Prevalence of and factors associated with self-medication among staff at Cape Coast Teaching Hospital, Ghana

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DEDICATION

I dedicate this work to my family for their unending support and belief in me, even in moments when I had none in myself.

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I am indebted to Professors Junghyun Kim, Jaeyong Shin, and Wook Jang for their continual support, patience, and encouragement throughout this study. I would also like to thank the staff of Cape Coast Teaching, especially the Health Information Department, for their support during data collection.

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ABBREVIATIONS AND ACRONYMS

AESGP	Association of the European Self-Medication Industry
AOR	Adjusted Odds Ratio
CCTH	Cape Coast Teaching Hospital
CHAG	Christian Health Association of Ghana
CHPS	Community-Based Health Planning and Services
CI	Confidence Interval
ERC	Ethics Review Committee
HAMS	Health Administration Management System
LHIMS	Lightwave Health Information Management System
MOH	Ministry of Health
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs
NHIS	National Health Insurance Scheme
OTC	Over-the-counter
WHO	World Health Organization

ABSTRACT

Background: Irrational use of medication can put the lives of the people who engage in self-medication and those around them in danger. Among health professionals, it can also put their patients and the community in danger. Self-medication is a health concern in many developing countries including Ghana.

Study objective: This study examined the prevalence of and factors associated with self-medication among health professionals at Cape Coast Teaching Hospital, Ghana.

Methods: A cross-sectional study design was used to collect quantitative data at Cape Coast Teaching Hospital. Using proportionate sampling, 346 respondents were randomly selected to take an online survey using a structured questionnaire. The data collected were analyzed using frequencies, chi-squared tests, and multiple logistic regression with Jamovi version 2.2.5.

Results: The prevalence of self-medication was 81% among participants. The odds of self-medicating were higher for participants with mild, moderate, or severe perceived health needs compared to their colleagues with good health (OR = 12.07, 95% CI, 4.789 – 30.42; OR = 5.38, 95% CI, 2.372 – 12.22; OR = 2.86, 95% CI, 1.062 – 7.71, respectively). Educational level, job categorization, income, and health insurance status were not significantly association with self-medication among participants.

Conclusion: Self-medication is commonly practiced among hospital staff. Drugs sold over-the-counter in pharmacies and other retail drug outlets must be regulated to reduce access to medication without a prescription. Further studies should be conducted to identify system gaps, such as policies that enable self-medication in Ghana.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Self-medication, if practiced rationally, allows people to manage minor ailments on their own and access drugs without obtaining a prescription or visiting a health professional. This saves time used in visiting health facilities when people experience minor ailments and enables health professionals to focus on more severe issues (Bennadi, 2013). Self-medication is the use of medicine/drugs to treat/manage a self-diagnosed medical condition or disease (World Health, 2000). It includes sharing drugs with relatives or friends or using leftover drugs from previous prescription stored at home. Self-medication is part of the concept of self-care, along with non-drug self-treatment, social support in illness, and first aid in everyday life. Self-medication allows individuals to play an active role in the management of their own health (World Health, 2000).

Self-medication is practiced globally and is very common, although practice rates vary across countries. The situation may be the worst in communities deprived of adequate health facilities. Although the practice enables people to be involved in their own healthcare and provides relief from minor symptoms or conditions, for it to be practiced safely, people must be able to accurately recognize symptoms, choose the most appropriate medications, and determine the appropriate dosage and dosage schedule, all while considering their medical history, contraindications, and possible side effects of the drugs (Malik et al., 2020; World Health, 2000)).

Economically, self-medication has the potential to reduce resources used on minor health conditions and reduce absenteeism from work caused by minor ailments. According to Noone and Blanchette (2018), the US healthcare system gains $102 billion of value each year through the availability of non-prescription medications and saves six to seven dollars for each dollar spent on non-prescription medication. In Europe, seven countries were

estimated to save €16 billion annually by moving 5% of their prescription medications to non-prescription. (Noone & Blanchette, 2018). If appropriately practiced, self-medication has the potential to reduce national healthcare expenditure and help reduce the costs of community-funded healthcare programs. Individuals are afforded convenience to attend to their own health concerns and have the opportunity to be educated on certain health issues. However, this may lead people to believe a drug treatment is available for every condition (Auta et al., 2012), and could also cause them to delay seeking care from medical professionals because they assume they have sufficient knowledge to treat a condition themselves.

Certain drugs also have the potential to be misused or abused, especially in developing countries where many drugs are dispensed without a medical prescription (Sherazi et al., 2012). Several studies have reported on the extensive use and abuse of codeine among youth in Nigeria. Akande-Sholabi et al. (2021) found that, in a group of medical and pharmacy students, 34.2% used opioid-containing products, among whom 96.1% used codeine-containing products. The same study also showed that 11% of those who used codeine-containing products did so for non-medical or recreational purposes. Recent reports have also indicated the abuse of drugs such as tramadol by the citizens of Ghana. Specifically, Danso and Anto (2021) found that 24.9% of study participants in the Accra Metropolis in Ghana abused tramadol, with a high risk for dependence among tramadol abusers (a composite risk score of ≥ 27 among 49.1% of the abusers). Saapiire et al. (2021) found that, in the Jirapa Municipality in Ghana, approximately 77.6% of study participants abused tramadol, while 83.9% took at least one other related substance or drug. These are drugs taken to manage common ailments, such as a cough or pain. Over-the-counter (OTC) drugs are intended for self-medication because of their established efficacy and safety; however, inappropriate use can result in serious complications, especially among children, older adults, and people who are pregnant or lactating (Agblevor et al., 2016).

Improper self-medication could waste both individual and public resources and increase pathogens resistance to medication. Resistance to antibiotics is currently a global issue,

especially in developing countries where these drugs can be accessed without a prescription (Sherazi et al., 2012). Jamhour et al. (2017), reported that 61% of the participants in their study believed that antibiotics must be used to treat the common cold. Further, although 83% of the participants were aware of the dangers of misusing antibiotics, those who were less knowledgeable about antibiotics did not stop using them at the appropriate time. In the Middle East, codeine-containing products, topical anesthetics, topical corticosteroids, antimalarial, and antibiotics were found to be commonly misused. Self-medication was also discovered to be a widespread practice in the region (Khalifeh et al., 2017). Lack of awareness on the adverse effects, interactions, and appropriate use of drugs can increase the chances of hospitalization and even death, particularly among vulnerable populations, such as children, older adults, and pregnant women (Auta et al., 2012). Although details of constituents and side effects are usually attached to OTC drugs, not all consumers are able to read and understand them.

However, the practice of self-medication is different for health professionals, who are mostly literate and can read and understand drug labels. In a study of health workers in a tertiary health facility in Nigeria, Babatunde et al. (2016) found that 83.5% of the participants had a tertiary education, while 11.5% had secondary or high school education. Further, although 94.8% of the respondents were aware of self-medication, 52.8% had inadequate knowledge of the practice. Health professionals have access to healthcare services since they work in that environment; however, studies show that many of them self-medicate. According to Fekadu et al. (2020), 73.4% of health staff practice self-medication. The factors associated with self-medication may differ between the general population and health professionals because of their unique characteristics. However, limited studies had been conducted to identify the factors associated with self-medication among health professionals. Therefore, this study aimed to determine the prevalence of self-medication and identify the factors associated with self-medication among health staff at Cape Coast Teaching Hospital in Ghana. The study further aimed to help bridge the gap

in literature and help policymakers make informed decisions to improve the health of health professionals.

1.2 Problem statement

Globally, the prevalence of self-medication ranges between 11.2–93.7%, depending on the target population and country (Chautrakarn et al., 2021). In developing countries, most people treat themselves by self-medicating. The prevalence of self-medication in developing countries ranges between 12.7–95%, which raises concerns regarding irrational use of medicines. Most medicines are dispensed in these countries without medical prescription or proper monitoring (up to 80% of all drugs purchased), and this is attributed to shortages of available healthcare services or healthcare services with trained healthcare workers being somewhat expensive (Araia et al., 2019; Shafie et al., 2018).

Ghana faces several challenges with its healthcare system that affect the access to and quality of the healthcare services delivered. The country's National Health Insurance Scheme (NHIS) only financially protects 35% of the country's population. Thus, healthcare costs remain high and are considered to be out of the financial reach of most Ghanaians. Out-of-pocket expenditure also remains high (53% in 2018) and can force people into poverty (Akweongo et al., 2021). According to Agblevor et al. (2016), consumers directly demand 82.5% of the drugs bought in urban chemical shops in Ghana. In rural areas, 78% of the drugs bought are directly demanded while only 1.5% are purchased using a prescription.

The potential risks of self-medication include incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease, and risk of dependence and abuse (Ruiz, 2010). Among health staff, inappropriate self-medication can have effect on efficiency and productivity. It may risk the lives of not only those practicing but also those around them (Castillo-Martínez & Pérez-Acosta, 2021). For health staff, this will also put the lives of

the patients they manage at risk. Limited literature on the prevalence and practice of self-medication among health professionals makes it difficult to determine what factors are associated with the practice of self-medication among health professionals. Therefore, this study aimed to determine the prevalence of and factors associated with self-medication among health staff at Cape Coast Teaching Hospital, Ghana, and help policymakers control self-medication in Ghanaian hospitals by facilitating informed decision-making.

1.3 Main objective: To evaluate the prevalence of and factors associated with self-medication among staff at Cape Coast Teaching Hospital, Ghana.

1.3.1 Specific objectives:

1. To assess the prevalence of self-medication among staff at Cape Coast Teaching Hospital, Ghana.
2. To examine the association between education, occupation, and self-medication among health staff.
3. To investigate the influence of income and health insurance on self-medication among health staff.
4. To test the association between perceived severity of health needs and self-medication among staff.

1.3.2 Research questions:

1. What is the prevalence of self-medication among staff at Cape Coast Teaching Hospital?
2. What is the influence of education and occupation on self-medication among health staff?
3. What is effect of income and health insurance on self-medication among health staff?
4. What is impact of perceived severity of health needs on self-medication among staff?

1.4 Hypotheses

1.4.1 Predisposing factors

Sociodemographic characteristics such as age, gender, and income are likely to influence the use of health services. Level of education has also been found to be a likely predictor of health-seeking behavior (Agrawal et al., 2021). Studies have shown that people with higher educational levels are more likely to use medical services when ill than their less-educated counterparts (Abuduxike et al., 2020). In rural Ghana, Agyemang and Osei Asibey (2018) found a significant difference in healthcare service utilization based on educational level, reporting that participants with a tertiary education used healthcare services more than their counterparts with lower educational levels. Using regression analysis, the study showed significant associations between educational level and healthcare service utilization (p-value < 0.01) and among employment status, nature of occupation, and healthcare service utilization (p-value = 0.00 for each test). A cross-sectional study assessing the determinants of health-seeking behaviors in Northern Cyprus showed similar results. Using multivariable logistic regression, researchers found that high education, moderate economic status, and having self-care problems were significantly associated with healthcare service utilization. Respondents with a university-level education were two times more likely to seek healthcare services compared with their counterparts with lower educational levels (Abuduxike et al., 2020). According to Kim et al. (2017), occupational class is also associated with healthcare utilization. Thus, this study postulates that education and occupation are associated with self-medication among health staff.

