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Research article

Influence of Clinician-Related Factors on Adherence to the American Heart Association Guidelines for Acute Coronary Syndrome among Clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

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Abstract

Acute Coronary Syndrome (ACS) represents a critical spectrum of coronary artery diseases, including unstable angina, ST-segment elevation myocardial infarction (STEMI), and non-ST elevation myocardial infarction (NSTEMI). Adherence to standardized clinical guidelines, such as the American Heart Association's Advanced Cardiac Life Support (ACLS), is essential to optimize patient outcomes. This study aimed to evaluate the influence of clinician-related factors on adherence to the American Heart Association guidelines for ACS management among clinicians at Kenya Ports Authority (KPA) clinics in Mombasa, Kenya. Employing a descriptive cross-sectional design, quantitative data were collected from 106 clinicians, including medical doctors, nurses, and clinical officers, using self-administered questionnaires. Data were analyzed using SPSS version 25, with descriptive and inferential statistics applied to identify significant associations. Results revealed high awareness of ACS guidelines (100%) and substantial training coverage (93.8%), predominantly through ACLS certification. Significant associations were found between adherence and clinician gender, work experience, job cadre, and training on ACS guidelines. The study recommends enhancing resource allocation for ACS management, ensuring availability of essential medications and equipment, and developing simplified clinical algorithms to support guideline adherence. Regular audits and continuous professional development are also advised to sustain adherence and improve patient care quality.

INTRODUCTION

Acute Coronary Syndrome (ACS) encompasses a range of urgent coronary artery conditions, including unstable angina, STEMI, and NSTEMI, which result from myocardial ischemia due to coronary atherosclerotic plaque rupture and thrombus formation. If untreated, ACS can lead to irreversible myocardial necrosis and sudden cardiac death, underscoring the critical need for timely and evidence-based clinical management.[1,2] Cardiopulmonary resuscitation (CPR) and Advanced Cardiac Life Support (ACLS) protocols, as recommended by the American Heart Association (AHA), are vital interventions that improve survival rates and reduce morbidity in ACS patients.[3]

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Globally, cardiovascular diseases (CVDs) remain the leading cause of mortality, accounting for approximately 17.9 million deaths annually, representing 32% of all global deaths, with ACS contributing to half of these fatalities.[4,5] The burden is disproportionately higher in low- and middle-income countries, including Sub-Saharan Africa, where healthcare systems face challenges in managing the rising prevalence of non-communicable diseases.[6] In Kenya, CVDs account for 25% of hospital admissions and 13% of deaths, with hypertension being the most significant risk factor.[7] Despite the availability of national guidelines and international protocols, adherence to ACS management guidelines remains suboptimal, contributing to increased mortality and healthcare costs.[8,9]

Clinical practice guidelines (CPGs) such as those developed by the AHA, European Society of Cardiology (ESC), and National Institute for Health and Care Excellence (NICE) provide evidence-based recommendations to standardize ACS care and improve patient outcomes.[10,11] However, adherence to these guidelines is influenced by multiple factors, including clinician knowledge, training, experience, and institutional support.12 Studies have demonstrated that higher adherence to ACS guidelines correlates with reduced mortality and improved clinical outcomes.[13,14] In Sub-Saharan Africa, barriers such as inadequate training, limited resources, and delayed patient presentation hinder optimal guideline adherence.[15,16]

Given the increasing prevalence of ACS and its associated morbidity and mortality in Kenya, understanding clinician-related factors influencing adherence to AHA guidelines is imperative. This study aims to assess these factors among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya, to identify gaps and inform strategies that enhance guideline adherence and ultimately improve patient care outcomes.

METHODS

Study Design and Setting

A descriptive cross-sectional study design was employed to assess clinician-related factors influencing adherence to the American Heart Association guidelines for ACS management. The study was conducted at Kenya Ports Authority (KPA) clinics in Mombasa, Kenya, which provide primary and specialized healthcare services to port workers and the surrounding community. Data collection occurred over a one-month period, allowing for a snapshot of current practices and perceptions among clinicians.

Study Population and Sampling

The target population comprised all clinicians involved in the management of ACS patients at KPA clinics, including medical doctors, nurses, and clinical officers. The total population was 106 clinicians: 5 medical doctors, 80 nurses, and 21 clinical officers. A census sampling approach was adopted, inviting all eligible clinicians to participate. Inclusion criteria required clinicians to be actively involved in ACS patient care and to have undergone ACLS training with current certification.

Data Collection Instrument and Procedure

Data were collected using a structured, self-administered questionnaire developed based on literature review and previous studies assessing guideline adherence. The questionnaire included sections on demographic characteristics, knowledge of ACS guidelines, training history, attitudes towards guideline use, and perceived barriers to adherence. The instrument was pretested for validity and reliability among a small group of clinicians outside the study setting, with necessary adjustments made.

Participants were briefed on the study objectives and provided informed consent before completing the questionnaire

anonymously to encourage honest responses. Data collection was supervised by the principal investigator to ensure completeness and accuracy.

Data Analysis

Data were coded and entered into the Statistical Package for Social Sciences (SPSS) version 25 for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, summarized demographic data and responses related to guideline adherence. Inferential statistics, specifically chi-square tests, were conducted to examine associations between clinician-related factors (gender, age, education level, work experience, specialization, job cadre, and training) and adherence to AHA ACS guidelines. A significance level of $p < 0.05$ was set for all statistical tests. Results were presented in tables and narrative form to facilitate interpretation.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review board. Participation was voluntary, with confidentiality and anonymity assured. Data were securely stored and used solely for research purposes.

