

Facilitators and Barriers of Oral Anticoagulant Use in Patients: A Qualitative study

Dhanya Sasidharan Palappallil¹, Meghna Vincent², Nidheesh Chooriyil³, Sujatha Mangattuvalappil Balakrishnan¹, Jayakumar Thanathu KrishnanNair³

¹Department of Pharmacology, GMC Kottayam, Kerala, India. ²MBBS student, GMC Kottayam, Kerala, India. ³Department of CTVS, GMC Kottayam, Kerala, India.

Abstract

Background: Oral anticoagulants are medications that offer improvement in the quality of life by preventing life threatening thromboembolic complications. The risk benefit profile favouring the use of these lifesaving medications is influenced by the unique socio-cultural factors that affect the adherence to these medications. The objective is to explore the patient's experiences, barriers and facilitators regarding oral anticoagulant (OAC) use in the Indian context. **Material and Methods:** A phenomenology study was conducted in the departments of cardiothoracic surgery and pharmacology of a government institution in Central Kerala to explore the lived experiences of patients and the challenges faced by them regarding the use of OACs. The study period was six months (March -August 2025) after obtaining the IRB clearance (IRB 189/2024 dated 05.11.2024). Data were collected through semi-structured, in-depth interviews with patients taking OACs for more than one month. Sampling followed a purposive strategy and data collection continued till data saturation was achieved. After transcription of the audio files thematic analysis was done using QDA Miner Lite software. **Results:** Out of the 276 codes representing 170 facilitators and 106 barriers, four major themes evolved. Comprehension, Adherence, Safety Concerns and Expectations were the major themes. Strong daily routines related to life events served as a major facilitator. Barriers included significant gaps in indication of the medicine, bleeding concerns and competing symptom burden overshadowed the perceived benefits of OAC. **Conclusion:** While adherence was strongly linked to habit and family support there were critical barriers like knowledge gaps in terms of medication indication and expectation as well as safety concerns. Patient education can significantly bridge the gap in strengthening the facilitators and abolishing the barriers.

Keywords: Oral Anticoagulants, Medication Adherence, Qualitative Research, Patient Perspective.

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INTRODUCTION

In patients undergoing surgeries for valve replacement and peripheral vascular disease anticoagulant use becomes an indispensable part of life.^[1] While the risks of bleeding and stroke is outweighed by the benefits of its use, anticoagulant use becomes challenging when issues with adherence, monitoring and polypharmacy pose additional threats. While advances in anticoagulant therapies have promised better quality of life with fewer adverse effects, the suboptimal use persists especially in the low- and middle-income countries and the public sector where affordability of the newer oral anticoagulants is still questionable.^[2]

Kerala is a state which has high volume of valve surgeries which warrants lifelong anticoagulation therapy as thromboprophylaxis especially if the valve is mechanical. A study evaluating the long-term outcome of TTK valve has opined that the decreased incidence of adverse events with anticoagulants could be attributed to refinement in the laboratory testing standards, the proper emphasis and management of anticoagulation by the doctors as well as better awareness amongst the patients.^[3]

To date, Vitamin K antagonists (VKA) such as Warfarin and Acenocoumarol remain the main stay in the prevention of mechanical and bioprosthetic valve induced thrombo-embolic events.^[4] The other use of anticoagulants include surgeries for

peripheral vascular disease with grafts. Depending on the valves replaced with a target international normalized ratio (INR) range of 2.0 to 3.0 or 2.5 to 3.5 is recommended in VKA users.^[4] This necessitates constant monitoring and follow-up with dose adjustments. Warfarin is available as 1 mg to 10mg tablets and Acenocoumarol is available as 0.5 to 4 mg tablets. There needs to be constant effort from the patient and the doctor's side to maintain proper anticoagulation stewardship practices.