Hypothesis: education and occupation are associated with self-medication among health staff.

1.4.2 Enabling factors

People are likely to engage in a behavior if it can lead to monetary benefits. Costs can influence a patient's health-seeking preferences (Vlaev et al., 2019). Both direct costs, such as for consultations, laboratory tests, other clinical examinations, and drugs, as well as indirect costs, such as for transportation, influence health seeking preferences. According to Shaikh and Hatcher (2005), poverty prevents people from utilizing healthcare services and limits their capacity to make healthy choices. Their study further showed that households in Asia could pay up to 80% of their total healthcare cost out-of-pocket, which affects people's ability to satisfy their health needs. Zissimopoulou et al. (2020) found that people with lower income levels had poorer health than those with medium and higher income levels. Their study also showed a negative association between income level and health service utilization (56.5%, 47%, and 27.9% at low, medium, and high income levels, respectively, p-value < 0.001).

Health insurance has been shown to influence health-seeking behavior. Removing financial barriers to healthcare utilization can motivate people to use available healthcare services. People respond to incentives, such as the removal of deductibles and copayments, which can influence their health-seeking behavior. High copayments and deductibles may discourage people from using healthcare services, while uninsured patients are likely to find alternative healthcare services due to costs. Therefore, this study posits that income level, health insurance, and welfare packages affect self-medication among health staff.

Hypothesis: income level and health insurance affect self-medication among health staff.

1.4.3 Health needs

Healthcare-seeking behavior is influenced by the need for care. Biological and genetical characteristics may make people predisposed to develop inherited diseases and conditions that may require medical care (National Academies of Sciences, 2018). Smoking, lack of

exercise, and other lifestyle choices can also lead to health conditions that may require medical care. In addition, how people perceive their health status may influence their healthcare-seeking behavior. Abuduxike et al. (2020) found that people with self-care problems were less likely to use health services than those who did not have such problems, and identified smoking status, having chronic conditions, and poor health perception as being associated with routine checkups. Therefore, this study posits that health needs are associated with self-medication among health staff.

Hypothesis: perceived severity of health needs is associated with self-medication among health staff.

CHAPTER TWO

2.0 LITERATURE REVIEW

This review covers conceptual aspects of self-medication among health staff. It explores the prevalence among health staff and factors associated with self-medication. The review summarizes the findings of previous studies on this subject and identifies gaps that this study will address.

2.1 Conceptual framework: Andersen's behavioral model of health service use

Self-medication is a component of self-care, which is an approach that seeks to empower individuals to handle health-related activities and decision-making in their daily lives. Self-medication is useful, as it recognizes the role of individuals in managing their own health and reduces the need for professional care for minor ailments. People must have adequate knowledge on and medication for a disease, and know its appropriate dosage and schedule while considering their own medical history and possible adverse effects to practice self-medication effectively (World Health, 2000). However, these are the everyday duties of health professionals trained to provide patients with healthcare services.

According to economic principles, rational people think at the margin (Mankiw, 2016). With the numerous benefits of self-medication, especially the economic benefits, health professionals are likely to engage in the practice. One out of every two health professionals practices self-medication (Babatunde et al., 2016).

Theories are useful in predicting human behaviors. Andersen's model was designed to identify predictors that either facilitate or hinder health service utilization (Hahm et al., 2008). This model, which aims to provide measures of healthcare access, was originally developed in the 1990s by Anderson and Newman and has since been modified several times (Travers et al., 2020).

Based on Andersen's Behavioral Model of Health Service Utilization, three key elements influence individuals' use of medical care: predisposing, enabling, and need-for-care factors (Kabir, 2021). Predisposing factors are sociodemographic characteristics that exist prior to an individual's illness and include social structures (education, occupation, and ethnicity), health beliefs (attitudes, values, knowledge that individuals have regarding the healthcare system), and demographics (age and gender). Enabling factors are resources available to an individual in obtaining care and include personal/family means (the means and know-how to access health services and income), community means (available health personnel and facilities and waiting time), and possible additions (genetic factors and psychological characteristics). Need factors are the conditions or illnesses that cause the need for healthcare services and include the opinions of individuals on their health status and of health experts.

According to Anderson's model, predisposing factors lead to enabling factors, and enabling factors lead to need factors. This explains the concept of health service utilization (Hahm et al., 2008). Therefore, sick people will need to contend with predisposing factors, such as education and occupation, then consider health insurance and waiting time at hospitals, and finally consider how serious their condition is before deciding whether to self-medicate or seek professional help.

The model has been criticized for its lack of recognition of how cognition process may affect decision-making. However, this study is not focused on mental illness. Anderson's model recognizes the social structure that influences individuals' health-related behavior and the role of the need factor in influencing such behavior (Hahm et al., 2008), and is therefore considered appropriate for this study.

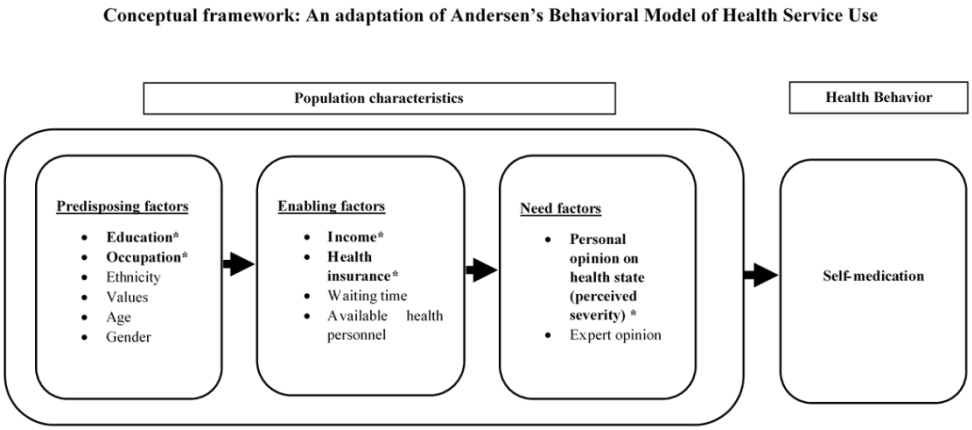


*Figure 2.1 Conceptual framework of the study (an adaptation of Andersen's Behavioral Model of health service use). *variables of interest*

2.2 Prevalence of self-medication among health staff

Prevalence is the proportion of a population with a particular characteristic for a particular point in time or over a given period of time. Prevalence is useful for determining the burden of a condition in a population to plan intervention measures (Indrayan, 2013). Inappropriate use of medication can reduce its clinical effectiveness and increase treatment duration and the prolongation of recovery. Thus, high prevalence must be a public health concern. Further, medication also carries the risk of dependence and abuse (Darden & Papageorge, 2018).

Almasdy and Sharrif (2011) reviewed several studies on self-medication among university students and found that the prevalence rate reported for each study depended on how the question was constructed. Specifically, questions asked in relation to current practices had high prevalence rates, while questions on medication use in the past month had low prevalence rates. Their study detected the difficulty in estimating a true prevalence rate owing to variations in the approaches used in different studies. In an attempt to provide a

guide for estimating prevalence, Ward (2013) noted that large, evenly distributed samples that represent the population are required for reliability and generalization when estimating prevalence. Ward (2013) also suggested using longer periods to estimate prevalence, as short periods are likely to result in lower estimates. This may result from excluding people who may have had the condition but not during the time period that was used. The downside is that data quality may be affected by recall bias when a longer period is used to construct questions. Scheonbach (2000) noted that point and one-year periods are typically used in the literature when estimating prevalence.

Self-medication is common practice globally with varying prevalence rates among countries and communities. In a study across European countries, prevalence was estimated to be high in eastern and southern Europe compared to the northern and western parts of the continent (Grigoryan, 2006). Okyay (2017) estimated the prevalence in Turkey to be 63.4%. Similar prevalence rates have been observed in studies in other parts of the world. Balamurugan and Ganesh (2011) surveyed patients in the coastal regions of South India and found that 71% had self-medicated in the past. The frequency of the practice varied from at least once to five times and above among participants. Using a structured questionnaire, they found that the major sources of information concerning drugs used for self-medication were pharmacists (57.3%), prescriptions for previous illnesses (21.5%), and friends (12.5%). In a qualitative study examining patterns of self-medication with antibiotics in Maputo City, Torres et al. (2019) found that people obtained their medication at the pharmacy by describing the physical appearance of the drugs, referring to the actual names, seeking advice from the pharmacist, or referring to an old prescription. However, their study focused on pharmacists and clients who obtained their medication from pharmacies; thus, their findings only represent that cohort.

A study by Ehigiator (2021) revealed that people also obtain the drugs they use for self-medication from friends, previous treatments, or sources other than pharmacies. The study, however, failed to capture the prevalence of self-medication among participants because of the approach they used. In a study examining self-medication among hospitalized patients

in three secondary health facilities in South Western Nigeria, 37.6% of the respondents were self-medicating. Contrary to other studies, many of those respondents obtained information for drugs used from relatives and friends; however, 35% of the participants decided not to disclose their information sources (Fakeye et al., 2010). Further, the study failed to mention the type of methods used or the criteria applied for calculating the sample size and selecting the sample. In a community-based cross-sectional study conducted in Addis Ababa, 75.5% of the respondents reported self-medicating in the two months prior to the study. Most of the study participants obtained information on drug use from health professionals, but did not receive a prescription. Other information sources were previous health experiences, advice from friends, self-decision, and online sources. Their study also limited the period to the past two months which may have affected the prevalence rate.

Although low utilization of health services has been found to be associated with low educational levels (Agyemang & Osei Asibey, 2018), studies have also indicated a high prevalence of self-medication among tertiary students. A community-based cross-sectional study conducted among undergraduate students at Ahmadu Bello University in Nigeria estimated a prevalence rate of 56.89% (Olayemi et al., 2010). However, that study failed to provide a working definition for self-medication or describe how the sample size was estimated and the sample was selected. Therefore, the findings might not accurately represent the population from which the sample was taken. In a descriptive cross-sectional study examining self-medication among university students in Rio Grande, Brazil, Silva, Correa da Silva et al. (2012) found that 86.4% were self-medicating. Their study revealed that 58% of the participants who were self-medicating were healthcare students. The study used a large sample size, which is essential in obtaining findings that are representative of the target population. The sampling procedure also considered the various cohorts at the university. However, the study failed to provide an operational definition of self-medication, which is essential for comparing prevalence rates with other studies.

Healthcare students form a population that shares similar characteristics with health workers. Studies have indicated that self-medication is common among these students. In

a cross-sectional study conducted at the Asmara College of Health Sciences, Eritrea, Araia et al. (2019) estimated the prevalence of self-medication to be 79.2% among the students. Using structured close-ended questionnaires, they identified the main information sources about medicines to be academic knowledge (51.7%), family (27.3%), previous prescriptions for similar illnesses (26.7%), friends and classmates (10.3%), and the Internet and advertising (2.6%). Although their study was representative, the study failed to indicate the period of prevalence that was reviewed. Thus, the reported prevalence is likely to have been affected by recall bias. A descriptive cross-sectional study among dental, nursing, and midwifery students at the University of Benin Teaching Hospital, Nigeria, estimated a prevalence rate of 76.8%. The study identified experience from previous illness (39.7%) and advice from health professionals (33.5%) as the main information sources for self-medication. A study on self-medication among health sciences students in Iran indicated higher prevalence rate of 89.6% (Abdi et al., 2018).

