COVER PAGE

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Adherence to Secondary Prevention Medications and Factors influencing Adherence, After Acute Coronary Syndrome (ACS) in Patient Attending a Tertiary Care Centre Of Nepal: A Descriptive Cross-sectional Study

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1. Research title

ADHERENCE TO SECONDARY PREVENTION MEDICATIONS AND FACTORS INFLUENCING ADHERENCE, AFTER ACUTE CORONARY SYNDROME (ACS) IN PATIENTS ATTENDING A TERTIARY CARE CENTRE OF NEPAL: A DESCRIPTIVE CROSS SECTIONAL STUDY

2. Project summary (~250 words)

This study aims to assess adherence to secondary prevention medications among patients in Nepal following an Acute Coronary Syndrome (ACS) event and identify factors affecting adherence. ACS, a major cause of morbidity and mortality globally and in Nepal, requires effective secondary prevention to minimize recurrent cardiovascular events. However, adherence to prescribed medications remains low, especially in low- and middle-income countries like Nepal. Poor adherence can lead to increased healthcare burden, worsened patient outcomes, and higher mortality rates. To address this, the study will evaluate patients' medication adherence through the MYMEDS questionnaire, a self-reported tool, which has been positively received for its simplicity and clarity.

Conducted at the Manmohan Cardiothoracic Vascular and Transplant Centre in Nepal, the study will involve a sample of adult patients readmitted or attending follow-ups post-ACS. Convenience sampling will be used, targeting approximately 117 patients to account for non-responses. The research will gather data on patient demographics, socioeconomic factors, clinical characteristics, and self-reported adherence barriers, analyzing these with SPSS to assess correlations with clinical outcomes.

The expected 12-month project will consist of phases for ethical approvals, data collection, analysis, and report dissemination. By identifying key barriers to adherence, the study aims to inform targeted interventions that could enhance medication adherence, improve long-term cardiovascular outcomes, and reduce healthcare burdens in Nepal and other similar settings.

3. Introduction

Patients experiencing myocardial infarctions (MI) are at risk of subsequent cardiovascular events and prevention of recurrent events is a major clinical and public health priority (1).

Pharmacological therapy plays a key role in the secondary prevention of CVD and improve long term outcomes particularly in patients who have not undergone revascularization via percutaneous coronary intervention (PCI) (2–4). Large evidence supports drugs conferring mortality benefit from several different classes: antiplatelet agents, angiotensin-converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs), beta blockers and lipid-lowering drugs (5–7).

Adherence to secondary prevention medications following acute coronary syndromes (ACS) is a predictor of future major adverse cardiovascular events. Medication usage (and its success) requires the coordination of the behaviours of both treating physicians and patients, particularly with regards to adherence. Underutilisation of these medications is associated with higher risk of major adverse cardiovascular events globally (8). Patients' poor adherence to their medication is a complex problem for health care services, especially in the care of heart diseases, for which the correct and effective treatment is essential for a patient's quality of life and survival rate(9). A study had shown that patients who recently experienced a myocardial infarction (MI) and did not adhere closely to their prescribed regimen were 2.6 times more likely to die within a year following the MI compared with those who followed their regimen more closely (10).

Medication adherence has been studied extensively over the past decades. Numerous reports in the literature had estimated that by 12 months, adherence to cardioprotective therapy had dropped to less than 50% across several classes of drugs including statins and ACE-Inhibitors(11). Some of the predictors of non-adherence most often cited include polypharmacy, frequency of medication changes, socioeconomic status, cost, household composition, comorbidity, and accessibility to medical care (12). Gaining an understanding of the key factors that influence adherence among patients post-ACS may allow treating physicians to tailor their treatment approach and implement effective hospital interventions to improve patient adherence and, subsequently, CV outcomes(13).

Various kinds of tools have been used to assess patients's adherence to medication, of these, one of the most convenient and easiest way is self-reporting. The 'My Experience of Taking Medicines' (MYMEDS) questionnaire is a recently developed self reporting tool for identifying modifiable adherence barriers among individuals prescribed post-myocardial infarctions secondary prevention medicines (SPM). The MYMEDS questionnaire received positive feedback from 131 patients, with 96.9% stating it helped them consider their medications, 97.7% finding it simple and clear, and 99.2% agreeing the length was acceptable. Patients felt it improved understanding of their therapies and facilitated meaningful consultations (14).

