cholesterol, optimise blood pressure and diabetes control", according to a nephrologist (SGH-HCW-001).

Not being aware of the latest guideline was cited as one of the barriers to implementing EBMT. A radiologist said, "[Consultants are] still only familiar with the evidence that when you were training [sic], and if your department isn't doing regular updates or like continuing medical

Table 2. Tailored Implementation for Chronic Diseases (TICD) Framework analysis with inductively developed belief statements.

Domain	Theme	Sample illustrative quote
Domain 1: Individual health professional factors	Limited awareness of the relevant guidelines	"I think I have a general understanding. It can lead to limb ischemia, and then loss of limb and then the milder complications would be the usual loss of sensation, insensate, and then chronic pain." (SGH-HCW-004, internal medicine doctor) "If you are talking specifically about PAD risks, of course then they face risk of amputation, the loss of limb ischemia, and with that you lose ambulation status, you become more dependent on other people because PAD patients generally mean patients have other comorbidities and other issues. So, they also have higher rates of cardiovascular death, mortality and other cardiovascular related outcome that is not so good for them." (SGH-HCW-005, nephrologist) "[Guidelines] Not that I'm aware of." (SGH-HCW-001, nephrologist) (SGH-HCW-003, radiologist) "I'm not sure about under vascular but I mean, under cardiology, there would be [guidelines], a couple years back where they did recommend aspirins or statins. Okay, yes, that's all I know." (SGH-HCW-002, internal medicine doctor)
	Shared responsibilities in the PAD management across different departments	"And then for the disease management, depending on their risk factors, then I think it may involve like a lot of people such as the cardiologists, endocrinologists, obesity managers, etc." (SGH-HCW-003, radiologist) "Actually, if you're talking about PAD specifically if we do notice that they have PAD signs and symptoms, we will be referring them usually to the vascular surgeons for further review, and if it's for basic things like screening tests, skin care of the foot is actually the podiatrist. So, these are the two main sources of referral that we will make for patients with evidence of PAD." (SGH-HCW-005, nephrologist) "We do work closely with other departments due to the fact that our patients generally have a lot of comorbid conditions, and some of them are managed by specialists. We also work closely with other allied health care professionals as well." (SGH-HCW-006, internal medicine doctor) "If they have symptoms, or they have a wound, we actually refer to the vascular surgeon. On our side, we will just mainly do primary care, advise them on foot care, and then advise them on wearing proper shoes, and then check their pulses. And then if they have a wound, we'll try to refer them to the vascular team early for assessment." (SGH-HCW-012, nephrologist) "If, for example, somebody starts the patient on a new medication for peripheral artery disease, then that will actually make me want to know more why the patient has settled on this new medication that I'm not aware of. And I will do more research for that" (SGH-HCW-001, nephrologist)
	Doctors' concerns about implementing EBMT due to polypharmacy and comorbidities	"Maybe it has been started 10 years ago, but the GP and they had some side effect and they stopped it or something like that do prefer not to rock the boat in other ways and just keep them in the care of their respective specialists. So that's probably one of the main reasons why I don't start certain medicines, don't drastically change medications for inpatients." (SGH-HCW-006, internal medicine doctor)

Table 2. Tailored Implementation for Chronic Diseases (TICD) Framework analysis with inductively developed belief statements. (Cont'd)