Patient focused interventions to support people using oral anticoagulants have identified that patient education, healthcare provider communication and visits, point of care investigations and simplified dosing regimen facilitate anticoagulant stewardship.^[5] Being a high alert medication, anticoagulant use if improper, translates into serious adverse

Address for correspondence: Dr. Nidheesh Chooriyil, Associate Professor, CTVS, Government Medical College, Kottayam, Kerala, India. E-mail: nidheeshch@gmail.com

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drug reactions. The fear of bleeding complications and the need for frequent lab-based investigations could be barriers of anticoagulant use especially with the Vitamin K antagonists like Warfarin and Acenocoumarol.^[6,7] A number of patient safety practices have looked into different outcomes like time to therapeutic range, bleeding events, thromboembolic events, protocol adherence as well as readmissions with interventions led by pharmacists, nurses and physicians.^[8]

The behaviour related to use of anticoagulants needs to be explored to bring better evidence on translatable interventions which ensure anticoagulant stewardship. Theoretical domain frameworks or models enable in depth exploration of influences on a behaviour while the Capability, Opportunity, Motivation-Behaviour (COM-B) model is a larger part of the Behaviour Change Wheel.^[9,10] This study intends to address the gap in published literature on facilitators and barriers of anticoagulant use from the patient perspective in the Indian scenario. In depth understanding from the patient's perspective will help in formulating further interventions to improve anticoagulant adherence. The objective was to explore patient experiences of anticoagulant use.

MATERIALS AND METHODS

This was a qualitative Phenomenology study done in the outpatient department of Cardiothoracic and Vascular Surgery and Department of Pharmacology of a government institution in Central Kerala. The study period was from March to August 2025 after obtaining the IRB clearance (IRB 189/2024 dated 05.11.2024). The data were collected from patients on the anticoagulants for more than one month coming for review in the Cardiothoracic Department OPD through semi-structured, in-depth interviews conducted by the author MV. Sampling followed a purposive strategy until data saturation was achieved. The audio recorded during interviews after obtaining informed consent were transcribed initially through turbscribe AI software and then checked for coherence and meaningfulness. In-depth coding and thematic analysis was performed using QDA Miner Lite software. The excerpts were coded at the utterance level and summarized into themes by 2 independent investigators. The themes identified were refined and interpreted.

RESULTS

This study explores the patient's experiences regarding their medication adherence and care pathways for valve disease. Eighteen in-depth interviews were conducted during the study period. A thematic analysis of the document identified 7 main themes and 56 distinct codes with a total code of 276, One hundred and seventy facilitators and 106 barriers were initially coded.

Thematic Analysis of Patient Experiences: The codes extracted from the transcribed documents were organized into thematic categories based on barriers, facilitators, concerns, and expectations. The facilitators and barriers are depicted in Fig 1 and 2 respectively which were categorized into 4 major themes

Theme 1: Comprehension

We identified codes related to both facilitators and barriers for

this theme. Some patients expressed positive aspects of knowledge and understanding. This included knowledge about the medicine name, understanding the indication despite not knowing the medicine names, dosing titration and investigations especially INR, an idea about some food interactions, the involvement of the treating doctor in educating and clearing their doubts, seeking help from the doctors in periphery and nurses. The gaps identified as that could impede proper management were both patient related and health care provider related. Not knowing the name of the medicine, lack of knowledge about the drug or its indication, lack of interest in understanding the indication, lack of knowledge about the importance of investigations and attempts to discontinue the medicine without medical advice were the patient related barriers to information. The lack of proper communication about the use of medicine, food interactions and the patients being in a position of being lonely with no one to talk to about the medicine was identified as the health care provider-related barriers.

Exemplar quotes: "Warfarin. I know"

"I eat Warf at 5 in the evening"

"No, I don't know. Yes, the doctor gives it to me."