4. Rationale and Justification of study

Acute Coronary Syndrome (ACS) is a leading cause of morbidity and mortality globally, and Nepal is no exception (15). Despite advancements in medical treatments, secondary prevention remains a critical aspect of managing patients post-ACS to reduce the risk of recurrent cardiovascular events. However, adherence to these medications remains suboptimal, especially in low- and middle-income countries like Nepal, leading to a higher incidence of recurrent cardiovascular events and increased healthcare burden(16).Several factors contribute to poor adherence to secondary prevention medications in Nepal. In Nepal, where healthcare infrastructure is still developing, adherence to long-term medications is

particularly challenging for patients, especially in rural and underserved regions (16). This research is critically needed to address the growing burden of cardiovascular disease in Nepal by exploring the current state of adherence to secondary prevention medications after ACS. Understanding the extent and factors contributing to poor adherence will help in identifying key barriers and implementing targeted interventions. Given the paucity of data on this topic in Nepal, this research will not only fill a crucial gap in the literature but also help guide clinicians and healthcare administrators in developing effective strategies for enhancing secondary prevention efforts. The findings could have broader implications for improving long-term cardiovascular outcomes in low- and middle-income countries with similar healthcare challenges.

In summary, this study is essential for understanding why patients in Nepal fail to adhere to life-saving medications post-ACS and what can be done to mitigate this problem, ultimately improving patient care and reducing the burden on the healthcare system.

5. Objectives

a. General objectives:

To assess the level of adherence to prescribed secondary prevention medications and identify the factors influencing adherence among patients with Acute Coronary Syndrome (ACS) in Nepal.

b. Specific objectives:

- **To assess the level of adherence to secondary prevention medications (SPMs)** among patients discharged after an Acute Coronary Syndrome (ACS) event, including antiplatelets, statins, beta-blockers, and ACE inhibitors/ARBs.
- **To explore the influence of patient demographic factors** (such as age, gender, education level, occupation, and place of residence) and clinical characteristics (type of ACS, comorbidities) on medication adherence.
- **To identify patient-reported barriers to medication adherence**, including concerns about medication side effects, pill burden, practical issues with medication administration, and difficulties in integrating medications into daily routines.
- **To evaluate the relationship between medication adherence and clinical outcomes**, such as recurrent cardiac events, rehospitalization.

6. Research questions/hypothesis

- What is the level of adherence to secondary prevention medications among Acute Coronary Syndrome (ACS) patients in Nepal, and what demographic, clinical, and patient-reported factors influence this adherence and its associated clinical outcomes?

7. Research design and Methodology

7.1. Research method

Quantitative Survey: The adherence to secondary prevention medications among re-hospitalized patients after cardiac complications following Acute Coronary Syndrome (ACS) will be evaluated using a structured questionnaire. This survey will assess patient demographics, socioeconomic status, and barriers to adherence such as medication cost, side effects, and treatment complexity. Administered either in person or via an online platform, the survey will collect key data on adherence patterns and influencing factors in high-risk patients. This method aims to ensure efficient data collection while maintaining confidentiality and ease of access for participants.

7.2 Types of study

Observational Cross Sectional Study

7.3 Study population/Sampling frame

A sample of adult patients (age ≥18 years) who have either come to OPD for follow-up or have been readmitted for having cardiac complications months after surviving ACS (including STEMI, NSTEMI, and unstable angina) in Manmohan Cardiothoracic Vascular and Transplant Centre, Nepal will be selected via **convenience sampling**. The total population under study is around 1000.

7.4 Study site and its justification

This descriptive cross-sectional study will be conducted at Manmohan Cardiothoracic Vascular and Transplant Centre, a premier tertiary care institution in Nepal, specializing in cardiovascular care. As one of the nation's leading centres for heart disease management, it offers advanced diagnostic, therapeutic, and surgical services to patients with a wide spectrum of cardiovascular conditions, including Acute Coronary Syndrome (ACS). The centre's reputation for excellence in cardiology and its strategic location make it an ideal setting for research into adherence to secondary prevention medications after ACS.