A online questionnaire study conducted in Kenya found an increase in the prevalence of self-medication from 36.1% before the COVID-19 pandemic to 60.4% during the pandemic. In addition, the conditions necessitating self-medication among the participants differed between the two periods (Onchonga et al., 2020). However, because the study was teased out of a bigger study, certain vital information was missing. The study failed to provide a working definition of self-medication or the period for which the prevalence was estimated. A descriptive cross-sectional study among health workers in a tertiary health facility in Nigeria estimated a prevalence of 52.8%, and approximately 31.8% of the participants had practiced self-medication in the three months prior to the study. The study also found that 45.2% of the participants either purchased drugs or reused drugs without a prescription. The study used an adequate sample size and proportionate sampling technique to make the sample representative (Babatunde et al., 2016); however, the prevalence they reported is lower compared to other studies in similar settings. In an institutional-based cross-sectional study among healthcare professionals in Ethiopia, Fekadu et al. (2020) estimated the prevalence of self-medication among the staff to be 73.4%, with three-month recall. In

another cross-sectional study among healthcare workers at the Irrua Specialist Teaching Hospital, Nigeria, Tobin et al. (2020) estimated the prevalence to be 89.3%, which is higher than the prevalence rates estimated in similar studies conducted in tertiary hospitals. However, this study used a four-month recall period, which is likely to have affected the rate.

The prevalence rates in literature show disparities because of differences in the recall periods used in different studies. The instrument and method of data collection also play a vital role. Studies using semi-structured questionnaires are opened to bias depending on how interviewers ask the questions. This study will bridge this gap by using a one-year recall period and a structured questionnaire. This will increase the recall period to include people who would be missed in shorter recall periods and limit bias. A structured questionnaire is adapted to reduce cognitive load on respondents and provide specific responses adequate for analysis.

2.3 Predisposing factors

2.3.1 Education

Several studies have found educational level to be a predictor of self-medication. According to Okyay and Erdogan (2017), reading or checking the instructions in the prospectus, and understanding the context in the prospectus, were associated with self-medication prevalence in Turkey. In a community-based cross-sectional study examining the prevalence and determinants of self-medication practice in Addis Ababa, Shafie et al. (2018) found that participants with poor knowledge on appropriate self-medication were 1.97 times more likely to practice self-medication compared to those with good knowledge (COR = 1.97[95% CI: 1.24–3.12]). After adjusting for confounders, they found that participants with poor knowledge on self-medication were 2.04 times more likely to practice self-medication than those with good knowledge. The participants with good knowledge on self-medication knew how some drugs interacted with other drugs, food, and alcoholic drinks, and were also able to identify which drugs should not be taken when

pregnant or nursing. These findings are similar to those of a study that examined self-medication among pregnant women in Mwanza, Tanzania. Using cross-sectional data and face-to-face interviews, Marwa et al. (2018) found that pregnant women with non-formal education, incomplete primary education, or with a primary- or secondary-level education were more likely to self-medicate compared to pregnant women who had a college- or university-level education.

These findings contradict those from studies conducted among students at health institutions. In a cross-sectional study among medical students at Copperbelt University, Zambia, a bivariate analysis indicated that higher educational level increased the likelihood of self-medicating. When adjusting for other factors, students in their fourth year of study were three times more likely to self-medicate. Further, the study showed that 68% of the participants believed medical students did not have adequate knowledge about health conditions and could not treat themselves (Banda et al., 2021). The study used a semi-structured questionnaire, which required interviewers to have the proper training to conduct the interviewers appropriately and potentially also made it possible to write leading questions that could bias the interview.

A qualitative study conducted among nursing students at Kermanshah University of Medical Sciences found that educational background could influence self-medication. The study clarified that experience working in clinical settings could help nursing students to treat themselves when they experience mild diseases. Participants admitted that they self-medicated because they had obtained knowledge on drugs and diseases (Soroush et al., 2018). In a cross-sectional study on self-care among randomly selected participants in Sweden, Gustafsson, Vikman, Savenstedt, et al. (2015) found that having good knowledge on the symptoms of minor illness was associated with self-medication especially among people with a tertiary education (p-value = 0.013). Their study also showed that people with tertiary educations were more likely to obtain reliable information on health matters (p-value = 0.007) and possess medical devices for monitoring health (p-value = 0.028) to feel confident to practice self-medication. In the study, a lack of knowledge on minor illness

was identified as an obstacle to self-care. Participants with lower educational levels were less likely to practice self-care compared with those who had a tertiary-level education (p-value = 0.015). Participants with lower knowledge scores also reported less interest in practicing self-care compared with those with higher knowledge scores (p-value = 0.001). Participants with lower scores showed a lack of confidence in their own ability to practice self-care compared with higher-scoring participants (p-value < 0.001). In a similar study among medical students in central India, 88.5% of the participants self-medicated; however, only 39% of the participants accepted had a positive attitude toward self-medication. The most common reasons for not self-medicating were lack of adequate knowledge on medication, risk of adverse effects, risk of using the wrong drugs, and risk of misdiagnosis (Sankdia et al., 2017).

The above review indicates the differences in the effects of educational level of self-medication depending on the studied population. Moreover, most of these studies were descriptive and failed to test the association between education and self-medication.

2.3.2 Occupation

Fekadu et al. (2020) found an association between work experience and self-medication (p-value = 0.043). Using bivariate logistic regression analysis, they identified that staff with less than five years of work experience were three times more likely to self-medicate than those with over ten years of experience (AOR = 3.01, 95% CI: 1.32–11.71, p-value = 0.043). They used a self-administered, semi-structured questionnaire with a recall period limited to three months. However, Tobin et al. (2020) found contradictory results. In their study, work experience had no significant association with self-medication (p-value = 0.44). They used a smaller sample size (250) and had a response rate of 82.4%. In a comparative study on self-medication using analgesics among undergraduate and paramedical students at a tertiary care teaching institute in Central India, Chindhalore et al. (2020) found that self-medication was higher among medical students than paramedical students (p-value = 0.019). The medical students also had a significantly better understanding of the

precautions to be followed when taking analgesics. Quick relief (54.16%) was most common reason participants gave for self-medicating. Further, Marwa et al. (2018) found that occupation as was strongly associated with self-medication among pregnant women in Mwanza, Tanzania. Pregnant women who were unemployed, self-employed, or housewives were more likely to self-medicate than those who were employed outside the home.

Few studies have examined the effects of occupation on self-medication. Thus, whether the nature of the job performed by health professionals predisposes them to self-medication needs to be examined. Therefore, this study aimed to fill this gap.

2.4 Enabling factors

2.4.1 Income

In Gustafsson, Vikman, Savenstedt, et al. (2015), income was identified as a supporting factor for self-care among participants with higher monthly incomes (p-value = 0.003). In the study, difficulties in staying away from work was more often reported in the mid-income group (p-value < 0.001), while a lack of money was more often reported in the low-income group (p-value < 0.001). In a cross-sectional study on self-medication prevalence among health sciences students in Iran, Abdi et al. (2018) found that participants with a monthly income higher than US$ 614 (91%) were more likely to self-medicate than those with a monthly income below US$ 307 (85.4%). Shafie et al. (2018) also found an association between monthly income and self-medication. In their study, participants with a monthly income of 500–1000 birr (1000 birr = US$ 18.57) were 1.67 times more likely to practice self-medication than those who earned more than 1500 birr (COR = 1.97[95% CI: 1.24–3.12]). Adjusting for confounders, participants with a monthly income between 1001–1500 birr were less likely to self-medicate than those whose monthly income was over 1500 birr. In a cross-sectional study among health sciences students in Gondar, Ethiopia, Kifle et al. (2021) found that monthly income was significantly associated with self-medication. Using multivariate logistic regression, they identified that participants

whose monthly income was above 500 birr were twice as likely to self-medicate than their counterparts with a monthly income below 200 birr. The range of classification of income in the study was very narrow, with the highest being respondents with an income above 500 birr. Studies that used a wider range of incomes have produced different results (Shafie et al., 2018).

2.4.2 Health insurance

In a survey evaluating the impact of community-based health insurance on self-medication in rural India, Dror et al. (2016) found that insured people self-medicate less than those who are not insured. Insured people were also less likely to borrow to finance healthcare costs. In a cross-sectional study examining antibiotics use and associated factors among residents in Accra, Ghana, participants without health insurance were found to be twice as likely to self-medicate as participants with health insurance (AOR = 2.32, 95% CI: 0.97–5.38) (Kretchy et al., 2021). In a review of extant literature on prevalence, patterns, and predictors of self-medication in Ghana, Cobbold et al. (2022) reported that costs influenced whether participants self-medicated. The review study further found that respondents self-medicated because of lower drug costs in open markets, pharmacies, and chemical shops, compared with the costs involved in receiving care from health facilities. People without health insurance were also more likely to self-medicate because of high treatment costs. The study also indicated that some participants with health insurance practiced self-medication because of the unavailability of essential drugs and poor satisfaction with services provided at healthcare facilities. Most studies used in the review applied non-random sampling procedures, which may have influenced the responses. Further, the studies had different operational definitions of self-medication, making comparisons difficult.

Income and health insurance are known predictors of health service utilization. However, few studies have examined their impact on self-medication, especially among health

professionals. Thus, this study examined the effects income and health insurance on self-medication.

2.5 Health needs

In a cross-sectional study examining risk factors associated with self-medication among women in Iran, Karimy et al. (2019) found that 76% of the women surveyed self-medicated. Using a self-designed questionnaire, the study revealed that almost all the women (98.9%) stored drugs at home. Many the women (41%) believed self-medication was harmless, while 35.5% had experience with the disease they treated with self-medication. Fatigue, weakness, and anxiety (24%) were common conditions for which the women self-medicated. In the study, educational level and health insurance were significant factors associated with self-medication. However, although the study was representative with an appropriate sample size and sampling procedure, it only focused on married women. Further, it failed to provide an operational definition of self-medication, which may have affected the responses.

A cross-sectional study using the snowball sampling technique among people in Saudi Arabia reported similar findings. The study reported that participants mostly self-medicated using antibiotics when they experienced problems such as tonsillitis and pharyngitis (76.7%), fever (29.3%), toothache (26.5%), and respiratory conditions (24.4%). The antibiotics commonly used included amoxicillin and potassium clavulanate (45.1%), amoxicillin (29.9%), azithromycin (16.8%), and cefuroxime (9.7%). The most common reasons for self-medicating among the participants included previous experience with the antibiotic (52.1%) and the mildness of the condition (22.3%) (Alghadeer et al., 2018). However, the sampling technique used in the study, could negatively impact the representativeness of the findings because the participants were not randomly selected.