"I have no one to talk to"

Theme 2: Adherence

The facilitators of successful medication management were linked to strict routines like fixed timing or linkage with daily food intake or use of alarm-based reminders. Some patients had the habit of checking medicines regularly so that they could buy it before the stock was over and took special care to carry medicines during travel so that the dose is not missed. Despite being a group of drugs that cause adverse reactions like bleeding, absence of adverse effects while taking the medicine is one major facilitator as reported by majority of patients. We identified the challenges encountered by the patients which interfered with consistent medication. These included lack of personalized reminders, memory loss attributed to increase in age or while traveling, difficulty in carrying medicines, high pill burden, frequent dose changes based on INR and recurring expenses.

Exemplar quotes: "I eat Warf at 5 in the evening"

"When I took an injection blood came. If you hold it well, it will stop."

Theme 3: Safety Concerns

This theme includes specific fears and emotional challenges expressed by patients, especially the bleeding concerns, need for lifelong usage of the medication which led to transient sadness. In patients who had experience with bleeding it was described as a vivid concern.

Exemplar quotes:" If you cut, blood will flow fast. Blood will flow fast. It will flow fast. It will flow fast."

Theme 4: Care Pathways

This theme describes what patients expect from their healthcare providers and support systems. The main facilitators were the education of family members by doctors, availability of doctors for discussion of investigations, dose titration by the doctor based on investigations. The patients received support from doctors in the peripheral hospitals and immediate family members also added to the care pathway. The patients understood that the medicine use was initiated after valve

disease diagnosis and the use was triggered by surgery. The challenges emerged related to managing the logistical and emotional aspects of healthcare. The patients expressed concern about unavailability of doctors due to rotation. Frequent investigations were another challenge. Some patients linked the anticoagulant use to other symptoms like pain, making them feel that the despite medication the patients suffered. The patients were concerned about the inability to do heavy work or go to work. The patients felt sad and had mental stress due to the situation, added with guilt about being jobless. They had financial issues due to lack of work and felt that the normal life was lost .

Exemplar:

MV:“Do you consult the doctor regularly?”

P:Yes, I do. The doctor here has told me to consult the doctor in XXXX hospital. If I have any problem, I can consult the doctor there. XXXX is the easiest place for me to consult the doctor.”

P:“No. I just take it. You should do something to get rid of the knee pain. Knee pain. If I walk, I may fall down. I may get hurt. You should find a way to get rid of that.”

P:“No. When I take these medicines every day, I don't feel tired. I take them at the right time. I don't feel nausea”

MV:“Are you not going for a job because of this?”

P: “Because of the pain I can't even bend a finger”