Domain	Theme	Sample illustrative quote
Domain 3: Guideline factors	Doctors' mixed opinions on following the guidelines	"So, a lot of times, just following the recommended management for one single condition cannot apply that way because my patients have multiple medical issues at the same time, and sometimes the recommendations do contradict one another." (SGH-HCW-006, internal medicine doctor) "If they are at high risk, with a high risk of bleeding, for example. And then, in terms of lipid therapy, in the renal literature, we do know that in a patient who is started on dialysis, the lipid lowering doesn't improve the chance of MI heart attacks. So, it's mainly protective, only if before that they already have pre-existing. So, we do not really give it primarily for PAD, but we give it mainly for coronary artery disease prevention" (SGH-HCW-012, nephrologist)
	Lack of patient understanding of PAD and associated medications	"Maybe it's because my 'thing' is blocked. This will make my blood a little 'thinner'. [The doctor] said that my blood is 'thick'." (SGH-PT-001, patient) "Too many medications. Additionally, I don't feel any different after taking my medications. I feel the same." (SGH-PT-003, patient) "When I wake up in the morning, I will arrange my medications nicely. I'll take this pack (points to the medication) in the morning, and I'll put it in my pocket." (SGH-PT-004, patient)
Domain 5: Incentives and resources	Cost and lack of time as the main barriers to implementing EBMT	"Mainly because of cost. I have to say, I'm very mindful of cost because my particular population of patients are, tend to be of lower income." (SGH-HCW-007, nephrologist) "Most of the time, yes, except in terms of the dual pathway inhibition because of cost. And we don't see them in follow up, we may not prescribe it as often." (SGH-HCW-013, vascular surgeon) "Probably a potential barrier may be communication to the patient about the importance of adherence because there may not be enough time to discuss the importance of adherence to therapy and the complications that can arise if the patient is not adherent." (SGH-HCW-004, internal medicine doctor) "But in the clinic, I really have no time to just go to the NEHR and adjust that and change it and stuff like that." (SGH-HCW-006, internal medicine doctor)
	Collaborative care to improve interprofessional communication and patient education	"I think what you can do is firstly, speak to the pharmacists, the pharmacists are very educated. And they also advise the doctors to make sure that we don't make too big of an error. So, I think the pharmacists have to buy in first, and make sure that they also believe because they are super good at looking at pharmacokinetics and drug safety. So that's what they're really good at. So, I think we should make use of all this allied help, help them to familiarise the drugs first." (SGH-HCW-005, nephrologist) ".....having a support for the patient that the patients can call on the advanced practice nurse for contact. That will be helpful to facilitate the patient's understanding of the disease and taking the prescribed medication." (SGH-HCW-004, internal medicine doctor) "I personally think that, that basically having healthcare professionals like advanced nurse practitioners, who can actually spend time with patients, to counsel them as to why they need to take certain things." (SGH-HCW-008, radiologist)

Table 2. Tailored Implementation for Chronic Diseases (TICD) Framework analysis with inductively developed belief statements. (Cont'd)

Domain	Theme	Sample illustrative quote
Domain 6: Capacity for organisational change	Internal sharing to improve the prescription rate of EBMT on the departmental level	"I feel if there is a guideline and the guideline is.... really differs a lot from what we are practicing for now, it is very important to incorporate this into medical teaching. Yeah, if it is such guidelines, or even the department can do a roadshow, incorporate into department teaching, that will be very useful." (SGH-HCW-001, nephrologist) "I think a continuous engagement is probably a way to start. I think having regular topic updates on like PAD management with like, a very broad perspective on the inputs from multidisciplinary perspectives." (SGH-HCW-003, radiologist) "If there's a guideline available on the infopedia, then that will be helpful." (SGH-HCW-004, internal medicine doctor)
Domain 7: Social, political and legal factors	To raise patients' awareness of healthy behaviours in the community	"There are some practices that are happening. But I think on the ground, it's, I don't see it. So, I think education, level of education or information done at source points, you know, coffee shops, in the community, can be done better. To make people aware of things. I think a lot of people are not aware." (SGH-HCW-008, radiologist)

education events or people don't share their knowledge, then that could be a potential challenge that I can see" (SGH-HCW-003, radiologist).

Domain 2: Professional interactions

Theme 2: Shared responsibilities in the PAD management across different departments

As patients with PAD generally have various comorbid conditions, disease management is often multidisciplinary, involving different specialists such as cardiologists, endocrinologists, obesity managers and allied health professionals (such as podiatrists).

On the departmental level, all participants denied the existence of a department protocol in the PAD department. Instead, doctors were allowed to make the judgment based on their own clinical acumen and online resources. Their practice patterns would also be influenced by their colleagues.

Theme 3: Doctors' concerns about implementing EBMT due to polypharmacy and comorbidities

For safety reasons, inpatient doctors had concerns about starting patients on new chronic medication because they were not the patients' long-term care providers. One participant, an internal medicine doctor, stated that "sometimes PAD is not the primary condition that the patient gets admitted. I do prefer not to rock the boat in other ways and just keep them in the care of their respective specialists" (SGH-HCW-006, internal medicine doctor). In addition, due to limited consultation

time and a heavy workload, doctors were unable to educate the patients about the medication and ensure adherence. "[Specialists] will be able to explain to them why [they] need to continue it and make sure that they adhere to it. That's the main reason why there's poor compliance with the guidelines," said a radiologist (SGH-HCW-008).

