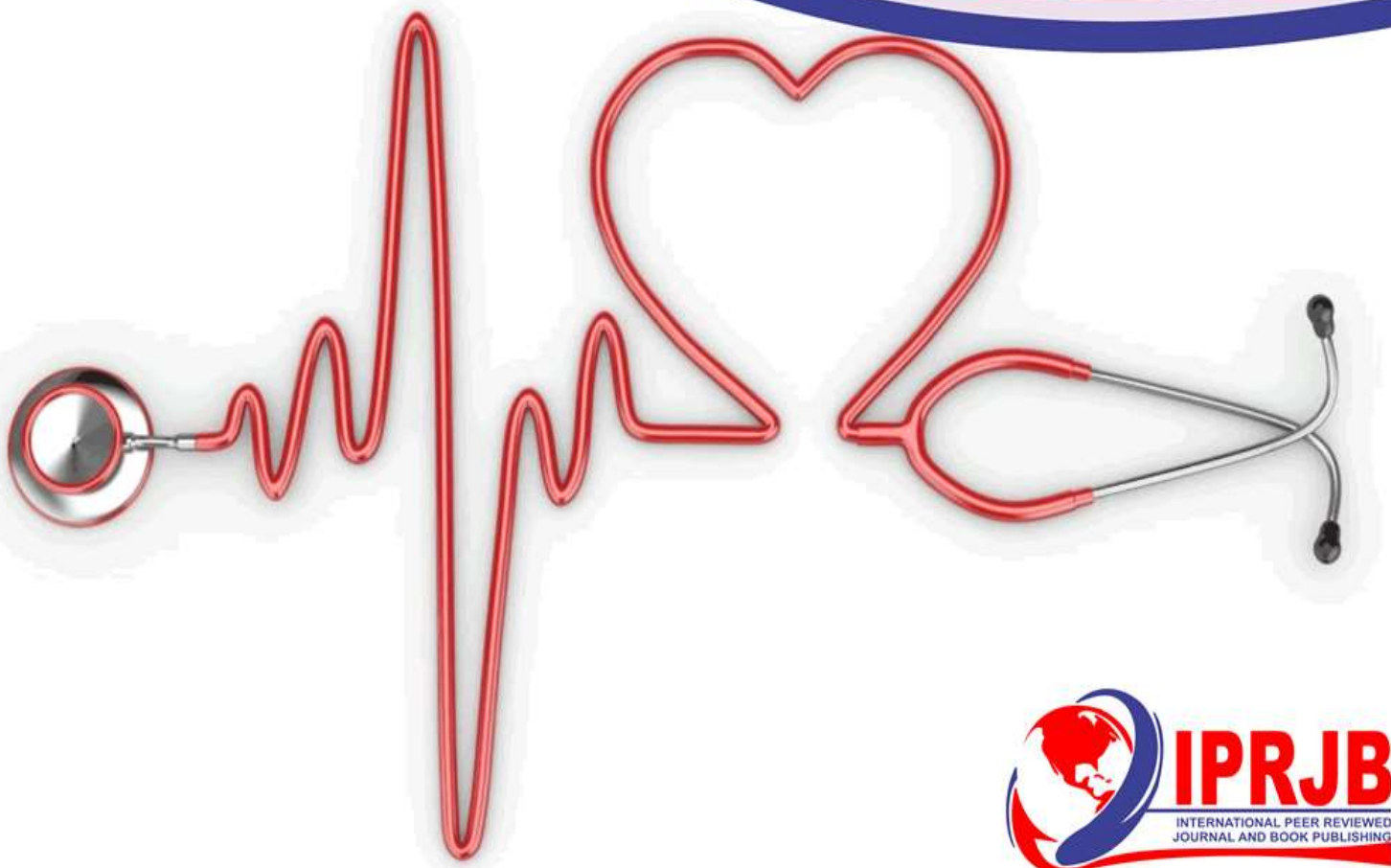


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Influence of Clinician-Related Factors on Adherence to the American Heart Association Guidelines for Acute Coronary Syndrome among Clinicians at Kenya Ports Authority Clinics in Mombasa, Kenya

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Abstract

Purpose: The aim of the study was to assess 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.