The patient population at this centre is diverse, including individuals from both urban and rural areas of Nepal, which provides a comprehensive understanding of medication adherence patterns across various demographic and socioeconomic groups. The centre regularly follows up with ACS survivors, both through outpatient visits and during readmissions for cardiac complications. This makes it a prime location to study patients who have either come for follow-up visits or been readmitted within 12 months of their initial ACS event, including STEMI, NSTEMI, and unstable angina.

By focusing on this centre, the research will leverage the expertise of its specialized staff and access to detailed patient records, providing valuable insights into medication adherence in real-world clinical practice. These insights can then be used to inform targeted interventions to improve long-term outcomes for ACS survivors across Nepal.

7.5 Sampling method

In our research study, we will employ convenience sampling. Convenience sampling is a non-probability method where units are selected for inclusion in the sample because they are the easiest for the researcher to access.The target population consists of adult patients (age ≥18 years) who have either come to OPD for follow-up or have been readmitted in hospital for having cardiac complications months after surviving ACS (including STEMI, NSTEMI, and unstable angina). Rather than applying specific

stratification based on cancer type, we will approach patients who are readily available within the hospital setting. We will use the MYMEDS questionnaire. The researcher will personally ask all the questions and fill out the questionnaire for each eligible patient. To assess the socioeconomic status of participants, we will utilize the Modified Kuppuswamy's Socioeconomic Status Scale, adapted to the context of Nepal (18). Alongside demographic information such as gender, age at diagnosis, and marital status, we will collect data on education level, occupation, and family income, as per the scale's criteria(18).
Once we collect the responses, we will use MS Excel for data entry and analyze the data using SPSS version 29.

7.6 Sample size

Based on the assumptions that the margin of error is 5%, the confidence level is 95%, the response distribution is 50%, and the prevalence of adherence to medication is 92.5%, the sample size for our study is 117. These assumptions are used to determine the sample size required to estimate a population parameter with a certain level of precision. The prevalence of adherence to medication (92.5%) was taken from a study conducted at Shahid Gangalal National Heart Centre in 2018, which reported that 92.5% of respondents were highly adherent to medication, as measured by the Morisky, Green, and Levine (MGL) scale 4-item questionnaire.

The sample size (n) is calculated according to Cochran's formula: $n = [z^2 * p * q / d^2]$

Where: z = 1.96 for a confidence level (α) of 95%, p = proportion (expressed as a decimal), d = margin of error and adding a 10% non-response rate by using the following formula:
z = 1.96, p = 0.925, d = 0.05
$n = [1.96^2 * 0.924 * (1 - 0.817) / (0.05)^2] = 106.39$
$n \approx 106$
The sample size needed for the study is 106 participants. By adding 10% non-response, the sample size is increased to 117 participants.

7.7 Inclusion and Exclusion criteria

- **Inclusion Criteria:**
    1. Patients diagnosed with ACS, including ST-Elevation Myocardial Infarction (STEMI), Non-ST-Elevation Myocardial Infarction (NSTEMI), or Unstable Angina within the last 12 months.
    2. Patients aged 18 years and older.
    3. Patients willing to participate and provide informed consent for the study.
- **Exclusion Criteria:**
    1. Individuals who have not been diagnosed with ACS or those with other acute or chronic conditions that might influence medication adherence unrelated to ACS.
    2. Patients with cognitive impairments or mental health issues that prevent them from understanding or responding accurately to the study questionnaires.
    3. Patients with severe chronic conditions (e.g., terminal illness, advanced dementia) that may affect their ability to adhere to medication regimens.

7.8 Study variables

Dependent Variable:

- **Adherence to Secondary Prevention Medications (SPMs)**: This includes adherence levels to specific medications such as antiplatelets, statins, beta-blockers, and ACE inhibitors/ARBs, measured through MYMEDS questionnaire.