Domain 3: Guideline factors

Theme 4: Doctors' mixed opinions on following the guidelines

The majority of the participants agreed on the recommended therapy and believed that the guidelines were, as a nephrologist noted, "useful in summarising the evidence and giving you a starting point" (SGH-HCW-007, nephrologist), and they would usually follow the guidelines "unless there's some other reason for this patient not to be on them" (SGH-HCW-002, internal medicine doctor).

However, doctors also had concerns about following the guidelines. The major reason was that the guidelines may not apply to all their patients or the local context. According to a nephrologist, "Individuals themselves change over time. So, you have to adapt to their current status, which fluctuates hugely, especially [for] the elderly." Another reason was that sometimes doctors had to weigh risks against benefits before making decisions. For example, for a patient with PAD who recently had a heart attack, while the doctor was clear that beta-blockers should be administered with extreme caution, he still had

to initiate beta-blocker, because “you need it for its antianginal [properties], to reduce myocardial oxygen demand” (SGH-HCW-006, internal medicine doctor). The doctor explained that “Sometimes I might choose and decide that the heart is more important than the leg and start the beta blocker anyway” (SGH-HCW-006).

Domain 4: Patient factors

Theme 5: Lack of patients’ understanding of PAD and associated medications

Having had PAD for 2 to 10 years, all patients claimed that they were able to take their medications daily without any difficulties or reminders because it had become their routine. Said one patient (SGH-PT-002), “I consume them every day and I won’t forget to take them.” However, they denied that the purpose of taking medications was well explained as such knowledge was beyond their understanding. A patient noted, “The thing is very complicated. I will just take whatever medications that [doctors] prescribe to me” (SGH-PT-004).

Regarding patients’ adherence levels, HCWs’ estimations varied, ranging from $\leq 40\%$ to $>95\%$, which was judged based on each patient’s blood test results. Estimation of antiplatelet adherence was more difficult. On why patients had difficulty adhering to their medications, doctors listed multiple factors—including cost, polypharmacy, side effects, inconvenience of insulin injection, no effects, difficulties in behavior change, poor understanding and poor social support.

Domain 5: Incentives and resources

Theme 6: Cost and lack of time as main barriers to implementing EBMT

Cost was considered one of the barriers to adhering to the guidelines. Regardless of guidelines-recommended medications, doctors would prioritise the prescription of affordable medications, given the fact that “the most effective medicine is the one that the patient can actually afford, [that] he actually takes,” noted a nephrologist (SGH-HCW-007). Besides cost, a lack of time to check potential interactions was another barrier. “It takes ages to login into the Electronic Health Record system and we don’t have time for that. So, we just kind of prescribed [sic] whatever we think is the safest, most basic, and then we move on (SGH-HCW-007).”

Theme 7: Collaborative care to improve interprofessional communication and patient education

A group of facilitators frequently mentioned by the doctors were allied HCWs, such as pharmacists and advanced practice nurses in PAD management. They not only boost doctors’ confidence in prescribing certain medications but also provide counselling and education to patients. In addition, pharmacists’ role in educating patients on why and how to take medications could contribute to a higher adherence rate in patients. Similarly, nurses can also play an important role in improving patients’ medication adherence by “counselling and highlighting the complications of the disease and the importance of medication adherence,” noted an internal medicine doctor (SCH-HCW-004).

Domain 6: Capacity for organisational change

Theme 8: Internal sharing to improve the prescription rate of EBMT on the departmental level

Some participants pointed out that the existence of various guidelines made it difficult for different HCWs to reach an agreement. “There are so many guidelines and depends on which one you follow. So, it’d be difficult to get everybody to agree on one,” noted a vascular surgeon (HCW-SGH-013). To increase the prescription rate, doctors suggested having internal teaching or publishing guidelines that “really differ a lot from what we are practising now” on the organisation’s intranet (HCW-SGH-001, nephrologist). They also suggested holding webinars to share vascular surgeons’ opinions on PAD management, and through knowledge sharing, to engage multidisciplinary teams in PAD management. Another suggestion they raised was to have quick access to the references, such as “little posters or reference cards or a QR code that we can have it on our phones or save somewhere that we can refer to,” as suggested by a radiologist (HCW-SGH-003).