In a community-based cross-sectional study assessing prevalence and determinants of self-medication among selected households in Addis Ababa, Ethiopia, Shafie et al. (2018) found that many participants self-medicated because of their illness was mild in nature (47.4%). Others self-medicated because of past experience with (23.2%) or emergency use of (10.5%) a drug. The participants who did not self-medicate did so out fear of side effects (23%), lack of knowledge on the appropriate drugs to use (25.7%), fear of the wrong diagnosis (18.2%) and absence of any illness during the period of interest (16.2%). As with other studies, participants in this study mostly used pain medication when self-medicating (paracetamol [20.2%] and NSAIDs [12.1%]). Participants also used medications such as antibiotics (14.5%), antihelminth (5.5%), and antacids (5.3%). Approximately 16% of the participants resorted to traditional medicine for self-medication. In an effort to limit recall bias in the study, the recall period was reduced to two months. However, this may have affected the responses, given that some participants who may have self-medicated outside the recall period would have responded “no” to the question. The study used an appropriate sample size and sampling procedure to ensure adequate representation.

Akande-Sholabi et al. (2021) found that, among undergraduate students in Nigeria, analgesics were the most frequently used drug (30.1%) for self-medication. Participants also used antimalarial drugs (30%), antibiotics (15.5%), and multivitamins (12.1%) when self-medicating. Using a self-administered questionnaire, the study showed that participants mostly engaged in self-medication to treat minor illnesses (32.4%). According to Soroush et al. (2018), the nature of the disease was a predictor of self-medication. Their study showed that illnesses severity and the recurrence of a condition could influence whether participants self-medicated. Participants explained that a visit to a physician was not needed for mild diseases such as the common cold. Participants also did not see the need to visit a physician to treat a recurring condition when they could use the same prescription they had used previously. Since the study was qualitative, the findings cannot be tested for associations. The findings were consistent with those of Almasdy and Sharrif (2011), who similarly revealed that the mild nature of an illness and disease reoccurrence

were the main reasons for self-medication. In their study, headache, flu, cold, and diarrhea were the most reported symptoms leading to self-medication. Similar to many studies, their study identified analgesics, antipyretics, and cough remedies as commonly used medications. However, they noted that the types of drugs used varied among the reviewed studies, with some authors failing to specify the types of medicines used.

The lockdowns in many parts of the world during the COVID-19 pandemic encouraged self-care and self-medication. In a cross-sectional study to examine self-medication practices during the pandemic in Peru, Quispe-Canari et al. (2021) found that approximately one-third of the participants generally self-medicated with acetaminophen. Others used drugs such as ibuprofen, azithromycin, penicillin, antiretrovirals, and hydroxychloroquine to mainly manage a cold or flu. Some people in the country consumed drugs such as acetaminophen, ibuprofen, azithromycin, hydroxychloroquine, and penicillin without having any symptom during the pandemic. Most of the participants in the study indicated that they believed at least one symptom improved when they self-medicated.

In a review of 19 articles on self-medication among healthcare professionals, Galvan et al. (2016) also found that analgesics were the most commonly used class of drugs when self-medicating. Their study showed variations in clinical symptoms for self-medication in the various articles reviewed. Common symptoms included pain, cough, and a cold. Another study that reviewed 27 articles on self-medication among medical professionals reported that doctors found it challenging to be patients. Some medical students believed that their academic standing may be jeopardized if they developed certain illnesses. The study also showed that doctors were less likely to use general practitioners' services even when they were registered (Montgomery et al., 2011). The findings from this study contradict those of other studies proposing that health professionals self-medicate mainly because of the mild nature of their illness or previous experience. In a cross-sectional study evaluating self-medication among pharmacy students in the United Arab Emirates, Sharif (2012) reported that one-third of the participants self-medicated with antibiotics. Most participants (72%) self-medicated because their conditions were mild, and medical consultation was

only sought when conditions worsened or persisted. A cross-sectional study assessing self-care for minor illness in Sweden revealed that participants mostly rested and self-medicated when attending to the common cold, otitis media, or conjunctivitis. Participants also mostly used home remedies for a sore throat (Gustafsson, Vikman, Axelsson, et al., 2015).

Many of these studies examining the effects of health needs on self-medication were descriptive studies. The addition of "mild nature of the disease" as one responses when asking participants why they self-medicated limited the ability of the studies to measure the effect of perceived illness severity on self-medication. Thus, this study aimed to provide another method for examining and measuring the effects of perceived disease severity on self-medication.

2.6 Summary

Although several studies have been conducted on self-medication and its associated factors, few have focused on self-medication among health professionals. Most studies on self-medication among health professionals were descriptive and failed to assess the associations between self-medication and education, occupation, enabling factors such as income and health insurance, and health professionals' health needs. Most studies also limited the recall period in an effort to reduce bias in the responses; however, this can affect prevalence rates by omitting those who engaged in the behavior outside the recall period. By adapting Andersen's Behavioral Model of Health Service Use, this study examined the associations between the above population characteristics of health professionals and self-medication to bridge this gap in the literature.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study site description

The study was conducted at Cape Coast Teaching Hospital, located in the Cape Coast Metropolis. The Cape Coast Metropolis is one 20 districts in the Central Region. It is the most urbanized and shares common border with three districts: Komenda Edina Eguafo Abirem to the west, Abura Asebu Kwamankese to the east, and Hemang Lower Denkyira to the North. It is bordered to the south by the Gulf of Guinea. Cape Coast is the capital city of the Central Region. It was also the capital of the Gold Coast until 1896, when Accra became the capital.

The metropolis covers a land area of 122km^2. The 2010 census reported that it has a population of 186,189, with 90,753 male and 95,436 female residents and an annual growth rate of 3.1%. The male-to-female ratio is approximately 1:1.4. There are 102 communities and approximately 20,323 households. The population density is 1526.13 persons per km^2. Most people (70%) live in urban areas. The metropolis is divided into five health sub-metros: Ewim, Adisadel, Effutu, Reproductive and Child Health Centre (Main), and University of Cape Coast.

The indigenous population is the Fanti ethnic group, and they constitute the majority of the population in the Metropolis. All other major ethnic groups in the country are also present in the Metropolis. Most of the working population is in the informal economic sector. Thus, most of the inhabitants are traders, farmers, and or fishers/fishmongers. The hospitality industry is quite prominent in the Metropolis; however, civil service dominates the formal sector.

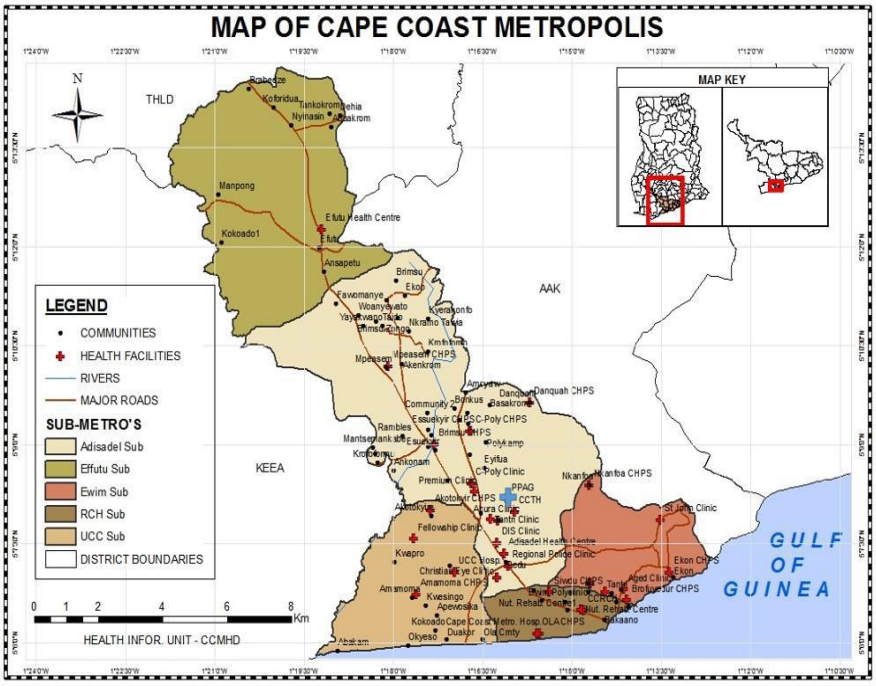
The Metropolis has 35 health facilities, and of these, eight (8) are private clinics and a private hospital, while the remaining twenty (27) are public health facilities. The public health facilities include three (3) hospitals, one (1) polyclinic, two (2) health centers, eleven

(11) CHPS zones, five (5) public clinics, four (4) quasi-clinics, and one (1) Christian Health Association of Ghana (CHAG) facility.

The study was conducted at Cape Coast Teaching Hospital, which is one of the five Teaching Hospitals in Ghana. The facility was commissioned in 1998 as the first in a series of ultra-modern regional hospitals in the country and was named the best Regional Hospital in 2003. It was transformed into a Cape Coast Teaching Hospital with the inception of the School of Medical Sciences at the University of Cape Coast. The first class of medical students graduated from the Teaching Hospital in June 2013.

The facility is a 400-bed tertiary-level referral hospital situated in the northern region of Cape Coast. It is bounded on the north by Abura Township, on the south by Pedu Estate and 4th Ridge, Nkanfoa on the east, and the Abura/Pedu Estate on the west. The facility has staff of 1,348, comprising 235 medical doctors and 663 nurses and midwives.

The hospital managed patient records manually until the Hospital Administration Management System (HAMS) was introduced in 2012. HAMS, which is an electronic patient record management software, was used to manage patient records electronically alongside the manual record management system until January 2018, when HAMS was replaced by the Lightwave Health Information Management System (LHIMS). LHIMS was piloted in the hospital by the Ministry of Health in an effort to introduce an interoperable system in the country, and was approved for use in January 2018 to electronically manage patient information in the hospital (CCTH, 2017; CCTH, 2018).



(Source: Cape Coast Metropolis Health Directorate)

Figure 3.1 Map of Cape Coast Metropolis with Cape Coast Teaching Hospital marked

3.2 Study population

The study population comprised staff working at Cape Coast Teaching Hospital.

3.3 Inclusion criteria

The inclusion criteria were staff who worked at Cape Coast Teaching Hospital and consented to participating in the study.

3.4 Exclusion criteria

Staff who were absent at the time of study were excluded. This included staff who were on study leave or on any other form of leave of absence.

3.5 Study design

A cross-sectional design was used in this study to administer a questionnaire to the participants to assess the prevalence of and factors associated with self-medication among staff at Cape Coast Teaching Hospital from September to October 2022. An analytical cross-sectional design was selected for this study because it aimed to capture the prevalence of and factors associated with self-medication among the population in a single point in time. This design was adopted because it can help measure the association between related factors and self-medication within the population, is not costly to perform, and does not require a lot of time (which was limited for this study) to conduct. However, a cross-sectional study design is susceptible to biases, such as recall bias, responder bias, interviewer bias, and social acceptability bias.