Methodology: A descriptive cross-sectional study involving quantitative methods of data collection was adopted. An interviewer administered questionnaire was used for data collection. The study was carried out in Kenya Ports Authority clinics in Mombasa, Kenya. The target population was 106 clinicians attending to patients who present with Acute Coronary Syndrome at the KPA clinics in Mombasa. A census method was used to determine the study participants. The sample size was made up of a hundred and six participants. The clinicians who consented to participate in the study were included while those who were on sick off, leave or who recently joined the clinic were excluded. Pretesting of the study tool was done at the Kenya Pipeline Clinic Mombasa. Data analysis was done using Statistical Package for Social Sciences version 25 and presented via tables.

Findings: The study results showed that at 95% level of confidence (p -value = 0.05%), there was a significant association between gender ($\alpha=0.025$), work experience ($\alpha=0.016$), job cadre ($\alpha=0.014$) and training received ($\alpha=0.022$) on adherence to the American Heart Association Guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. The association was insignificant between age ($\alpha=0.178$), education level ($\alpha=0.439$) and specialization ($\alpha=0.489$) on adherence to the AHA guidelines.

Unique Contribution to Theory, Practice and Policy: The study recommends that the KPA management should increase the medical budget to ensure availability of adequate resources for ACS patient management. These resources include adequate staffing, medication, equipment, and staff training costs. The clinic management should ensure that medications such as aspirin, morphine and nitroglycerine are readily available and accessible at patients care points. The KPA clinic management to formulate a simple algorithm that outlines the steps to be taken when managing ACS patients. The study recommends that the clinics should assess their equipment regularly for maintenance controls to ensure efficiency. The study further recommends random assessments and post care audits to assess the adherence to ACS guidelines among clinicians. Training associated with adherence to the AHA guidelines and as such, KPA should continue offering training and education on the latest AHA guidelines for ACS to ensure updated guidelines for practice.

Keywords: *Clinician-Related Factors, Adherence, American Heart Association Guidelines, Acute Coronary Syndrome, Clinicians*

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INTRODUCTION

Acute Coronary Syndrome (ACS) encompasses a spectrum of coronary artery diseases, including unstable angina, ST-segment-elevation myocardial infarction (STEMI), and non-ST elevation myocardial infarction (NSTEMI) (WHO, 2020). Cardiac arrest occurs in case of cessation of effective heartbeat and blood circulation and it is one of the causes of sudden or unexpected death. In case of a cardiac arrest, Cardiopulmonary resuscitation (CPR) which is a well-recognized critical procedure in which chest compressions and artificial ventilation are provided to maintain adequate blood flow to the brain and other vital organs is instituted to save the victim (WHO, 2018). Acute Coronary Syndrome is commonly caused by coronary atherosclerotic plaque and subsequent intracoronary thrombus formation, which leads to myocardial ischemia. If coronary blood flow is interrupted long enough, myocyte necrosis which is lethal occurs (WHO, 2016).

Coronary artery disease is the second leading cause of death in both men and women in Europe, accounting for 21% and 22% of all deaths, respectively (Ralapanawa & Sivakanesan, 2021). Every sixth man and every seventh woman in Europe will die from myocardial infarction (MI) (Kakou-Guikahue et al., 2016). Adherence to prescribed guidelines in the management of these coronary artery diseases and myocardial infarction helps reduce the complications associated and improve the outcomes. About 15.5 million Americans have coronary heart disease with over 900,000 coronary events each year, which accrue over \$200 billion in direct and indirect costs (Mozaffarian 2016). In the United Kingdom (UK), there are over 80,000 hospital admissions with ACS annually (Weston, et al., 2017).