Independent Variables:

1. **Demographic Factors**:
    - Age
    - Gender
    - Education Level
    - Occupation
    - Place of Residence (Rural vs. Urban)
    - Monthly Income
2. **Clinical Characteristics**:
    - Type of Acute Coronary Syndrome (e.g., STEMI, NSTEMI, Unstable Angina)
    - Comorbidities (e.g., Hypertension, Diabetes Mellitus, Dyslipidemia, Chronic Kidney Disease)
3. **Patient-Reported Factors**:
    - Concerns about medication side effects
    - Pill burden (number of medications)
    - Practical issues with medication administration (e.g., difficulties opening bottles)
    - Difficulty integrating medications into daily routines

7.9 Expected time and duration of the study

The study is expected to be completed in 12 months, divided as follows:

- **Months 1-2:** Ethical approval, recruitment of research assistants
- **Months 3-8:** Data collection (patient interviews, medical record review).
- **Months 9-10:** Data entry and analysis.
- **Months 11-12:** Report writing, dissemination of results, and publication

7.10 Tools and techniques for data collection

- Tools:

Questionnaire

The questionnaire is composed of six simple-to-complete sections.

Section 1:

- Patients provide essential contextual information about the medicines they are taking, when they are administered each day, and their understanding of why they are taking them.
- This helps clinicians compare a patient's actual medication usage with documented clinical records and uncover any medication changes since discharge.

Subsequent sections (Section 2-6):

- These sections use Likert scales instead of binary yes/no responses, which improves the quality of information gathered.
- For example, it allows the assessment of the frequency of non-adherence behaviors rather than just detecting non-adherence.

Section 2:

- Explores overall understanding and satisfaction with medicines.
- Patients respond to four statements regarding their understanding of why their medicines were prescribed and how well they think they are working, using a four-point Likert scale (strongly agree, agree, disagree, strongly disagree).

Sections 3–5:

- Assess specific modifiable barriers to adherence, using the same four-point Likert scale as section 2.
- A free-text box allows patients to specify which medicines their concerns involve.

Section 3:

- Explores three areas of anxiety about medicines (e.g., concerns about medicines causing more harm than good or feeling there are too many medicines).

Section 4:

- Examines four practical concerns associated with medicine-taking (e.g., difficulties with swallowing pills or obtaining repeat prescriptions).

Section 5:

- Assesses three issues related to fitting medicines into the patient's daily routine (e.g., forgetfulness or inconvenience).
- These issues are linked to non-adherence and can potentially be addressed in clinical practice.

Section 6:

- Focuses on adherence to each individual secondary prevention medication (SPM) over the past month.
- It uses a modified version of the SQ tool and a five-point Likert scale.
- Patients are considered non-adherent if they select any answer other than ‘all of the time’ for any SPM.

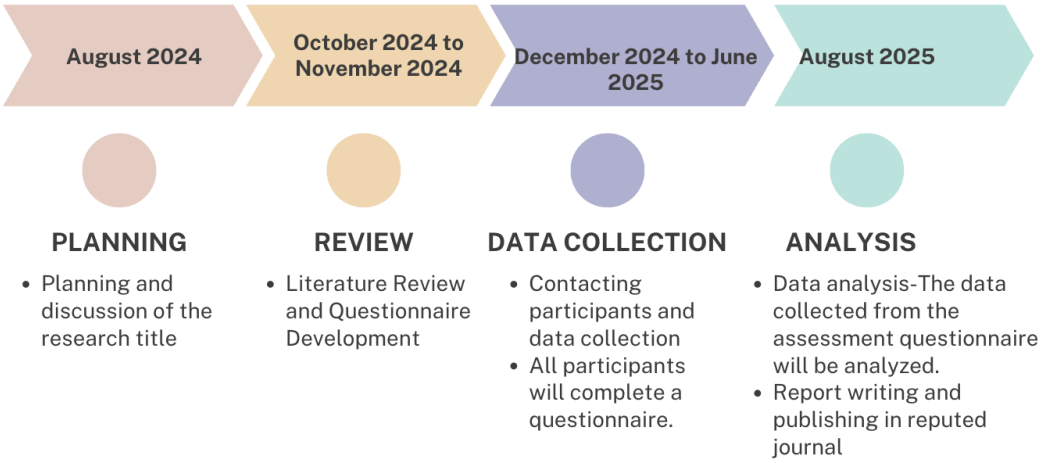
Technique:

- A relevant questionnaire will be developed and distributed to our research team. They will visit cardiology outpatient department (OPD) as well as in the cardiology ward in Manmohan

Cardiothoracic Vascular and Transplant Centre to administer and fill the questionnaire, asking patients who meet the research criteria the necessary questions.