3.6 Sample size calculation

The sample size for the study was calculated using Cochran's formula as follows:

$n = (Z^2 P(1-P))/d^2$

The key terms in the formula are defined as follows:

- n = sample size to be determined
- Z = Z score (reliability coefficient) of 1.96 with a 95% confidence interval (CI)
- P = prevalence of self-medication in tertiary workers = 0.521(Babatunde et al., 2016)
- d = margin of error of 5% = 0.05

Substituting the terms above provides the following:

$n = (Z^2 P(1-P))/d^2$

$n = (1.96^2*0.521(1-0.521))/0.05^2$

$n = (3.8416*0.521(0.479))/0.0025$

$n = 0.9587/0.0025$

$n = 383.48$

The study population was small (N = 1,742); therefore, the following formula was used to adjust the sample size to suit the study:

$n = n_0/ (1+((n_0 – 1)/N))$

where,

n_0 is the sample size from the initial Cochran calculation = 383.48

N is the study population = 1,742.

Therefore,

$n = 383.38/ (1+ ((383.48 – 1)/1742))$

$n = 383.38/ (1+0.2196)$

$n = 383.38/1.2196$

$n = 314.35$

Using a non-responsive rate of 10% (0.1),

$n = (0.1*314.35) + 314.35$

$n = 31.435 + 314.35$

$n = 345.785 \approx 346$

Therefore, the sample size for the study was 346.

3.7 Sampling procedure

The number of staff interviewed in each category was determined using proportionate sampling. The study participants from each category were selected using systematic sampling technique. The staff at Cape Coast Teaching Hospital comprised 215 doctors, 947 nurses and midwives, 29 pharmacists and pharmacy technicians, 16 certified registered anesthetists, 182 allied health professionals (optometrists, radiographers, biomedical scientists, health information officers, public health officers, dieticians, and technical officers), and 353 administrative staff, for a total of 1,742 staff.

Using the formula,

n = (number of staff in a category/total number of staff at the facility) * sample size,

the following was the number of staff selected per each category:

- Doctors = (215/1742) *346 = 42.7 ≈ 43
- Nurses and midwives = (947/1742) * 346 = 188.09 ≈ 188
- Pharmacists and pharmacy technicians = (29/1742) * 346 = 5.76 ≈ 6
- Certified registered anesthetists = (16/1742) * 346 = 3.18 ≈ 3
- Allied health professionals = (182/1742) * 346 = 36.15 ≈ 36
- Administrative staff = (353/1742) * 346 = 70.11 ≈ 70

Based on the above calculations, 43 doctors, 188 nurses and midwives, 6 pharmacists and pharmacy technicians, 3 certified registered anesthetists, 36 allied health professionals, and 70 administrative staff were selected from the total staff as participants in the study.

Simple random sampling was used to select respondents from each category. This technique was used because a list of every staff member was available, and selected participants could be accessed to participate in the study. The staff in each category was assigned a number, generated using the random number function (RAND) in Microsoft

Excel. The staff whose numbers corresponded with the random numbers generated were selected and contacted to participate in the study.

3.8 Data collection instrument

A self-administered questionnaire was used to obtain data from the study participants. The questionnaires were structured and designed after reviewing the literature to understand self-medication in its entirety. The questions included in this study were compared to and inspired by those previously used to assess the prevalence and determinants of self-medication practice among selected households in Addis Ababa (Shafie et al., 2018). The questions were then discussed with experts in the medical and pharmacy professions to correct errors and make them suitable for the audience and study settings.

3.9 Data collection procedure

The data for the study were collected from the participants using self-administered questionnaires from September to October 2022. The questionnaire was hosted online and a link to it was shared with participants using their emails and social media messengers. The participants accessed and completed the questionnaires online by themselves.

3.10 Study variables

3.10.1 Outcome variable

The dependent variable in this study was self-medication, which was assessed by asking participants whether they had practiced self-medication in the three months prior to the study. This was a binary variable, and responses were categorized as either yes and no. A response of “yes” indicated that a participant had practiced self-medication during the period, while a response of “no” indicated that a participant had not practiced self-medication during the period.

3.10.2 Independent variables

The independent variables in the study were participants' educational level, job category, monthly income, health insurance status, and perceived severity of the condition for which they self-medicated. Educational level was categorized into "none" indicating a respondent had no formal education; "basic education" which represented primary and secondary education, Certificate which represents a two-year tertiary program, Diploma which represents a three-year tertiary program, Degree (Bachelor's degree), and Master's degree. According to Babatunde et al. (2016), 83.5% of tertiary hospital staff have a tertiary-level education. As such, this categorization took into consideration the various levels of tertiary education available. Job category grouped respondents by the main professional categories used in the country: medical doctors, nurses/midwives, administrative staff (accountants, health service administrators, human resource managers, artisans, secretaries, and other administrative staff), allied health professionals (medical laboratory scientists, radiographers, physiotherapists, and public health officers), certified registered anesthetists, and pharmacists (pharmacists and pharmacy technicians). Perceived severity was categorized into three groups: mild, moderate, and severe. The associations between these variables and self-medication were tested. Other variables such as frequency, name of the medication used, ill condition treated using self-medication, reason for self-medication, safety of the practice, and outcome of self-medication were assessed from the participants' responses.

Known risk factors for self-medication were used as covariates, including age, gender, religion, place of residence, and marital status.

3.10.3 Operational definition

Self-medication was defined in this study as the selection and use of medicines or drugs alleged to treat, manage, and/or prevent a disease or health condition without a doctor's prescription. The recall period was one year prior to the study.

3.11 Data handling

Data were stored in Google Drive to keep it secure against unauthorized users and make it easily accessible.

3.12 Statistical analysis

The analysis was performed in phases. In the first phase, descriptive statistics (frequencies and percentages) were used to describe the participants' sociodemographic characteristics. Then, chi-squared tests were used to examine the association between the study's independent variables and self-medication. Multiple logistic regression was then used to examine the determinants of self-medication among the variables found to be statistically significant ($p < 0.05$). The results were presented as odd ratios with their respective 95% CIs. Jamovi software version 2.2.5 was used to perform the analysis.

Chi-squared tests were conducted to examine association between selected variables because all the variables were categorical in nature, making this method the most suitable. Multiple logistic regression was used to estimate the odds participants would practice self-medication. This was used because the dependent variable, which was the practice of self-medication in the past 12 months prior to the study was categorical and existed in two levels (binary), which in this case was "yes" or "no." This study had more than one predictor. Thus, multiple logistic regression was the most suitable method for this examination.

3.13 Ethical issues

3.13.1 Description of study participants

Study participants were staff who were currently working at Cape Coast Teaching Hospital, Ghana, and were willing to participate in this study.

3.13.2 Ethical approval

Ethical approval for the study was obtained from the Cape Coast Teaching Hospital Ethics Review Committee (CCTH-ERC).

3.13.3 Permission

Permission for the study was obtained from Cape Coast Teaching Hospital.

3.12.4 Informed consent

A section was provided on the online questionnaire to obtain participants' consent before they took part in the study. The participants had to read, understand, and provide consent before completing the questionnaire.

3.12.5 Voluntary consent/withdrawal

The participants were informed that they were under no obligation to participate in the study and were free to withdraw at any time, even after consenting to take part in the study.

3.12.6 Confidentiality

Confidentiality was strictly observed during the study. No information from a respondent was disclosed to any third party. The participants were identified by codes and numbers instead of their actual names, and the data were stored in a safe place to ensure confidentiality.

3.12.7 Benefits

The participants did not receive any benefits before, during, or after the study. The study was conducted only for the benefit of Cape Coast Teaching Hospital, policymakers, and any other stakeholder who may use the research findings to make decisions.

3.13.8 Potential risks of the study

The study posed no potential risks to the participants

CHAPTER FOUR

4.0 RESULTS

4.1 Description of the data

Out of the 346 participants, 277 responded to the study. After data cleaning, 271 remained for analysis. The presentation of the analysis is shown below in Figure 4.1.

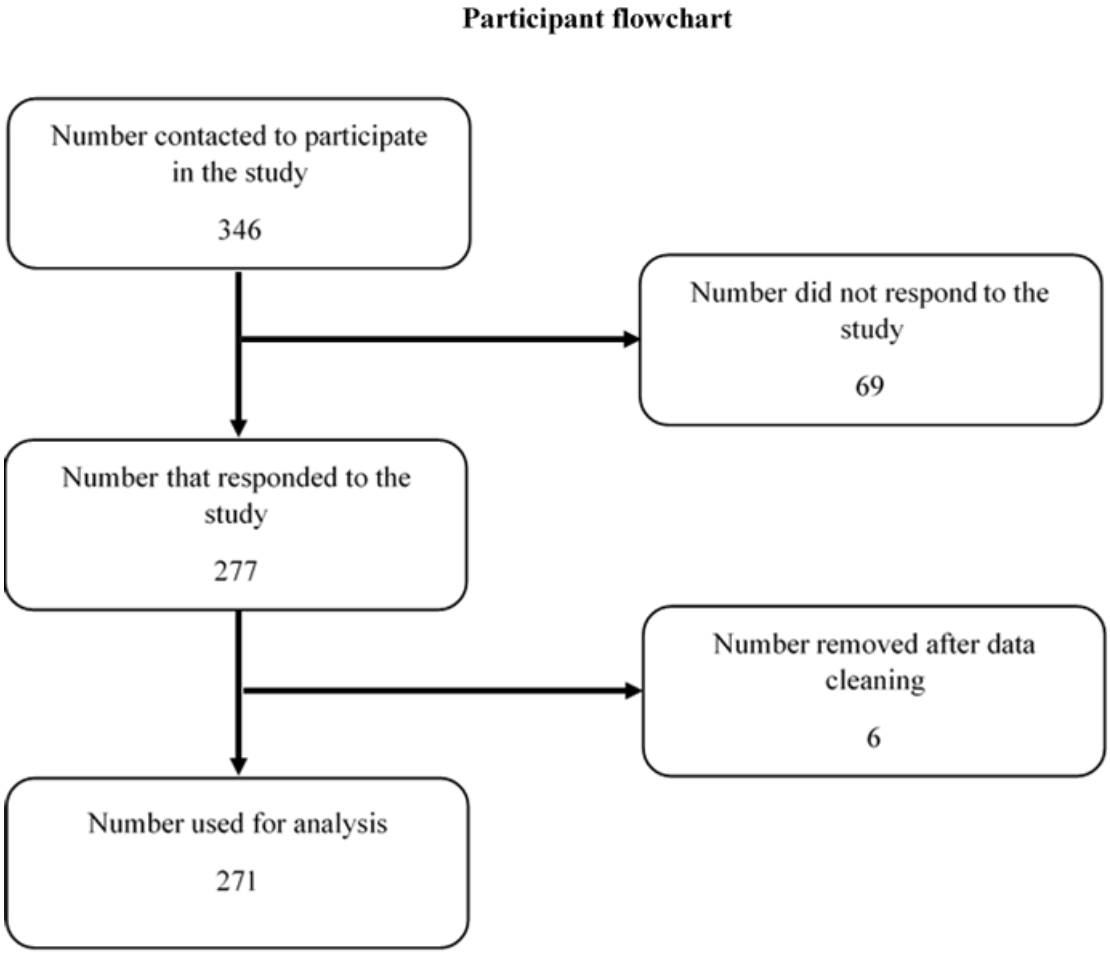


Figure 4.1 The flow of participation in the study

4.2 Sociodemographic characteristics of the participants

Table 4.1 shows the sociodemographic characteristics of the study's participants. Of the 271 participants, 53.9% were between 30–39 years of age, 37.3% were below 30, and 8.8% were 40 and above. Regarding gender, 61.6% of the participants were female and 38.4% were male. Regarding educational level, 46.5% had a Bachelor's degree, 38% had a diploma-level tertiary education, and 1.5% had a basic-level education (primary to secondary/high school). For marital status, 56.5% were single, 42.8% were married, and 0.70% were in other forms of relationships. Most of the participants (91.1%) were Christians, while 6.3% were Muslims, and 2.6% belonged to other religions. Regarding residence, 75.6% lived within a 10-minute drive away from the hospital, while 12.9% lived further away. Nurses and midwives were 49.8% of the sample, administrative staff were 24%, and medical doctors were 11.1%. Of the participants, 59% had work experience of 5 or less years, while 10.3% had more than 10 years of work experience. Regarding monthly income, 67.5% earned between 2000–3999, 18.8% earned below 2000 cedis, and 13.7% earned 4000 cedis or above. Over half of the participants (56.8%) had 1 to 3 dependents, while 16.2% had no dependents. Regarding annual healthcare expenditure, 33.6% spent between 100–499, while 17.3% spent 2000 cedis or above. Most participants (91.9%) had an active NHIS subscription, while 22.5% had medical coverage in addition to the NHIS.