The management of ACS Clinical Practice Guidelines (CPGs) have become increasingly important. CPGs are developed to guide physicians in clinical decision-making and to decrease variability in treatment practices in order to enhance the quality of care (WHO, 2020). For the management of ACS, several guidelines exist, such as the National Institute for Health and Care Excellence (NICE) guidelines, the European Society of Cardiology (ESC) guidelines, and the American College of Cardiology/American Heart Association (ACC/AHA) guidelines.

A few studies have shown clinician demographics such as age, gender and education level have been to influence the adherence with the standard guidelines. A study carried out in Japan revealed that the male gender, clinicians with high education level and those that are highly experienced adhered more to clinical guidelines compared to their colleagues (Sasaki et al., 2020). The findings of the Japanese study differ with those of a similar study that revealed younger or less experienced professionals are more likely to follow guidelines than older, more experienced professionals (Francke et al., 2008). McGinty and Anderson (2008) established a correlation between guideline adherence and physician perception of report cards, as well as the perception of their own performance. Interventional cardiologists were more compliant than non-interventional cardiologists or hospitalists/intensivists. Patient but not physician age mattered.

Luz et al. (2020) sought the factors affecting treatment adherence of patients in a cardiac care unit. Significant differences were found between adherence and the socioeconomic factor, the health provider-and-health-team-related factor, the therapy-related factor, and the patient-related factor. In Tanzania, Pallangyo et al. (2020) evaluated medication adherence and survival among hospitalized heart failure patients in a tertiary hospital in a prospective cohort study. Of the 419 participants eligible for assessment of medication adherence, 313 (74.7%) had poor adherence and 106 (25.3%) had good adherence. Possession of health

insurance was found to be the strongest associated factor for adherence (adjusted OR 8.7, 95% CI 4.7–16.0, $p < 0.01$).

A knowledgeable clinician is able to apply the learned knowledge to the benefit of the patients hence having improved outcomes on the patients. A study carried out in Austria showed that the major causes of divergence from suggested therapy are physicians' lack of awareness of a guideline's existence and lack of familiarity with the guideline (Fürthauer et al., 2013). Some studies have revealed an increase in adherence to clinical practice guidelines among clinicians with frequent sensitization, having simplified standard operating procedures and making the guidelines and SOP easily accessible for them to familiarize with (Barth et al., 2016). A study on adherence to standard guidelines for the management of ACS recommends CMEs, clinical meetings, and updating the new standard protocols in the Emergency Room, Cath Lab, and CICU as ways to learn from working cardiologists and clinicians (Rajesh, 2019). This study suggested that seminars and talks with junior doctors, technicians, and nurses be held to help enhance adherence to the standard criteria.

In Los Angeles, the United States, Raz et al. (2018) found that of primary care physicians who were aware of the low-dose computed tomography guidelines, 97% responded that the guideline was effective at reducing mortality among individuals meeting eligibility criteria, compared with 90% who were unaware of guidelines ($P = .02$). A larger proportion of physicians aware of guidelines utilized it and initiated a discussion on screening. Sorato (2021), established reasons for non-adherence to prescribed medicines were lack of awareness, professional inertia to intensify drugs and lack of knowledge on evidence-based guidelines.

In a study on knowledge and attitudes of primary care physicians in the management of patients at risk for cardiovascular events in the U.S, guideline adherence was inversely related to years in practice and volume of patients seen. Cost of medications, adherence to medications, adequate time for counseling, knowledge and skills to recommend dietary changes and facilitate patient adherence were cited as significant barriers to CVD risk management. Primary care physicians who have been in practice for 10 years or less were significantly more likely to make practice choices in accordance with guideline recommendations to manage low and high risk patients than physicians who have been in practice for more than 10 years (Doroodchi et al. (2008).

According to a recent poll of Dutch primary care physicians, over 94 percent of respondents believe CPG are effective sources of guidance that are founded on strong evidence. Ninety percent of those in attendance felt that using CPG would result in better results. However, 35% said it was difficult to change personal habits in order to adopt CPG, and 6% said they were opposed to following CPG (Barth et al., 2016). Clinicians may disagree with a guideline suggestion due to a perceived lack of or insufficient interpretation of evidence, or a lack of applicability of guidelines in general and in particular to individual patients (Barth et al., 2016).