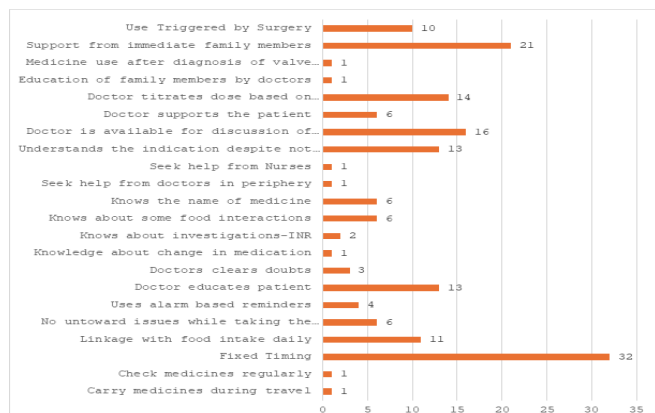


Figure 1: Facilitators of Anticoagulant Use

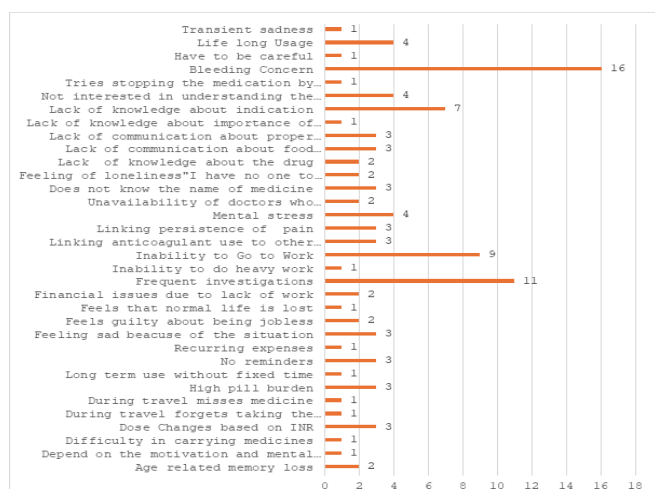


Figure 2: Barriers to anticoagulant use

DISCUSSION

The findings of this qualitative study demonstrate sharp contrasts like instruction-based adherence in the presence of significant cognitive barriers among patients on long-term oral anticoagulation within the Indian healthcare framework. The major facilitator identified was the incorporation of medication timing into daily life like the 5pm medicine strongly linked to the evening tea. Under the lens of behavior change science and the COM-B model, this linking of "opportunity" and automated "psychological capability". This adherence tactics over years successfully sustained the positive behavioral adherence without requiring active daily motivation.

Studies have shown that structured habit-building could reduce cognitive fatigue in dealing with medical regimens that are long term or complex. Lifestyle-based health promotion interventions directly impact participant adherence to prescribed behavior changes.^[11] Similarly, Ni et al. reported that a patient's baseline clinical knowledge and actual long-term adherence to anticoagulants could have a positive relation.^[12]

Several critical barriers were identified in our cohort. "Passive adherence" profile necessitating consumption of the medication because of a medical mandate is a correctable barrier. Despite the availability of doctors, the lack of availability of a single doctor for continuity of care and lack of comprehension of the indications of the medicine, could bring better anticoagulant stewardship practices. This gap in health literacy in the South Asian population could be negated with conjoint efforts of the healthcare professionals including doctors, nurses and pharmacists. Ehasani et al., found that despite the availability of newer oral anticoagulants, there is widespread use of warfarin. They found that lack of knowledge among the health care professionals could jeopardize the life of the patients. They recommended proper training about warfarin as a high-risk drug, its side effects and drug-food interactions.^[13] In indications like non-valvular atrial fibrillation, anticoagulant adherent prescribing significantly improves morbidity and mortality in Asian populations.^[14]

Travel, economic hardships, or clinical staff rotations make it hard to maintain care pathways. The intense fear of bleeding identified in our participants ("blood will flow fast") mirrors global concerns where fear of complications drives patient concerns. Pain in the patient narrative highlights a significant mismatch between clinical goals and immediate patient goals. This dissociation could be perceived as ineffectiveness of the anticoagulant medication by the patient. Barriers highlighted were patient difficulties with adherence, knowledge, provider availability, time for adequate communication amongst providers and their patients. Facilitators identified generally addressed these barriers.

Maintaining International Normalized Ratio (INR) as recommended in patients with mechanical valves requires consistent laboratory monitoring, regular follow-up visits, and timely dose titrations. As Dhanya PS et al, observed that anticoagulation complications in patients with prosthetic valves occurred when the INR was much below the target INR. Poor compliance and inadequate follow-up for INR monitoring could lead to devastating thromboembolic complications and

cerebrovascular accidents.^[15]

Strengths of this study is identification of need for implementing structured, patient-centered communication frameworks including counseling. Lifestyle embedded adherence habits and dissociation of somatic concerns from anticoagulant use will help improve long-term adherence. This will support the much-needed anticoagulation stewardship in the public healthcare systems. Limitations are that this is a single-center study and the qualitative data has potential for bias.