- Prior to participation, participants will receive comprehensive information regarding the study's objectives, procedures, and potential risks and benefits. They will be assured that their personal information will remain confidential and solely utilized for research purposes.
- Participants are expected to provide truthful and accurate responses to all study inquiries and protocols.
- The questionnaire will be individually distributed to each participant.

7.13 A graphic outline of the study design and procedures using a flow diagram including the timing of assessments.



8. Plan for data management and statistical analysis

- Information on how the data will be managed (data handling and coding for computer analysis, monitoring and verification).
- Procedures for accounting for any missing or spurious data etc.
- The statistical methods and tests proposed to be used for the analysis of data.
- For projects involving qualitative approaches, specify in sufficient detail how the data will be analyzed.

9. Biases

- Selection Bias: The adherence behaviors of OPD patients may differ significantly from those of re-hospitalized patients. Re-hospitalized patients might have more severe conditions, leading to differences in adherence patterns. This could introduce bias in comparing adherence rates across both groups.
- Survivor Bias: Re-hospitalized patients represent those who have survived a second cardiac event. This excludes patients who may have suffered more severe outcomes or death, potentially skewing the findings.

- Self-Reported Data: The reliance on patient self-reports for adherence may introduce recall bias or social desirability bias, where patients overestimate their adherence to appear compliant.

10. Limitations of the study

·Heterogeneity of Patient Conditions: Re-hospitalized patients might have more complex medical histories or complications, while OPD patients might represent a more stable cohort. This could lead to difficulties in interpreting results uniformly across both groups.

· Single-Centre Study: Conducting the study in one tertiary care hospital limits the generalizability of the findings to other settings, such as rural or private healthcare facilities.

· Cross-Sectional Design: The study captures adherence at a single point in time, making it difficult to assess changes in adherence over time or the long-term effects of non-adherence.

· Incomplete Records: Excluding patients with incomplete medical records may result in the loss of potentially valuable data, especially if those patients differ systematically from others.

· Confounding Factors: Factors like access to healthcare, comorbidities, or socio-economic conditions may influence both adherence and re-hospitalization but might be difficult to fully account for in the analysis.

11. Safety considerations

This study on medication adherence post-acute coronary syndrome (ACS) prioritizes participant safety by ensuring confidentiality, obtaining informed consent, and designing the questionnaire to minimize discomfort. Participants can skip any questions that may cause unease, and those facing adherence challenges will receive information on local support resources. Though risks are minimal, any adverse events will be recorded, with participants advised to seek medical help if necessary. The study follows ethical guidelines approved by our institution's ethics board to safeguard participant well-being throughout the research.

12. Plan for supervision and monitoring

- **Developing the Plan**: We will outline responsibilities of the research team and external supervisors, including key activities and milestones for data collection, follow-ups, and quality checks.
- **Communication Channels**: We will establish regular meetings, email, and phone updates to maintain clear communication and address study progress or challenges in real time.
- **Regular Meetings**: We will schedule weekly and monthly meetings with the research team and supervisors to review progress, resolve issues, and ensure adherence to the timeline.
- **Data Quality Monitoring**: We will conduct regular checks on data accuracy and consistency, addressing errors immediately to maintain the integrity of the data.
- **Progress Review**: We will continuously track recruitment, data collection, and adherence to timelines, ensuring the study remains on schedule and goals are met.

- **Issue Resolution**: We will address any arising issues promptly by adjusting protocols or consulting external supervisors, ensuring the study remains on track.

13. Expected outcome of the research

- **Adherence Rates**: We will determine the level of adherence to secondary prevention medications among patients re-hospitalized after ACS in Nepal.
- **Factors Influencing Non-Adherence**: We will identify key factors contributing to non-adherence, such as socio-economic barriers, patient knowledge, and healthcare system challenges.
- **Targeted Interventions**: The findings will inform targeted interventions to improve medication adherence and reduce re-hospitalization rates.
- **Policy Insights**: We will provide valuable insights for healthcare policy improvements in post-ACS care, helping enhance long-term cardiac outcomes in Nepal.
- **Patient Education**: The study will highlight the need for increased patient education on the importance of medication adherence.