Galaviz et al. (2022) assessed the factors associated with adherence to guideline-recommended cardiovascular disease prevention among HIV clinicians. Clinician beliefs, motivation and self-efficacy were positively correlated with screening and advice practices ($r = .55-.84$), while inner setting factors negatively correlated with lifestyle-related screening and advice practices ($r = -.51$ to $-.76$). Peer pressure was positively correlated with screening and advice practices ($r = .57-.89$). Clinician psychosocial characteristics and perceived peer pressure positively influence adherence to guideline-recommended CVD preventive practices.

A Japan study revealed that clinicians who had some form of specialty in the area of practice were likely to adhere to the guidelines compared to colleagues who had not specialty but had some form of training on the guidelines (Sasaki et al., 2020). Some studies have also revealed that clinicians who had been trained on the guidelines were likely to adhere to them in clinical practice compared to the counterparts who encountered them in clinical practice without any form of training (Fischer et al., 2016; Jiang et al., 2020; Sasaki et al., 2020). Raz et al. (2018) found that practice size, training background, and years in practice did not affect knowledge of guidelines.

The findings of this study may be utilized by the clinicians as an eye opener since they are all trained on ACLS to ensure proper application of the AHA ACLS guidelines hence preventing complications as well as reducing the overall cost of healthcare. Few studies had been carried out in the country to assess the determinants of adherence to AHA ACLS guidelines in the management of Acute Coronary Syndrome. This study adds to the body of knowledge and inform future studies related to the same and improve the overall management of patients with ACS. No similar study had been done at KPA Clinics and so the findings of this study may be used to inform KPA management on strategies required to fill the gaps in the management of patients with ACS in addition to the training on ACLS that clinicians receive.

Problem Statement

Sub-Saharan African countries, including Kenya, are experiencing a rapid rise in the prevalence of heart diseases and their risk factors, including aging, hypertension, diabetes, obesity, physical inactivity and dyslipidaemia in the context of urbanization and globalization. The need to strengthen the health system in sub-Saharan Africa to adequately respond to the growing trends of non-communicable chronic diseases (NCDs), including acute coronary syndrome is recognized by the World Health Organisation (WHO). In Kenya, it is estimated that 25% of hospital admissions are due to CVD and 13% of autopsies revealed CVDs as the cause of death representing the second highest cause of death after infectious/maternal/perinatal causes. CVDs are costly to diagnose and manage leading to premature death among the most productive individuals in the household and the society. They are key contributors to poverty due to catastrophic health spending and high out-of-pocket expenditure (WHO, 2018). In 2019, the total CVD mortality rate was 13.8% and the percentage of disability-adjusted life years (DALYs) resulting from CVD was 6.3%. The prevalence of atrial fibrillation (AF) and atrial flutter was 0.1%, while that of rheumatic heart disease (RHD) was 1.2%. The total RHD mortality rate was 0.14% of all deaths (WHO, 2020).

Local cardiology societies such as the Pan-African Society of Cardiology (PASCAR) and the Kenyan Cardiac Society (KCS) advocate and support efforts to increase understanding of the burden of acute heart disease manifestations such as acute coronary syndrome (ACS) to build upon and improve current management trends (MOH, 2018). The ministry of health has also adopted the American Heart Association guidelines for managing patients with ACS (Ministry of Health Kenya, 2018). The Kenya Ports Authority clinics have incorporated the use of AHA ACLS in the management of patients with ACS. All clinicians at KPA have successfully undergone ACLS training and recertification every 2 years. However, there are insufficient data on adherence with the standard guidelines in managing ACS since there are limited studies that have been conducted in Kenya regarding adherence with the standard guidelines in the management of Acute Coronary Syndrome. A study at Kenyatta National Hospital found that the major barriers to ACS care at Kenyatta National Hospital include inadequate diagnostic

and therapeutic capabilities, lack of hospital-wide ACS guidelines, undertraining of healthcare providers and delayed presentation of patients seeking care (Bahiru et al., 2018).