CONCLUSION

Oral anticoagulant adherence in this Indian cohort is habit-driven routines with support from close family network and healthcare providers. Gaps in health literacy, vivid fears of bleeding, and a mismatch between clinical goals and patient expectations exist. To bridge these gaps targeted, patient-centered educational must be delivered with interprofessional participation.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. G KP, George BK, Ramaiah B, M R. A study on drug utilization pattern of anticoagulants in post-cardiac surgeries at a tertiary care hospital. *Int J Basic Clin Pharmacol* [Internet]. 2023;13(1):118-23. [Internet]. [cited 2024 Jun 26].
2. Adeboyeje G, Sylwestrzak G, Barron JJ, White J, Rosenberg A, Abarca J, et al. Major Bleeding Risk During Anticoagulation with Warfarin, Dabigatran, Apixaban, or Rivaroxaban in Patients with Nonvalvular Atrial Fibrillation. *J Manag Care Spec Pharm*. 2017;23(9):968-78.
3. Varma PK, Vijayakumar M, Bhuvaneshwar GS, Kumar AS, Krishna N. Long-term evaluation of TTK ChitraTM heart valve prosthesis — a retrospective-prospective cohort study. *Indian J Thorac Cardiovasc Surg*. 2023;39(1):14-26.
4. Saksena D, Mishra YK, Muralidharan S, Kanhere V, Srivastava P, Srivastava CP. Follow-up and management of valvular heart disease patients with prosthetic valve: a clinical practice guideline for Indian scenario. *Indian J Thorac Cardiovasc Surg Off Organ Assoc Thorac Cardiovasc Surg India*. 2019;35(Suppl 1):3-44.
5. Yiu A, Bajorek B. Patient-focused interventions to support vulnerable people using oral anticoagulants: a narrative review. *Ther Adv Drug Saf*. 2019;10:2042098619847423.
6. Gomes T, Mamdani MM, Holbrook AM, Paterson JM, Hellings C, Juurlink DN. Rates of hemorrhage during warfarin therapy for atrial fibrillation. *CMAJ*. 2013;185(2):E121-7.
7. Wang M, Holbrook A, Lee M, Liu J, Leenus A, Chen N, et al. Barriers and facilitators to optimal oral anticoagulant management: a scoping review. *J Thromb Thrombolysis*. 2020;50(3):697-714.
8. Making Healthcare Safer III: A Critical Analysis of Existing and Emerging Patient Safety Practices [Internet]. [cited 2026 Jul 2]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK555526/pdf/Bookshelf_NBK555526.pdf
9. Atkins L, Francis J, Islam R, O'Connor D, Patey A, Ivers N, et al. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implement Sci*. 2017;12(1):77.
10. West R, Michie S. A brief introduction to the COM-B Model of behaviour and the PRIME Theory of motivation. *Qeios*. [Internet]. [cited 2026 Jul 20]. Available from: <https://www.qeios.com/read/WW04E6.2>
11. Middleton KR, Anton SD, Perri MG. Long-Term Adherence to Health Behavior Change. *Am J Lifestyle Med*. 2013;7(6):395-404.
12. Ni YX, Liu LL, Feng H, Li Z, Qin CY, Chen M. Adherence, belief, and knowledge about oral anticoagulants in patients with bioprosthetic heart valve replacement: a cross-sectional study. *Front Pharmacol*. 2023;14:1191006.
13. Ehsani M, Farahani MA, Haghani S, Khaleghparast S, Memar MM. Assessment of knowledge and practice of cardiovascular nurses regarding warfarin. *J Educ Health Promot*. 2022;11:270.
14. Krittayaphong R, Winijkul A, Kunjara-Na-Ayudhya R, Apiyasawat S, Siri wattana K, Kanjanarutjawiwat W, et al. Adherence to Anticoagulant Guideline for Atrial Fibrillation Improves Outcomes in Asian Population: The COOL-AF Registry. *Stroke*. 2020;51(6):1772-1780.
15. Dhanya PS, Nidheesh C, Kuriakose KM, Puthiyaveetil N. Pattern of oral anticoagulant use following prosthetic heart valve replacement: a prospective observational study. *Indian J Thorac Cardiovasc Surg*. 2011 Sep 1;27(3):119-24.