Table 4.1 Sociodemographic characteristics of the participants

Variable	N	% of Total
Age group		
< 30 years	101	37.3 %
30–39 years	146	53.9 %
40–49 years	19	7.0 %
≥ 50 years	5	1.8 %
Gender		
Male	104	38.4 %
Female	167	61.6 %
Educational Level		
Basic education	4	1.5 %
Certificate	13	4.8 %
Diploma	103	38.0 %
Degree	126	46.5 %
Master's, equivalent and/or above	25	9.2 %
Marital Status		
Single	153	56.5 %
Married	116	42.8 %
Other	2	0.70%
Religion		
Islam	17	6.3 %
Christianity	247	91.1 %
Other	7	2.6 %
Location (proximity from the hospital)		
≤10 minutes away from hospital	205	75.6 %
>10 minutes away from the hospital	35	12.9 %
Unknown	31	11.4 %
Occupation		
Administrative staff	65	24.0 %

Medical doctors	30	11.1 %
Nurses/midwives	135	49.8 %
Other clinical staff	41	15.1 %
Years of Work Experience		
≤ 5 years	160	59.0 %
6–10 years	66	24.4 %
> 10 years	28	10.3 %
Unknown	17	6.3 %
Income (per month)		
< 2000 cedis	51	18.8 %
2000–3999 cedis	183	67.5 %
≥ 4000 cedis	37	13.7 %
Number of Dependents		
None	44	16.2 %
1–3	154	56.8 %
≥ 4	73	26.9 %
Health Expenditure (per year)		
< 100 cedis	50	18.5 %
100–499 cedis	91	33.6 %
500–999 cedis	52	19.2 %
1000–1999 cedis	31	11.4 %
≥ 2000 cedis	47	17.3 %
Active NHIS		
No	22	8.1 %
Yes	249	91.9 %
Medical coverage besides NHIS		
No	210	77.5 %
Yes	61	22.5 %

4.3 Prevalence of self-medication

Figure 4.2 and Table 4.2 show the prevalence of self-medication among participants. As shown in Figure 4.2, 81% of the participants had self-medicated within 12 months prior to the study.

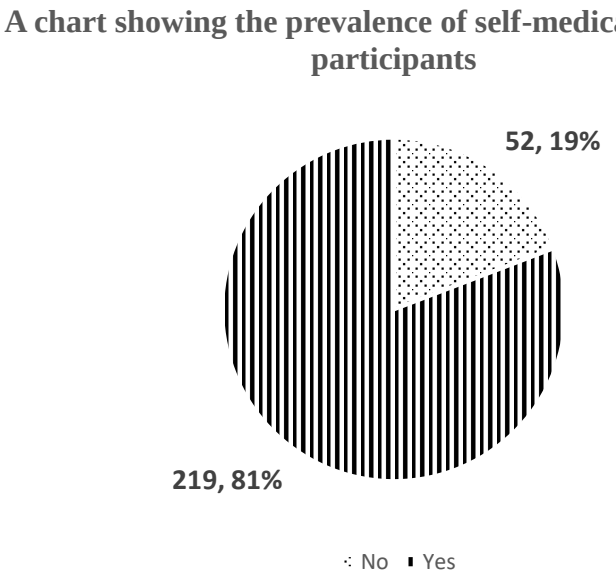


Figure 4.2 Pie chart showing the prevalence of self-medication among the participants within the past 12 months

Out of the 219 participants who self-medicated (Table 4.2), 73.1% did so one to three times during the period, while 5.9% self-medicated 10 times or more. Of the participants, 54.8% self-medicated because of familiarity with the disease and drug used, 15.5% cited emergency reasons, while 10.5% stated it was because of was poor services offered at the hospital. Only 0.9% self-medicated because they were too far from the hospital. Further, 42.9% of participants obtained information for medication from health professionals, 27.4% used prescriptions from previous treatments, and 22.4% relied on their own expertise to self-medicate. Most of the participants (93.6%) obtained their medication from pharmacies or drug stores.

Table 4.2 Self-medication behavior among participants

Variable	n	% of Total
Frequency of self-medication (in a year)		
1–3 times	160	73.1 %
4–6 times	31	14.2 %
7–9 times	5	2.3 %
10 and above	13	5.9 %
Unknown	10	4.6 %
Rationale for self-medicating		
Familiar with the drug and disease	120	54.8 %
Time constraint	34	15.5 %
Emergency	34	15.5 %
Poor services offered at the hospital	23	10.5 %
Lack of money to attend hospital	6	2.7 %
Health facility is too far	2	0.9 %
Source of information		
Experience/prescription from previous treatment	60	27.4 %
Friend	6	2.7 %
Health professional	94	42.9 %
Internet	9	4.1 %
Myself	49	22.4 %
Radio/TV commercial	1	0.5 %
Source of drugs		
From colleagues	2	0.9 %
In buses, stations, and other public spaces	1	0.5 %
Left over from previous treatment	10	4.6 %
Neighbors	1	0.5 %
Pharmacies/drug stores	205	93.6 %

4.4 Health needs of participants

Table 4.3 shows the health needs of the participants. Of the 271 participants, 78.6% had a health need within the period of study. On the perceived severity of the need, 38.4% considered their need to mild, 11.1% considered it to be severe, and 21.4% had no health need during the period. Regarding the safeness of self-medication practice, 14% considered it to be very harmful, 26.2% felt it was harmful, and 7.4% considered it very safe.

Table 4.3 Perceived health needs of the participants

Variable	N	% of Total
Health need (within the past 12 months)		
No	58	21.4 %
Yes	213	78.6 %
Perceived severity of health need		
None	58	21.4 %
Mild	104	38.4 %
Moderate	79	29.2 %
Severe	30	11.1 %
Safeness of self-medication practice		
Very safe	20	7.4 %
Safe	35	12.9 %
Moderate	96	35.4 %
Harmful	71	26.2 %
Very harmful	38	14.0 %
Unknown	11	4.1 %

Of the 219 participants who self-medicated (Table 4.4), 32.9% used analgesics, 22.8% used antibiotics, and 17.8% used cold, cough, and respiratory tract infection medication. Participants reported managing pain (34.7%), a cold, cough, or respiratory tract infection (21.9%), and fever (9.1%). Further, 88.1% of the participants considered their condition cured following self-medication, 3.2% perceived no improvement in their condition, and 0.9% considered their condition to be worse after self-medicating. Only 6.4% experienced side effects after self-medicating. Regarding accessibility, 53.4% considered it to be very easy to access drugs for self-medication, while 3.2% considered it very difficult.

Table 4.4 Health needs of the participants

Variable	n = 219	% of Total
Medication used		
Cold, cough, and respiratory tract infection medication	39	17.8 %
Antibiotics	50	22.8 %
Malaria medication	38	17.4 %
Analgesics	72	32.9 %
Other	20	9.1 %
Disease		
Cold, cough, and respiratory tract infection	48	21.9 %
Pain	76	34.7 %
Malaria	38	17.4 %
Fever	20	9.1 %
Other	37	16.9 %
Outcome of self-medication		
Condition worsened	2	0.9 %
Cured from the illness	193	88.1 %
Health improved	17	7.8 %
No improvement in health status	7	3.2 %
Side effects		
No	205	93.6 %
Yes	14	6.4 %

Access to drugs for self-medication		
Very easy	117	53.4 %
Easy	41	18.7 %
Moderate	33	15.1 %
Difficult	21	9.6 %
Very difficult	7	3.2 %

4.5 Differences in self-medication practice among participants according to predisposing, enabling, and health need factors

Table 4.5 shows the differences in self-medication practice according to predisposing, enabling, and health need factors among participants. The prevalence rate of self-medication among participants was 81%. Regarding predisposing factors, educational level and occupation were not significantly association with self-medication prevalence (p-values = 0.835 and 0.409, respectively). The practice of self-medication was higher among participants with Masters' degrees (84%) and least among participants with a diploma-level education (69.2%). The prevalence was 83.7% among nurses and midwives, 83.3% among medical doctors, and 73.8% among administrative staff. Regarding enabling factors, participants' income and health insurance status were not significantly associated with self-medication prevalence (p-values = 0.138 and 0.315, respectively). The prevalence was 89.2% among staff who earned 4000 cedis and above per month, and 72.5% for staff who earned below 2000 cedis per month. Regarding health need factors, participants' perceived health and severity of health needs were significantly associated with self-medication practice (p-value < 0.001 for each). The prevalence of self-medication was higher among participants with health needs (88.3%) compared to those with no health needs (53.4%), and higher among participants who perceived their health needs to be mild (93.3%) compared with the other groups. The prevalence was 76.7% among participants who perceived their health needs to be severe and 53.4% for participants who perceived the state of their health to be good. Religion and perceived safety were also significantly associated with self-medication among the participants (p-value = 0.029 and < 0.001, respectively).