RESULTS

Response Rate and Demographic Characteristics

Out of 106 clinicians invited, 96 completed the questionnaire, yielding a response rate of 90.6%. The sample included 5 medical doctors (5.2%), 70 nurses (72.9%), and 21 clinical officers (21.9%). The majority were female (60%), with ages ranging from 25 to 55 years. Most participants held a diploma or degree in nursing or clinical medicine, and all had current ACLS certification.

Knowledge and Training on ACS Guidelines

All respondents (100%) reported awareness of the American Heart Association guidelines for ACS management. A substantial proportion (93.8%) had received formal training on these guidelines, primarily through ACLS courses (67.7%), continuing medical education (CME) sessions (18.8%), and other professional development programs (13.5%). Most clinicians (96.9%) acknowledged the necessity of referring to guidelines during patient management, and 81.3% disagreed that consulting guidelines wastes time.

Adherence to AHA Guidelines and Clinician-Related Factors

Table 1
Summarizes clinician-related factors and their association with adherence to AHA guidelines

Clinician Factor	Yes (n, %)	No (n, %)
Time to consult colleagues	93 (96.9)	3 (3.1)
Knowledge of ACS guidelines	96 (100)	0 (0)
Trained on ACS guidelines	90 (93.8)	6 (6.3)
View referring to guidelines as necessary	93 (96.9)	3 (3.1)

Chi-square analysis revealed significant associations between adherence and several clinician-related factors:

1. Gender: Female clinicians demonstrated higher adherence rates compared to males ($\chi^2=4.990$, $p=0.025$).
2. Work Experience: Clinicians with more than five years of experience showed significantly better adherence ($\chi^2=5.798$, $p=0.016$).
3. Job Cadre: Differences in adherence were significant across job cadres, with

medical doctors exhibiting higher adherence than nurses and clinical officers (χ^2=8.528, p=0.014).
4. Training: Formal training on ACS guidelines was strongly associated with adherence (χ^2=10.047, p=0.006).

No significant associations were found between adherence and age (p=0.178), education level (p=0.439), or specialization (p=0.489).

DISCUSSION

This study provides critical insights into clinician-related factors influencing adherence to the American Heart Association guidelines for ACS management at Kenya Ports Authority clinics. The findings underscore the pivotal role of clinician training, experience, gender, and professional cadre in shaping adherence behaviors, which ultimately impact patient outcomes.

The universal awareness of ACS guidelines among clinicians reflects successful dissemination efforts and the mandatory nature of ACLS training at KPA clinics. However, despite high knowledge levels, full adherence to guidelines was not universal, indicating gaps between knowledge and practice. This aligns with previous studies highlighting that knowledge alone does not guarantee guideline adherence; factors such as clinical experience, workload, and institutional support also play significant roles.[17,18]

The significant association between formal training and adherence emphasizes the importance of continuous professional development and refresher courses to reinforce guideline application. ACLS training, being the predominant mode of education, appears effective but may require supplementation with context-specific training addressing local challenges.[19] The finding that more experienced clinicians adhere better to guidelines suggests that clinical exposure enhances confidence and competence in guideline implementation, consistent with literature indicating experience as a facilitator of evidence-based practice.[20]

Gender differences in adherence, with female clinicians demonstrating higher compliance, may reflect variations in communication styles, attention to detail, or professional attitudes, as reported in other healthcare settings.[21] The significant variation in adherence across job cadres highlights the need for tailored interventions recognizing the distinct roles and responsibilities of doctors, nurses, and clinical officers in ACS management.

The absence of significant associations with age, education level, and specialization suggests that these factors may be less influential in this context or that the sample size limited detection of subtle effects. Nonetheless, institutional factors such as resource availability, workload, and organizational culture, though not the focus of this study, are known to affect guideline adherence and warrant further investigation.[22]

The study's recommendations for increasing medical budgets, ensuring availability of essential medications (aspirin, morphine, nitroglycerine), and maintaining functional equipment are critical to enabling clinicians to adhere to guidelines effectively. Developing simplified clinical algorithms and standard operating procedures can facilitate quick reference and decision-making in acute settings, reducing variability in care and improving patient outcomes.[23]

Regular audits and post-care assessments are essential to monitor adherence trends, identify barriers, and implement corrective measures. Integrating adherence metrics into performance evaluations may motivate clinicians to maintain high standards of care. Furthermore, fostering a multidisciplinary team approach and encouraging peer consultations can

enhance adherence through shared knowledge and support.[24]

Limitations of this study include its cross-sectional design, which precludes causal inferences, and reliance on self-reported data, which may be subject to social desirability bias. Future research should explore institutional and patient-related factors influencing guideline adherence and evaluate interventions designed to improve adherence in resource-limited settings.

CONCLUSION

This study concludes that while awareness and training on the American Heart Association guidelines for Acute Coronary Syndrome are high among clinicians at Kenya Ports Authority clinics, full adherence remains suboptimal. Significant clinician-related factors influencing adherence include gender, work experience, job cadre, and formal training. To enhance adherence and improve patient outcomes, it is imperative to increase resource allocation for ACS management, ensure the availability of essential medications and equipment, and develop user-friendly clinical algorithms. Continuous professional development, regular audits, and supportive institutional policies are vital to sustaining adherence and advancing quality care in ACS management.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest related to this study. The research was conducted independently without any influence from funding bodies or external organizations.

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