A further study found that during the acute management phase, dual antiplatelet use was 87%. The rates of beta-blocker use (72%) within the first 24 hours of admission and anticoagulant use (72%; 80% enoxaparin) during hospitalization were also relatively high. After excluding transfer patients, the rate of guideline-directed in-hospital medical therapy, defined as receiving aspirin, a second antiplatelet, beta-blocker within 24 hours of admission and an anticoagulant at some point during the hospitalization was 56%. A minority (33%) of patients with STEMI was eligible for reperfusion therapy but only 5% received reperfusion. The in-hospital mortality rate was 17%, and the highest among individuals presenting with STEMI (21%) (Bahiru et al., 2018). While there are well-developed guidelines for managing acute coronary syndromes, empirical evidence has shown that not all people receive appropriate treatment due to either clinician-related or hospital-based factors.

The problem statement underscores the importance of adherence to guidelines by presenting empirical evidence from previous studies, which indicates suboptimal adherence to guideline-directed medical therapy for ACS in Kenyan healthcare settings. This emphasizes the need for further investigation into clinician-related factors influencing adherence to guidelines, which could ultimately improve patient outcomes.

Theoretical Framework

Systems Theory

This study applied the systems theory model. The theory was developed in 1969 by Von Bertalanffy who described the concept that systems cannot be reduced to a collection of elements working in isolation, but that understanding the interrelationships between these parts is required to comprehend the whole (Indira, 1989; Anderson, 2016). According to systems theory, a system is a set consisting of integrated, interdependent parts or components that function as a whole. Each part is necessary to make a complete and meaningful whole (Indira, 1989). The basic idea behind the systems theory is, 'The whole is greater than the sum of its parts'.

The theory's application is based on the notion that most people want to produce good work, but that they are influenced by a variety of factors, and that effective and efficient systems not only account for but also embrace these factors (Anderson, 2016). When errors occur, causal analysis based on Systems Theory states that the attention should not be primarily on individual faults, but rather on the environment that permitted such events to occur. It also claims that smart interventions, devised after observing typical patterns and behaviors throughout time, can affect results.

This theory appreciates the role played by various interrelated parts or variables to make the whole. In this study, the management of ACS is influenced by various factors. For effective utilization of AHA ACLS guidelines in the management of ACS, clinician factors and institutional factors play a key role and should be addressed accordingly. Thus, to achieve good outcomes as per the systems theory various components of the utilization of AHA ACLS guidelines need to be investigated and addressed accordingly. This explains the basis of the objectives of this study and the theory underpins the study.

Systems theory emphasizes the importance of interventions that address systemic issues rather than solely targeting individual behaviors. By identifying patterns and behaviors within the

healthcare system, interventions can be designed to improve adherence to guidelines and ultimately enhance patient outcomes. Your study may benefit from considering how insights from systems theory can inform the development of effective interventions tailored to the specific context of the Kenya Ports Authority clinics.

Research Gap

Standard guidelines help to govern the practice of evidence-based medicine and lead to improved outcomes of care to the patients. It also allows for uniformity and standardization of the care offered to the patients. Applying standard guidelines in the management of ACS will help reduce errors, and complications and improve the outcomes among patients with Acute Coronary Syndrome (WHO, 2020). A gap between evidence-based medicine incorporated in these guidelines and actual practice seems to exist, with various studies indicating that a substantial proportion of ACS patients do not receive care according to the guidelines. In addition, previous research concluded that the extent of adherence to clinical guidelines can be influenced by factors related to the health care provider (McGinty & Anderson, 2008; Raz et al., 2018; Luz et al., 2020; Galaviz et al., 2022). When these are addressed, there may be improved outcomes among the patients and reduced healthcare costs. Nonetheless, limited local studies have been done to assess adherence to the standard guidelines in the management of the acute coronary syndrome. Thus, the need for the current study to fill this knowledge gap.