14. Plan for dissemination of research results

- **Writing a research report:** We plan to create a detailed research report outlining the study's objectives, methodology, results, and conclusions, with an emphasis on findings related to medication adherence following acute coronary syndrome (ACS).
- **Publishing the research report:** We intend to submit the research report for publication in a reputable peer-reviewed journal focusing on cardiology or public health to ensure it reaches a scientific audience interested in ACS management and adherence studies.
- **Sharing the research report with the research team:** We will distribute the report to all members of the research team, including collaborators and supervisors, to keep everyone informed of the outcomes and enable them to incorporate findings into their ongoing work.
- **Sharing the research report with relevant stakeholders:** We plan to disseminate the report to key stakeholders such as cardiology departments to support improvements in patient care and policy development.
- **Presenting the research findings:** We will present our findings at national and international cardiology or public health conferences, allowing us to share insights with a broader audience of healthcare professionals and researchers.

15. Plan for utilization of the research finding

- **Reviewing the research findings:** We will review the research findings thoroughly to understand the implications for patient care and the management of secondary prevention adherence following acute coronary syndrome (ACS).
- **Sharing the research findings with relevant stakeholders:** We plan to share our findings with relevant stakeholders, such as cardiologists, healthcare providers, hospital administrators, policymakers, and patient advocacy groups, to promote awareness and encourage support for improved adherence strategies.

- **Developing recommendations for practice and policy:** Based on the research results, we will develop targeted recommendations for clinical practice and policy aimed at enhancing medication adherence and follow-up care among ACS patients, with a focus on feasible strategies for Nepal's healthcare context.
- **Communicating the recommendations:** We will communicate these recommendations to relevant stakeholders through presentations, workshops, and written materials such as policy briefs and practice guidelines, helping translate our findings into actionable steps.
- **Implementing the recommendations:** We plan to collaborate with healthcare providers and institutions to incorporate our recommendations into clinical settings, ensuring that ACS patients receive comprehensive adherence support and education.
- **Monitoring the implementation of the recommendations:** We will monitor the adoption and effectiveness of the recommendations by gathering feedback from healthcare providers and assessing adherence improvement among ACS patients over time.
- **Evaluating the impact of the recommendations:** We will evaluate the impact of our recommendations on adherence outcomes, healthcare utilization, and patient health, using this evaluation to inform future research and to optimize secondary prevention efforts in ACS care.

16. Work plan

Total duration of study: 12 months
Timeline: Gantt chart

- **August 2024**
  - Planning and discussion of the research title
- **October 2024 to November 2024**
  - Literature Review and Questionnaire Development
- **December 2024 to June 2025**
  - Contacting participants and data collection
  - All participants will complete a questionnaire.
- **August 2025**
  - Data analysis-The data collected from the assessment questionnaire will be analyzed.

17. Ethical issues and considerations regarding human participants

- Are human participants required in this research? If yes, offer justification.

Yes, human participants are required in this research. The study aims to assess adherence to secondary prevention medications among patients who have experienced Acute Coronary Syndrome (ACS). This research requires direct data collection from individuals who have been prescribed such medications to understand their adherence patterns, factors influencing adherence, and potential barriers. The insights gained from these participants will contribute to improving post-ACS care in Nepal and reducing the risk of recurrent cardiac events.

- Clearly indicate the participant's responsibilities in the research. What is expected of the research participants during the research?

  - **Providing informed consent:** Participants will be fully informed about the purpose, procedures, and potential risks and benefits of the study before deciding whether or not to participate.

- **Completing study procedures:** Participants should be willing to fill out the questionnaire.
- **Protecting their own privacy:** Participants should be aware that their personal information will be kept confidential and only used for the purposes of the study
- **Protecting the confidentiality of others:** Participants should not disclose any information about other participants or the study to anyone outside of the research team.
- **Providing honest and accurate responses:** Participants should provide honest and accurate responses to all study questions and procedures.

- Are vulnerable members of the population required for this research? If yes, offer justification.

No

- Are there any risks to the involved participants? If yes, identify clearly what are the expected risks for the human participants in the research and provide a justification for these risks.

No

- Are there any benefits to participants? If yes, identify clearly what are the expected benefits for the participants.