Domain 7: Social, political and legal factors

Theme 9: Raise patients’ awareness of healthy behaviours in the community

One of the doctors pointed out that, despite several ongoing government campaigns, patients’ health awareness did not improve. To overcome this, more information, including healthy diets, should be broadcast in the community, and at source points such as coffee shops “to make people aware of things that they don’t know,” noted a radiologist (SGH-HCW-008).

DISCUSSION

In this study, we applied the TICD framework to examine the current practices of EBMT use and factors for adherence and non-adherence to EBMT use in patients with PAD. We found that although most doctors were not familiar with updated PAD treatment guidelines, their practice was aligned with the recommended pharmacotherapy. We identified multiple barriers to implementing EBMT, and facilitators and strategies to improve EBMT adherence were also discussed.

At the healthcare provider level, a surprising finding was that most doctors were either not aware of any PAD guidelines or never searched for relevant guidelines. This result was similar to other studies that found inadequate awareness of clinical practice guidelines among practitioners in other disease areas.^{15,20} Several reasons led to the lack of awareness of guidelines. First, as PAD is one of the existing conditions, doctors' usual practice is to continue patients' existing medications without making changes. Second, due to the low referral threshold, doctors who did the initial assessment and referrals were not responsible for prescribing EBMT. Third, doctors believed that they were able to provide the treatment without guidelines, based on their expertise. Fourth, there was no regular internal education or sharing to make guidelines available to all the HCWs. The large gap in PAD guidelines awareness or familiarity highlights the need for effective internal education about the latest treatment guidelines and the need of developing easy-accessible reference tools.

At the patient level, the most significant barrier to adhering to EBMT was inadequate knowledge of their medications. It has been widely accepted that medication knowledge plays a substantial role in medication adherence in patients with chronic diseases.²¹ Limited health literacy is a possible explanation for why many patients were not on antiplatelet therapy even though they had gone through several surgical interventions, a disappointing fact shared by a vascular surgeon who was interviewed. To tackle this problem, the doctors highlighted an urgent need to involve HCWs to educate them on the importance of taking medications.

At the system level, measures need to be taken to improve interprofessional collaboration. In the inpatient setting, patients with PAD and multiple comorbid conditions were admitted to the hospital for various reasons, while specialists tended to focus on one specific condition and failed to provide holistic care. Ironically, with too many doctors involved, no one was in charge of making

decisions. One doctor pointed out that the lack of interprofessional communication led to the inadequate use of EBMT. A radiologist (SGH-HCW-003) said, "So sometimes, some patients don't have like [sic] a regular doctor who knows them very well that it can get lost if there are too many doctors involved, none of them are communicating with each other." Not knowing a patient's history also resulted in doctors' relying more on their expertise rather than the guidelines, which further limited EBMT use.²⁰ This highlights the need to improve interprofessional communication by engaging a care manager to share regular updates of a patient and develop a comprehensive coordinated care plan.

This study had several limitations. First, our findings may have been affected by selection bias due to the low response rate of the HCWs, especially vascular surgeons, endocrinologists and cardiologists. However, our inclusion criteria made it possible that HCWs from departments that commonly interacted with PAD patients were included. Second, our findings may have been limited by the small sample size. However, this study fulfilled the requirement of having a sample size of at least 12 to reach data saturation.^{22,23} Third, the majority of the participants were not aware of PAD guidelines, resulting in limited insights into the barriers and facilitators to implementing the guidelines provided by them. However, our study was qualitative in nature, and we successfully explored patients' perspectives on potential difficulties in taking medications through in-depth interviews.

The findings of this study will help build needed evidence for future interventions for improving guideline adherence in PAD management. The inefficiency in implementing EBMT in the current practice calls for actions to facilitate interprofessional communication and patient education. Future EBMT implementation may benefit from engaging specialists, primary care providers, and allied HCWs, and using a collaborative care approach plus focused training.

CONCLUSION

EBMT in PAD management remained underutilised and we identified several factors contributing to this. The key ones were HCWs' lack of guideline awareness, frequent referrals, the limited generalisability of the guidelines to all patients, patients' complicated conditions, patients' limited understanding of their medications, cost, and short consultation time. Future interventions are needed to enhance EBMT utilisation in PAD management.

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Conflict of interest

The authors declared no conflicts of interest.

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