Table 4.5 Differences in self-medication practice according to predisposing, enabling, and health need factors

Variable	Self-medication practice				p-value
	No		Yes		
	n	%	n	%	
Educational level					0.835
Basic education	1	25.0 %	3	75.0 %	
Certificate	4	30.8 %	9	69.2 %	
Diploma	20	19.4 %	83	80.6 %	
Degree	23	18.3 %	103	81.7 %	
Master's, equivalent or above	4	16.0 %	21	84.0 %	
Occupation					0.409
Administrative staff	17	26.2 %	48	73.8 %	
Other clinical staff	8	19.5 %	33	80.5 %	
Medical doctors	5	16.7 %	25	83.3 %	
Nurses and midwives	22	16.3 %	113	83.7 %	
Income (per month)					0.138
< 2000 cedis	14	27.5 %	37	72.5 %	
2000–3999 cedis	34	18.6 %	149	81.4 %	
≥ 4000 cedis	4	10.8 %	33	89.2 %	
NHIS					0.315
No	6	27.3 %	16	72.7 %	
Yes	46	18.5 %	203	81.5 %	
Health need					<0.001
No	27	46.6 %	31	53.4 %	
Yes	25	11.7 %	188	88.3 %	
Perceived severity of health need					<0.001
Good	27	46.6 %	31	53.4 %	
Mild	7	6.7 %	97	93.3 %	
Moderate	11	13.9 %	68	86.1 %	
Severe	7	23.3 %	23	76.7 %	
Age group					0.949
< 30 years	21	20.8 %	80	79.2 %	

30–39 years	27	18.5 %	119	81.5 %	
40–49 years	3	15.8 %	16	84.2 %	
≥ 50 years	1	20.0 %	4	80.0 %	
Gender					0.334
Male	23	22.1 %	81	77.9 %	
Female	29	17.4 %	138	82.6 %	
Religion					0.029
Islam	7	41.2 %	10	58.8 %	
Christianity	45	18.2 %	202	81.8 %	
Other	0	0.0 %	7	100.0 %	
Location					0.15
≤ 10 minutes away from the hospital	34	16.6 %	171	83.4 %	
> 10 minutes away from the hospital	9	25.7 %	26	74.3 %	
Unknown	9	29.0 %	22	71.0 %	
Years of work experience					0.529
≤ 5 years	34	21.3 %	126	78.8 %	
6–10 years	11	16.7 %	55	83.3 %	
> 10 years	3	10.7 %	25	89.3 %	
Unknown	4	23.5 %	13	76.5 %	
Number of dependents					0.796
None	10	22.7 %	34	77.3 %	
1–3	28	18.2 %	126	81.8 %	
≥ 4	14	19.2 %	59	80.8 %	
Health expenditure (per year)					0.984
<100 cedis	9	18.0 %	41	82.0 %	
100–499 cedis	18	19.8 %	73	80.2 %	
500–999 cedis	10	19.2 %	42	80.8 %	
1000–1999 cedis	5	16.1 %	26	83.9 %	
≥ 2000 cedis	10	21.3 %	37	78.7 %	
Medical coverage besides NHIS					
No	43	20.5 %	167	79.5 %	0.318
Yes	9	14.8 %	52	85.2 %	

Safety of self-medication practice					<0.001
Very safe	3	15.0 %	17	85.0 %	
Safe	3	8.6 %	32	91.4 %	
Moderate	12	12.5 %	84	87.5 %	
Harmful	19	26.8 %	52	73.2 %	
Very harmful	8	21.1 %	30	78.9 %	
Unknown	7	63.6 %	4	36.4 %	

4.6 Factors influencing self-medication among participants

Table 4.6 shows the factors that influence self-medication among participants. When bivariate logistic regression was performed, only perceived severity of health need was determined to influence self-medication among health staff. The odds of self-medicating were higher for participants with mild, moderate, and severe health needs compared with those in good health (OR = 12.07, 95% CI, 4.789 – 30.42; OR = 5.38, 95% CI, 2.372 – 12.22; OR = 2.86, 95% CI, 1.062 – 7.71, respectively). When adjusted for covariates, the odds were even higher among participants with mild, moderate, and severe health needs compared with those in good health (aOR = 18.68, 95% CI, 5.7562 – 60.618; aOR = 10.35, 95% CI, 3.35751 – 31.883; aOR = 4.91, 95% CI, 1.27861 – 18.825, respectively).

Table 4.6 Factors influencing self-medication among participants

Variable	Crude odds ratio	95% Confidence interval		p-value	Adjusted odds ratio	95% Confidence interval		p-value
		Lower	Upper			Lower	Upper	
Educational level								
Basic education	1				1			
Certificate	0.75	0.0585	9.62	0.825	0.5794	0.02244	14.965	0.742
Diploma	1.383	0.1366	14.01	0.784	2.6185	0.11024	62.197	0.551
Degree	1.493	0.1485	15.01	0.734	3.0849	0.13136	72.447	0.484
Master's	1.75	0.1432	21.38	0.661	1.9051	0.06508	55.769	0.708
Occupation								
Administrative staff	1				1			
Other clinical staff	1.46	0.565	3.78	0.434	0.9762	0.25901	3.679	0.972
Medical doctors	1.77	0.585	5.36	0.312	3.69E-08	0	Inf	0.992
Nurses and midwives	1.82	0.888	3.73	0.102	1.4543	0.4889	4.326	0.501
Income (per month)								
< 2000 cedis	1				1			
2000–3999 cedis	1.66	0.808	3.4	0.168	0.9481	0.27797	3.234	0.932
≥ 4000 cedis	3.12	0.934	10.43	0.064	1.22E+08	0	Inf	0.992

NHIS								
No	1				1			
Yes	1.65	0.614	4.46	0.319	2.9922	0.67575	13.249	0.149
Perceived severity of health need								
Good health	1				1			
Mild	12.07	4.789	30.42	< .001	18.6797	5.7562	60.618	< .001
Moderate	5.38	2.372	12.22	< .001	10.3463	3.35751	31.883	< .001
Severe	2.86	1.062	7.71	0.038	4.906	1.27861	18.825	0.02
Age group								
< 30 years	1				1			
30–39 years	1.16	0.612	2.19	0.654	1.7328	0.61914	4.85	0.295
40–49 years	1.4	0.373	5.26	0.618	1.4414	0.1592	13.05	0.745
≥ 50 years	1.05	0.111	9.9	0.966	0.1253	0.00349	4.503	0.256
Gender								
Male	1				1			
Female	1.35	0.733	2.49	0.335	1.8489	0.73754	4.635	0.19
Religion								
Islam	1				1			
Christianity	3.14	1.135	8.7	0.028	2.3078	0.56133	9.488	0.246
Others	1.10E+07	0	Inf	0.986	1.08E+08	0	Inf	0.993

Location								
≤ 10 minutes away from the hospital	1				1			
> 10 minutes away from the hospital	0.574	0.247	1.33	0.197	0.6608	0.21903	1.993	0.462
Unknown	0.486	0.206	1.15	0.099	0.4144	0.12446	1.38	0.151
Years of work experience								
≤ 5 years	1				1			
6–10 years	1.349	0.637	2.86	0.434	1.199	0.38171	3.766	0.756
> 10 years	2.249	0.64	7.9	0.206	1.4505	0.1289	16.322	0.763
Unknown	0.877	0.269	2.86	0.828	0.7461	0.1438	3.871	0.727
Number of dependents								
None	1				1			
1–3	1.32	0.586	2.99	0.5	0.9985	0.31841	3.131	0.998
≥ 4	1.24	0.497	3.09	0.645	1.0892	0.28203	4.207	0.901
Health expenditure (per year)								
< 100 cedis	1				1			
100–499 cedis	0.89	0.367	2.16	0.797	0.4037	0.11684	1.395	0.152
500–999 cedis	0.922	0.34	2.5	0.873	0.6809	0.18678	2.482	0.56
1000–1999 cedis	1.141	0.344	3.78	0.829	1.0528	0.17934	6.18	0.955
≥ 2000 cedis	0.812	0.298	2.22	0.685	0.478	0.11599	1.97	0.307

Safety of self-medication practice								
Very safe	1				1			
Safe	2.071	0.5448	7.869	0.285	2.2487	0.25983	19.462	0.462
Moderate	3.897	1.0681	14.222	0.039	0.9608	0.17384	5.31	0.963
Harmful	2.558	1.1479	5.699	0.022	0.3849	0.07372	2.01	0.258
Very harmful	1.37	0.535	3.509	0.512	0.6392	0.10344	3.949	0.63
Unknown	0.209	0.0549	0.794	0.022	0.08	0.00883	0.725	0.025

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter presents the discussion of the study findings in relation to the literature review.

The study focused on the prevalence of and factors associated with self-medication among staff at Cape Coast Teaching Hospital. The predictors of interest in this study were educational level, occupation, income, health insurance status, and perceived health needs.

5.2 Prevalence of self-medication

This study was conducted to examine the prevalence of and factors associated with self-medication among staff at the Cape Coast Teaching Hospital, Ghana. The prevalence was 81% among the hospital staff, which is similar to other studies in similar settings, especially in Nigeria (Tobin et al., 2020), where the prevalence of self-medication among healthcare workers was estimated to be 89.3%. In a similar study conducted in Ethiopia, Fekadu et al. (2020) estimated the prevalence among health staff to be 73.4%. Contrary to these findings, a study in Kenya performed during the COVID-19 pandemic showed a lower prevalence rate of 60.4% among health staff (Onchonga et al., 2020). Another study in Nigeria showed a lower prevalence of 52.8% among staff generally and 31.8% when the recall period was reduced to three months. However, the disparity in prevalence rates can be attributed to the operational definition of self-medication and recall period used in each study. In this study, self-medication entailed the use of medicines or drugs to treat, manage and/or prevent a disease or health condition without a doctor's prescription. This broadened the scope drugs/products to include those that were used for prophylactic and supplementary purposes, such as multivitamins, and not only drugs used to treat diseases. The use of a one-year recall period also widened the sample pool to include participants who would have been excluded by the shorter recall periods used in other studies. Findings from this study also showed most participants (93.6%) obtained their medication from pharmacies

or drug stores. This is similar to the findings of studies conducted in South India and Maputo City, Mozambique (Balamurugan & Ganesh, 2011; Torres et al., 2019). This is because of the lack of strict policies on drug acquisition and use without a prescription in developing countries (Sherazi et al., 2012). This may enable people, especially health staff, to easily access and use certain medications without a prescription.

5.3 Predisposing factors: education and occupation (job categorization)

Education and occupation showed no significant association with self-medication practice among health staff in this study (p-value = 0.835 and 0.409, respectively). This is contrary to findings from other studies. For example, Shafie et al. (2018) found a significant association between education and self-medication practice. Participants with poor knowledge on self-medication were 2.04 times more likely to self-medicate that those with good knowledge. In Tanzania, Marwa et al. (2018) found that participants with non-formal, primary, or secondary educational levels were more likely to self-medicate compare to participants who had a college or university education. However, other studies suggested that having good knowledge on symptoms was associated with self-medication (Gustafsson, Vikman, et al., 2015). Their study also showed that participants with a tertiary-level education were more likely to obtain reliable information on health matters that boosted their motivation to self-medicate (p-value = 0.028). Soroush et al. (2018) found that participants' educational background could influence their self-medication practice. Participants in that study admitted to self-medicating due to knowledge they had on drugs and diseases. In this study, only 1.5% of the participants had a basic-level education, while the remainder of the participants had a college- or university-level education, owing to the hospital being a tertiary hospital. This may be the reason for the lack of a significant association between educational level and self-medication among the participants. The odds of self-medicating were 1.383, 1.493, and 1.75 more for participants with diploma, bachelors', and masters' levels of education, respectively, compared to participants with basic education, although the association was not significant. This is similar to the findings

in other studies finding that participants with higher educational levels were more likely to self-medicate, although the association in this present study was not significant.

In other studies, participants' occupation was significantly associated self-medication, which contradicts this study's findings. Chindhalore et al. (2020) found a higher prevalence among medical students compared to paramedical students (p-value = 0.019) in a tertiary care teaching institute in India. In this study, nurses and midwives, medical doctors, and other clinical staff were more likely to self-medicate compared to administrative staff (OR = 1.82, 95% CI, 0.888 – 3.73; OR = 1.77, 95% CI, 0.585 – 5.36; OR = 1.46, 95% CI, 0.565 – 3.78, respectively), although the association was not significant.