Indirect Benefits to Healthcare: Participants contribute to research that aims to improve post-ACS care and enhance medication adherence strategies, potentially benefiting future patients.
Personal Satisfaction: Patients may feel a sense of fulfillment by contributing to research that could improve public health and the care of other ACS patients.
Awareness and Self-reflection: By participating, patients may gain a better understanding of the importance of medication adherence, which could positively influence their own adherence behaviors.

18. Informed consent

- Who is responsible for obtaining informed consent from the participants?
  - Researchers
- How is informed consent obtained from the participants?
  - Informed consent will be obtained from all the students participating in this study before they answer our research questionnaire. Participants will be presented with our research consent.
- Is there anything withheld from the research participants (deception) at the time of getting informed consent? State the reason for deception.
  - No information will be withheld from the research participants at the time of getting informed consent.

19. Budget

(Should include financial provision necessary for carrying out the research up to dissemination of research findings.)

Element/s	***Price (NRs.)***
1. Questionnaire printing (for offline survey)	*Rs. 5000*
2. Article Publication	*Rs. 5000*

Total	***Rs. 10000***

- ***Source of budget:*** *Researchers*
- ***Sponsor, if any:*** *Not any*

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20. Annexes

1. Pro forma sheet

Research Proforma

Section 1: Patient Demographic Information

1. **Patient ID:** _____
2. **Name:** _____
3. **Age:** _____
4. **Gender:**
   ○ [ ] Male
   ○ [ ] Female
   ○ [ ] Other
5. **Ethnicity:**
   ● Brahmin
   ● Chhetri
   ● Madhesi and Tharu
   ● Newar
   ● Muslims
   ● Dalit
   ● Janjati
   ● Others
6. **Marital Status:**
   ○ [ ] Single
   ○ [ ] Married
   ○ [ ] Divorced
   ○ [ ] Widowed
7. **Education Level:**
   ○ Professional or Honors/Ph.D
   ○ Graduate or Postgraduate (Bachelors/Masters)
   ○ Intermediate or Post-high school diploma (Class 11–12)
   ○ High school certificate (Class 9–10, SLC/SEE passed)
   ○ Middle school certificate (Class 6–8)
   ○ Primary school or literate (Class 1–5)
   ○ Illiterate (cannot read or write)
8. **Occupation:**
   1. Profession or Honors
   ○ Doctors, senior administrative officers, senior lecturers, college principals, advocates, planters owning large estates, expert musicians, newspaper editors, auditors, architects, managing directors of firms, bank managers

   2. Semi-profession
   ○ Mechanical and electrical engineers, high school teachers, lecturers, junior administrators, junior doctors, insurance inspectors, commission agents, musicians, research assistants

   3. Clerical, shop owner, farmer, skilled worker

   4. Semi-skilled worker
   ○ Factory or workshop laborer, laboratory or library attendant, car cleaner

5. Unskilled worker
○ Watchman, peon, domestic servant, rickshaw puller

6. Unemployed

9. **Family Monthly Income (NPR): _____**
   ● ≥ 97,451
   ● 48,751–97,450
   ● 36,551–48,750
   ● 24,351–36,550
   ● 14,551–24,350
   ● 4,851–14,550
   ● ≤ 4,850
10. **Place of Residence:**
    ○ [ ] Rural
    ○ [ ] Urban
11. **Distance from Healthcare Facility: _____** (km)

Section 2: Clinical Information

1. **Type of ACS:**
   ○ [ ] ST-Elevation Myocardial Infarction (STEMI)
   ○ [ ] Non-ST-Elevation Myocardial Infarction (NSTEMI)
   ○ [ ] Unstable Angina
2. **Date of ACS Diagnosis: _____**
3. **Treatment Received:**
   ○ [ ] Percutaneous Coronary Intervention (PCI)
   ○ [ ] Coronary Artery Bypass Grafting (CABG)
   ○ [ ] Medical Management Only
4. **Comorbidities:**
   ○ [ ] Hypertension
   ○ [ ] Diabetes Mellitus
   ○ [ ] Dyslipidemia
   ○ [ ] Chronic Kidney Disease
   ○ [ ] Stroke
   ○ [ ] Peripheral Arterial Disease
   ○ [ ] Others (Specify): _____