Addressing the identified gap could have substantial implications for patient care and healthcare outcomes in Mombasa, Kenya. Improved adherence to guidelines may lead to better management of ACS, reduced errors, fewer complications, and ultimately improved patient outcomes. Additionally, it may contribute to cost savings by minimizing unnecessary procedures and treatments.

METHODOLOGY

A descriptive cross-sectional study design was used. The study was carried out at the Kenya Ports Authority (KPA) clinics, i.e., Bandari and Kipevu in Mombasa, Kenya. KPA clinics are located in Mombasa Island along Shimanzi Road off Moi Avenue at Mvita Constituency. The target population was all 106 clinicians attending to patients who present with Acute Coronary Syndrome at the KPA clinics in Mombasa. The Census method was used to determine the sample size. The sampling frame included all 106 clinicians comprising 5 medical doctors, 80 nurses and 21 clinical officers who are involved in direct patient care at the clinics. Quantitative data was collected using a self-administered, structured questionnaire. After the collection of the questionnaires, data cleaning and sorting was done before entry to ensure the questionnaires are properly filled without gaps. Data from the self-administered questionnaire was computed, coded and analyzed using Statistical Package for Social Sciences (SPSS) computer package version 25. The presentation of the analyzed data was done in tables.

FINDINGS

Demographic Information

The study obtained demographic information from the respondents. The demographic information included age, education, work experience, specialization and job cadres. The findings on the demographic information are presented in Table 1.

Table 1: Demographic Information

Demographic information	Category	n	%
Age Bracket	31-40 years	12	12.5
	41-50 years	54	56.3
	Over 50 years	30	31.3
Total		96	100.0
Gender	Male	45	46.9
	Female	51	53.1
Total		96	100.0
Education level	Diploma	42	43.8
	Bachelor's degree	24	25.0
	Master's Degree	30	31.3
Total		96	100.0
Work experience	5-10 years	31	32.3
	Over 10 years	65	67.7
Total		96	100.0
Specialization	Yes	53	55.2
	No	43	44.8
Total		96	100.0
Cadre	Medical doctor	5	5.2
	Nursing Officer	72	75
	Clinical officer	19	19.8
Total		96	100.0

The findings show that the majority of the respondents were in the age bracket of 41-50 years, 31.3% at the age of over 50 years and 12.5% at 31-40 years. There were more female respondents 53.1% while 46.9% were male. Most of the respondents (43.8%) had attained the level of a Diploma, 31.3% had a Master's degree and 25% had Bachelor's degree.

The findings show that 67.7% had a work experience of over 10 years and 32.3% had an experience of 5-10 years implying that the respondents had interacted with the Acute Coronary Syndrome patients. Over half of the respondents (55.2%) had specialization while 44.8% lacked specialization. The findings reveal that 75% were nursing officers, 19.8% were clinical officers and 5.2% were medical doctors.

Influence of Clinician-related Factors on Adherence to the AHA Acute Coronary Syndrome Guideline

Table 2: Clinician-related Factors

		Yes		No	
		n	%	n	%
Have time to consult with colleagues when managing ACS cases		93	96.9	3	3.1
Trained on Acute Coronary Syndrome Guideline Mode of training		90	93.8	6	6.3
	ACLS	65	67.7		
	CMEs	18	18.8		
	Others	13	13.5		
Knowledge on the Acute Coronary Syndrome Guideline		96	100.0	0	0
Referring to the guidelines wastes your time		18	18.8	78	81.3
Necessary to refer to the guidelines		93	96.9	3	3.1

The findings show that a greater majority of the respondents (96.9%) indicated that they have time to consult with colleagues when managing ACS cases. All the respondents (100%)

indicated knowing about the Acute Coronary Syndrome Guideline. In addition, 93.8% of the respondents had received training on Acute Coronary Syndrome Guidelines. The findings show that 67.7% had been trained through ACLS, 18.8% through CMEs and 13.5% through other training. The majority of the respondents (81.3%) did not view referring to the guidelines as wasting their time and 96.9% responded that it was necessary to refer to the guidelines.