The discrepancy in the findings for predisposing factors in this study compared to those in other studies can be attributed to nature of the participants in this study. Most of the participants in this study (98.5%) had received a tertiary-level education at the time of the study and 76% were clinicians who provided care to patients. Because the study site was a tertiary health facility, people with lower levels of education did not work there. As determined in previous studies, people with a tertiary-level education are more likely to self-medicate as such the indifference in the practice of self-medication among the participants in this study since most of the participants in this study had tertiary-level education.

5.4 Enabling factors: income and health insurance status

Contrary to findings from previous studies, income and health insurance were not significantly associated with self-medication. The odds of self-medicating were higher for participants who earned 4000 cedis and above or between 2000–3999 cedis each month, compared to those who earned less than 2000 cedis each month (OR = 3.12, 95% CI, 0.934 – 10.43 and OR = 1.66, 95% CI, 0.808 – 3.4, respectively). In Ethiopia, Kifle et al. (2021) found that participants who earned more than 500 birr each month were twice as likely to self-medicate compared to participants who earned less than 200 birr each month. In this study, participants who had active NHIS memberships were more likely to self-medicate

than those who did not (OR = 1.65, 95% CI, 0.614 – 4.46). Although no significant association was found between having an active NHIS membership and self-medicating, the finding is line with those from another study conducted in Ghana. According to Cobbold et al. (2022), people self-medicate in Ghana because of the lower costs of drugs in open markets, pharmacies, and chemical shops. The study also stated that participants with NHIS memberships self-medicated because essential drugs were unavailable and they expressed low satisfaction with services provided at the healthcare facilities. In this study, 10.5% of the participants who self-medicated cited poor services offered at the hospital as their rationale for self-medicating. Most of the participants (54.8%) also cited familiarity with the disease and drug used as rationale for self-medicating. Most of the participants (53.4%) found it to be "very easy" to access drugs for self-medication, with an additional 18.7% reporting that it was "easy."

5.5 Perceived health needs

Participants' perceived health needs and health need severity were found to be significantly associated with self-medication practice in this study ($p < 0.001$ for each). The odds of self-medicating were higher among participants with mild, moderate, or severe health needs, compared with participants who had no health needs (OR = 12.07, 95% CI, 4.789 – 30.42; OR = 5.38, 95% CI, 2.372 – 12.22 and OR = 2.86, 95% CI, 1.062 – 7.71, respectively). When adjusted for covariates, the odds ratio were 18.6797, 10.3463, and 4.906, respectively, compared with those for participants with no health needs. Although other studies failed to determine the association between perceived health needs and self-medication, they were able to reveal that participants self-medicated because of the nature of their illness. In a study conducted in the United Arab Emirates, 72% of the participants self-medicated because their conditions were mild (Sharif, 2012). Almasdy and Shariff (2011) also found that the mild nature of an illness was the main reason for self-medication. In a recent study by Soroush et al. (2018), the nature of the disease was identified as a predictor of self-medication.

In this study, analgesics were the most commonly used drugs (32.9%), followed by antibiotics (22.8%); cold, cough, and respiratory tract infection medication (17.8%); and anti-malarial medication (17.4%). Participants self-medicated to manage pain (34.7%); cold, cough, and respiratory tract infections (21.9%); malaria (17.4%); and fever (9.1%). Participants mostly considered their diseases cured after self-medicating (88.1%), while only 6.4% experienced side effects after self-medicating. Participants' perceptions of the safety of self-medication had a significant association with the practice (p-value < 0.001). The use of these groups of medication is common among people in developing countries when self-medicating. A similar study by Akandie-Sholabi et al. (2021) conducted in Nigeria also found that analgesics (30.1%), anti-malarial medication, (30%) and antibiotics (15.5%) were the drugs most frequently used to self-medicate. In Ethiopia, participants used paracetamol (20.2%), NSAIDs (12.1%), and antibiotics (14.5%) when self-medicating (Shafie et al., 2018). In these studies, fatigue, pain, and weakness were also health conditions commonly treated using self-medication. Almasdy and Shariff (2011) reported that headache, flu, and cold were the most commonly reported ailments leading to self-medication. In their study, analgesics, antipyretics, and cough remedies were the commonly used medications, as was also found in other studies.

5.6 Summary

This study found a high prevalence of self-medication among health staff. It also revealed an association between participants' perceived health needs and self-medication, which is an addition to the current literature. The study was also able to establish a relationship between the perceived safety of the practice and self-medication among participants.

5.7 Study limitations

This study did not examine policies and laws in Ghana that influence self-medication among the population. The period of data collection was very limited, which likely had an effect on the study's response rate.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study showed that self-medication a common practice among the staff at Cape Coast Teaching Hospital, Ghana. Health staff are more likely to self-medicate when they feel mildly ill, regardless of their educational level, job categorization, income, or health insurance status. Health staff mostly self-medicate because of their familiarity with the disease and drugs, emergency situations, and poor services offered at the hospital. Staff mostly obtained drugs used to self-medicate from pharmacies and drug stores. For health staff, perceived safety of the practice was significantly associated with self-medication, while educational level, job categorization, income, and health insurance status had no significant relationship with self-medication. Staff who felt mildly, moderately, or severely ill were more likely to self-medicate than staff who were in good health.

6.2 Recommendations

The following recommendations can be made based on the outcome of the study.

1. The government and other stakeholders should regulate the sale of drugs used for self-medication, especially antibiotics, in pharmacies and other retail drug outlets to reduce access to such medications without a prescription. Most of the participants in this study obtained the drugs used for self-medication from pharmacies and retail other drug outlets. Changing the status of some of these drugs from OTC to prescription medication and controlling access to them can limit the easy access to these medication without a prescription and encourage people to utilize health facilities.
2. The government and other stakeholders should introduce incentives other than health insurance to encourage health staff to seek healthcare at health facilities when they are ill. This study showed a high prevalence of self-medication, even

among participants with active NHIS memberships, regardless of their income. Introducing other financial incentives, such as coverage of medical cost by employers if a copy of a prescription is produced, could encourage staff to utilize health services.

3. Staff must be educated on the dangers of self-medicating, especially in relation to misdiagnosis, abuse, and addiction. Findings from this study indicate that participants' perceptions of the safety of the practice were significantly associated with self-medication. Educating staff on the dangers of self-medication could help them to make safer choices when they have health needs.
4. Further studies must on conducted to identify system gaps such as policies that enable self-medication in Ghana. This study only examined the contextual factors that influence self-medication among health staff. However, other factors that were not examined in this study are equally important in influencing the practice of self-medication, such as the availability of policies and laws that prohibit or encourage the practice and the extent to which they have been implemented. In addition, the stakeholders involved in the practice of self-medication must be examined to determine their level of influence and the appropriate measures needed to properly handle the behavior. Implementing measures that only address the contextual factors without examining and addressing these other factors will not solve the issue.

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Appendix I

QUESTIONNAIRE FOR STAFF

i. Opening

Hi, I am an MPH student at Yonsei University. I am conducting a study on the prevalence of and factors associated with self-medication among staff at Cape Coast Teaching Hospital, Ghana, and I would like to know your experiences related to this topic. Kindly complete this 15-minute survey. Your responses are anonymous and you can skip any question you are not comfortable with or quit at any time. Thank you for your participation.

ii. Definition of terms used in questionnaire

a. Self-medication is defined in this study as the selection and use of medicines/drugs alleged to treat, manage, or prevent a disease or health condition without a doctor's order in the past year.

iii. Background information

1. Age		2. Gender	Male Female
3. Religion	Christianity Islam Traditional Other		
4. Marital Status	Single Married Divorced Widowed		
5. Education	None Primary JHS SHS Tertiary		
6. Area of residence			

iv. Self-medication (select one option per question)

1. Have you self-medicated within the past 12 months?	a. Yes b. No

2. If you answered no to Q1, what was your reason?	a. Do not want to use wrong medication b. Fear of side effects of drugs c. Fear of wrong use of medication d. I had no illness during that period e. Other
3. What is your source of information about the drugs you use for self-medication?	a. Health professional b. Experience from previous treatment c. Friend d. Internet e. Radio/TV commercial f. Other, kindly specify
4. Where do you get the drugs you use for self-medication?	a. Pharmacies/drug stores b. Left over from previous treatment c. From colleagues at the hospital d. From neighbors e. In buses, stations, and other public spaces f. Other, kindly specify

v. Income and health insurance (select one option per question)

1 What is your current job category?	a. Medical Doctor b. Nurse/Midwife c. Allied Health Professional d. Administrative Staff e. Certified Registered Anesthetist f. Pharmacist
2 Years of work experience (*provide the response in the section provided*)	
3 What is your monthly income?	a. 999 cedis and below b. 1000 – 1999 cedis c. 2000 – 2999 cedis d. 3000 – 3999 cedis e. 4000 cedis and above
4 Do you have active health insurance?	a. Yes b. No

5 Number of dependents	a. None b. 1 – 3 c. 4 – 6 d. 7 – 10 e. More than 10
6 Do you have any medical coverage besides the NHIS?	a. Yes b. No
7 What is your yearly health expenditure?	a. 99 cedis and below b. 100 – 499 cedis c. 500 – 999 cedis d. 1000 – 1999 cedis e. 2000 cedis and above
8 Compared to hospital care, how expensive is self-medication on a scale of 1 to 5?	a. Very cheap b. Cheap c. No difference d. Expensive e. Very expensive

vi. Health needs

1. What drug(s) did you use when you were self-medicating?	a. Antibiotics b. Analgesics c. Antimalarials d. Antacids e. Antiemetic f. Cold and cough remedies g. Anthelmintic h. Eye drops i. Other
2. What ailment were you treating/managing with the drugs?	a. Headache b. Fever c. Cough d. Malaria e. Abdominal pain f. Toothache g. Diarrhea h. Peptic ulcer i. Eye disease

	j. Constipation k. Other, kindly specify
3. On a scale of 1 to 5, how easily can you access the drugs you use when self-medicating?	i. Very easy ii. Easy iii. Neutral iv. Difficult v. Very difficult
4. Why did you practice self-medication?	a. Time constraint b. Health facility is too far c. Emergency case d. Familiar with the drug and ailment e. Self-medication is cheap f. Poor services offered at hospital
5. On a scale of 1 to 3, how do you rate the severity of the condition for which you self-medicated?	i. Mild ii. Moderate iii. Severe
6. What was the outcome of the self-medication?	a. Cured from the illness b. No improvement in health status c. Condition worsened d. Other, kindly specify
7. Have you experience any side effects when self-medicating?	a. Yes b. No
8. On a scale of 1 to 5, how dangerous do you consider self-medication?	i. Very safe ii. Safe iii. Neutral iv. Harmful v. Very harmful
9. How often do you self-medicate in a year?	a. 1–3 times b. 4–6 times c. 7–10 times d. More than 10 times
10. Did you experience any medical conditions during the past 12 months?	a. Yes b. No
11. How severe was the medical condition. On a scale of 1 to 3, if the answer to the previous question was yes?	i. Mild ii. Moderate iii. Severe