Section 3: Assessment of Adherence

MYMEDS Questionnaire

Section 1: Current Medicines

Serial Number	Name of Medicines	Administration Time (Morning/Afternoon/Evening/ Night)	Reason for Taking Medicine
1	Antiplatelets	_____	_____
2	Statins	_____	_____
3	Beta-blockers	_____	_____
4	ACE inhibitors/ARBs	_____	_____
5	Others (Loop diuretics,Nitrates,specify)	_____	_____

Section Number	Statement	Strongly agree	Agree	Disagree	Strongly disagree
Section 2: Understanding and satisfaction with medicines	a. I fully understand my heart medicines and why they were prescribed.				
	b. My heart medicines seem to be working for me.				
	c. I feel convinced of the importance of all my heart medicines.				
	d. At least occasionally, I need to alter my medicines on my own to make them work or meet my expectations.				

Section 3: Concerns about medicines	a. I worry that one or more of my medicines will do me more harm than good.				
	b. I feel concerned about being prescribed too many medicines.				
	c. I sometimes alter my medicines by cutting back or stopping taking them.((e.g. due to feeling worse, getting worried or for any other reason)				
Section 4: Practical issues that may be a barrier to adherence	a. I have difficulties or problems **opening** the medicine bottles or blister packs and would like a solution or an alternative.				
	b. I have difficulties or problems **swallowing** my medicine(s) and would like a solution or an alternative.				
	c. I have difficulties or problems getting my **repeat prescriptions** and would like help ordering them from my GP or pharmacy.				
	d. I have difficulties or problems **reading** the label on the medicines bottle or box and would like a solution or alternative.				

Section 5: Fitting medicines into daily routine	a. I sometimes **forget** to take my heart medicines.				
	b. I am finding it difficult to fit one or more of my heart medicines into my daily routine.				
	c. I feel inconvenienced/bothered about sticking to all my heart medicines.				

Section 6: Adherence to Individual SPMs

For each of your prescribed medicines (SPMs), please indicate how often you have taken them as prescribed in the PAST MONTH:

Medication	**All of the Time**	**Nearly All of the Time**	**Most of the Time**	**About Half the Time**	**Less than Half the Time**
Aspirin					
ACE Inhibitor (e.g. Ramipril, Lisinopril,)					
Beta Blocker (e.g.Acebutalol)					
Medication 4 Statin (e.g. Simvastatin)					
ARIIA (e.g. Candesartan)					

Section 4: Clinical Outcomes

1. **Have you experienced any of the following since discharge?** (Check all that apply)
    - [ ] Recurrent chest pain
    - [ ] Rehospitalization for cardiac issues
    - [ ] Stroke
    - [ ] Heart failure symptoms
    - [ ] No major events
2. **Follow-up with healthcare provider since discharge:**
    - [ ] Yes
    - [ ] No
    - If Yes, how many visits: _____

INFORMED CONSENT FORM

Adherence to Secondary Prevention Medications After Acute Coronary Syndrome (ACS) in Nepal:A Descriptive Cross-sectional Study

Maharajgunj Medical Campus, Tribhuvan University Teaching Hospital, Institute of Medicine Maharajgunj, Kathmandu, Nepal

I, ... , a male/female of ..... years of age, have received information regarding this research to be conducted by ..... by reading and/or listening to the attached 'Information Sheet/Booklet' and through a question-and-answer session.

- I understand that my participation in this research work depends entirely on my personal will, and that I can withdraw from this research process at any time if I wish. I have been made to understand that I do not need to provide any reason for this, and it will not affect the services I receive or my legal rights.
- I understand that no personal identifying information about me will be published in the report of this research or in any related publications.
- Knowing and understanding all these points, I voluntarily agree to participate in this study-research and hereby provide my signature on this Informed Consent Form.

[Participant's]
Signature : .....
Full Name : .....
Date : ...../...../..... (YYYY/MM/DD)

Participant's Thumbprint

Right Left

[Witness's]
Signature : .....
Full Name : .....
Date : ...../...../..... (YYYY/MM/DD)

[Researcher's]
Signature : .....
Full Name : .....
Date : ...../...../..... (YYYY/MM/DD)