Chi-square Tests Between Clinician-related Factors and Adherence to the AHA Acute Coronary Syndrome Guidelines

Table 3: Gender* Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.990 ^a	1	.025
Likelihood Ratio	5.108	1	.024
Linear-by-Linear Association	4.938	1	.026
N of Valid Cases	96		

The results in Table 3 indicate that $\alpha < p$ -value at 95% level of confidence ($\alpha=0.025$, p -value = 0.05%, chi-square value = 4.990). Therefore, the study rejected the null hypothesis (H0) and concluded that there is a significant association between gender and adherence with the AHA Acute Coronary Syndrome Guideline among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is a significant association between gender and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Table 4: Age *Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.452 ^a	2	.178
Likelihood Ratio	3.558	2	.169
Linear-by-Linear Association	.822	1	.365
N of Valid Cases	96		

The results in Table 4 indicate that $\alpha > p$ -value at 95% level of confidence ($\alpha=0.178$, p -value = 0.05%, chi-square value = 3.452). Therefore, the study failed to reject the null hypothesis (H0) and concluded that there is no significant association between age and adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is no significant association between age and adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Table 5: Education * Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.646 ^a	2	.439
Likelihood Ratio	1.621	2	.445
Linear-by-Linear Association	.919	1	.338
N of Valid Cases	96		

The results in Table 5 indicate that $\alpha > p$ -value at 95% level of confidence ($\alpha=0.439$, p -value = 0.05%, chi-square value = 1.646). Therefore, the study failed to reject the null hypothesis (H0) and concluded that there is no significant association between education level and

adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is no significant association between education level and adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Table 6: Experience* Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.798 ^a	1	.016
Likelihood Ratio	5.305	1	.021
Linear-by-Linear Association	5.738	1	.017
N of Valid Cases	96		

The results in Table 6 indicate that $\alpha < p$ -value at 95% level of confidence ($\alpha=0.016$, p -value = 0.05%, chi-square value = 5.798). Therefore, the study rejected the null hypothesis (H_0) and concluded that there is a significant association between work experience and adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is a significant association between work experience and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Table 7: Specialized * Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.479 ^a	1	.489
Likelihood Ratio	.477	1	.490
Linear-by-Linear Association	.474	1	.491
N of Valid Cases	96		

The results in Table 7 indicate that $\alpha > p$ -value at 95% level of confidence ($\alpha=0.489$, p -value = 0.05%, chi-square value = .479). Therefore, the study failed to reject the null hypothesis (H_0) and concluded that there is no significant association between specialization and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is no significant association between specialization and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Table 8: Job Cadre* Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.528 ^a	2	.014
Likelihood Ratio	12.873	2	.002
Linear-by-Linear Association	6.564	1	.010
N of Valid Cases	96		

The results in Table 8 indicate that $\alpha < p$ -value at 95% level of confidence ($\alpha=0.014$, p -value = 0.05%, chi-square value = 8.528). Therefore, the study rejected the null hypothesis (H_0) and concluded that there is a significant association between job cadre and adherence with the

American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is a significant association between job cadre and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Table 9: Training* Adherence to the AHA Acute Coronary Syndrome Guideline

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.047 ^a	1	.006
Likelihood Ratio	9.975	1	.023
Linear-by-Linear Association	9.036	1	.009
N of Valid Cases	96		

The results in Table 9 indicate that $\alpha > p$ -value at 95% level of confidence ($\alpha=0.006$, p -value = 0.05%, chi-square value =10.047). Therefore, the study rejected the null hypothesis (H_0) and concluded that there is a significant association between the training of the medical personnel on ACS guidelines and adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Thus, there is a significant association between training of the medical personnel on ACS guidelines and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Discussion

Influence of Clinician-related Factors on Adherence with the AHA Acute Coronary Syndrome Guideline

The clinical personnel have the knowledge on the Acute Coronary Syndrome Guideline and the majority have time to consult with colleagues when managing ACS cases. Galaviz et al. (2022) also found that peer pressure was positively correlated with advice practices and positively influence adherence to guideline-recommended. In addition, the majority had received training on Acute Coronary Syndrome Guidelines. The training had been done majorly through induction and job training and off-the-job training. Majority of the clinicians do not view referring to the guidelines as wasting their time and found it necessary to refer to the guidelines. The findings were consistent with the findings by Raz et al. (2018) who found that primary care physicians who were aware of the guidelines responded that the guideline compared with those who were unaware of guidelines.

There was a significant association between gender and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Consistent with the findings, in Japan Sasaki et al. (2020) revealed that gender had a significant association with adhering more to clinical guidelines. There was no significant association between age and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. The findings differ from Francke et al., (2008) who established that age was more likely to be associated with adherence with the guidelines.

There was no significant association between education level and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. The findings were in contrast to the study in Japan by Sasaki et al. (2020) which included education level as having a significant association with adhering more to clinical guidelines. There was a significant association between work

experience and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Similarly, the findings by Sasaki et al. (2020) included experience as having a significant association with adhering more to clinical guidelines. Consistently, Francke et al., (2008) linked work experience with adherence with the guidelines.

There was no significant association between specialization and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. There was a significant association between job cadre and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Corroborating with the findings Luz et al. (2020) found significant differences between adherence and the health provider-and-health-team-related factors.

There was a significant association between training received by the medical personnel on ACS guidelines and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. Consistently, Sasaki et al., (2020) revealed that clinicians who had some form of speciality in the area of practice were likely to adhere to the guidelines compared to colleagues who had no speciality but had some form of training on the guidelines. In contrast, Raz et al. (2018) found no association between training background, years in practice and knowledge of guidelines.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

Influence of Clinician-related Factors on Adherence to the AHA Guidelines for Acute Coronary Syndrome

The clinicians had knowledge on the AHA guideline for management of ACS and the majority had time to consult with colleagues when managing ACS cases. In addition, the majority had received training on Acute Coronary Syndrome Guidelines through ACLS and CMEs. Majority of the clinicians do not view referring to the guidelines as wasting time but that referring to guidelines helped them to avoid making mistakes hence improved outcome.

There was a significant association between gender and adherence to the American Heart Association AHA guidelines for management of ACS among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya ($\alpha=0.025$). There was no significant association between age and adherence to the AHA guidelines for management of ACS among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya ($\alpha=0.178$). There was no significant association between education level and adherence to the AHA guidelines for management of ACS among clinicians at the Kenya Ports Authority clinics in Mombasa, Kenya ($\alpha=0.439$). There was a significant association between work experience and adherence to the AHA guidelines for management of ACS among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya ($\alpha=0.016$). There was no significant association between specialization and adherence to the AHA guidelines for management of ACS among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya ($\alpha=0.489$).

There was a significant association between job cadre and adherence to the AHA guidelines for management of ACS among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya ($\alpha=0.014$). There was a significant association between training received by the

clinicians and adherence to the AHA guidelines for management of ACS among clinicians at the Kenya Ports Authority clinics in Mombasa, Kenya($\alpha=0.06$).

Conclusions

The study concludes that gender is significantly associated with the adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. However, the association was insignificant between age, education level, specialization and adherence to the AHA guidelines. There was a significant association between work experience, job cadre and training received on ACLS and adherence to the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya. There was no significant association between specialization and adherence with the American Heart Association guidelines for Acute Coronary Syndrome among clinicians at Kenya Ports Authority clinics in Mombasa, Kenya.

Recommendations

The KPA Medical Division management should ensure adequate staffing as well as availability and accessibility of medications such as aspirin, morphine, nitroglycerine at the point of use or care points in the clinics for adequate service delivery.

The study recommends that the KPA Medical management should provide adequate equipment like defibrillators and AEDs and are easily accessible when needed.

Training was associated with adherence to the AHA guidelines and as such, KPA should continue offering training and education on the latest AHA guidelines for ACS to ensure updated guidelines for practice.

More research is needed to explore other factors that may influence adherence to AHA guidelines and form a body of knowledge for the upcoming researchers.

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