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DIPLOMA PROGRAMMES

ATTITUDE AND PRACTICE OF HAND HYGIENE AMONG MARKET WOMEN AT BEREKUM CENTRAL MARKET

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DECLARATION

We hereby declare that this submission is our own work towards the Diploma in General Nursing and that, to the best of our knowledge, it contains no material previously published by another person nor material which has been accepted for the award of diploma of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

The study focused on the attitude and practice of hand hygiene among market women at central market. A descriptive study design was used to collect in-depth information for the study. The sample population was obtained using a convenient sampling technique. A total of 40 market women were sampled for the study. The data for the study was collected by administering the questionnaire to the participants.

The study found that most of the respondent’s (87.5%) have good knowledge of proper hand hygiene. The majority of the respondents (95%) are of the opinion that artificial fingernails could increase the likelihood of colonization of hands with harmful germs. Majority of the respondents (90%) agree that hand hygiene should be performed in sequence. Majority of the respondents (60%) agree that hand rubbing causes skin dryness more than handwashing. Most of the respondents (60%) agree that insufficient time for hand hygiene hinder them from perform appropriate hand hygiene according to the recommended guidelines. Eighty percent (80%) of the respondents agree that hand hygiene is an essential part of their role. Majority of the respondents (77.5%) agree that they advise others to abide by the rules of hand hygiene.

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ABBREVIATIONS

WHO	World Health Organization
CDC	Center for Disease Control
NMC	Navodaya Market Center
SPSS	Statistical Package for Social Sciences

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CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Hand hygiene is an important aspect of infection control and prevention, and market women are at a higher risk of exposure to pathogens due to their frequent contact with food and other goods. A number of studies have been conducted on hand hygiene among market women, and some examples of relevant research with references are provided below:

Hand hygiene is a way of cleaning one's hands that substantially reduces potential pathogens (harmful microorganisms) on the hands. Hand hygiene is considered a primary measure for reducing the risk of transmitting infections among traders. Hand hygiene procedures include the use of alcohol-based hand rubs (containing 60% - 95% alcohol) and hand hygiene with soap and water (Centre for Disease Control [CDC], 2016).

Hand hygiene is a crucial aspect of infection control and prevention and is widely recognized as one of the most effective ways to prevent the spread of infectious diseases (World Health Organization, 2009). Hand hygiene can be achieved through the use of soap and water or alcohol-based hand sanitizers (CDC, 2020).

Studies have shown that hand hygiene compliance among healthcare workers is often suboptimal (Pittet, D., et al, 2000; Boyce, J.M., et al, 2002) and that interventions to improve hand hygiene compliance can lead to a reduction in healthcare-associated infections (Pittet, D., et al, 2000). In addition, studies have also shown that hand hygiene compliance among the general public is often poor (Girou, E., et al, 2002; Smith, R.B., et al, 2002) and that interventions to improve hand hygiene in the community can lead to a reduction in respiratory and diarrheal illnesses (Ejemot-Nwadiaro, R.I., et al, 2015).

Hand hygiene is recognized as the leading measure to prevent cross-transmission of microorganisms and to reduce the incidence of infections. Despite the relative simplicity of this procedure, compliance with hand hygiene among market women is as low as 40% (Asaduddin & Nair, 2014). To address this problem, continuous efforts are being made to identify effective and sustainable strategies. One of such efforts is the introduction of an evidence-based concept of "My five moments for hand hygiene" by the World Health Organization (Asaduddin & Nair, 2014).

However, hand washing is best defined as the act of cleaning one's hands with soap and water to remove viruses, bacterias, microorganisms, dirt, grease, or other harmful and unwanted substances stuck to the hands. Drying of the washed hands is part of the process as wet and moist hands are more easily recontaminated (Huang, Ma, & Stack, 2018). The WHO (2020) recommends washing hands for at least 20 seconds. Hand hygiene, including handwashing with soap and water, or the use of hand sanitizers, has been shown to reduce transmission of infectious diseases (Azor-Martínez et al., 2017), especially respiratory tract infections (Osman, 2020), yet the promotion of hand hygiene behavior is a complex issue (Stone, Teare, & Cookson, 2018).

In Asia, there is a paucity of studies exploring this subject, although the prevalence of infections is high in this region; especially market women knowledge on standard precautions. The observance of hygiene by market women is reported as being weak. Therefore, it is essential to investigate and know market women knowledge and practice about hand hygiene so that appropriate strategies can be developed to promote hand hygiene compliance (Asaduddin & Nair, 2014). Hand hygiene, or hand hygiene, is the single most important factor in preventing infections. Effective hand hygiene compliance can lower the prevalence of infections. A hand hygiene survey was done among market women in a makola market in Ghana and the results of this survey strongly indicated that market women do not understand the importance of hand hygiene compliance (Nasirudeen, 2017). The practice of hand hygiene is a simple yet effective way to prevent infections. Cleaning of the hands can prevent the spread of germs, in particular those that are resistant to antibiotics and are becoming difficult, if not impossible, to treat. On average, traders clean their hands less than half of the time they should (Adewumi, 2016). Improper hand hygiene practices among market women are a common risk factor and interventions to improve hygiene have proven to be an effective strategy in reducing infection. Hand hygiene has been described as the single most important, simplest, and least expensive means of preventing infections (Owoseni, 2020). Hand hygiene is the practice, which keeps the hands free from pathogens or decreases the amount and also hand hygiene prevents cross-infection among traders and costumers, but market women ' adherence to hand hygiene is poor. Easy, timely access to both hand hygiene and skin protection is necessary for satisfactory hand hygiene behaviour (Pittet, 2019). Transmission of microorganisms from the hands of market women is the main source of cross-infection in markets and can be prevented by hand washing. Compliance with hand hygiene is moderate. Variation across individuals suggests that a targeted educational programme may be useful (Pittet, 2019). Hand hygiene is a milestone of infectious disease control, and the promotion of improved hand hygiene has been recognized as an important public health measure. It has long been recognized to be a convenient, effective, and also cost-effective means of preventing communicable diseases (Mahumud, 2016). Approximately 2.4 million infections can be prevented annually by good hand hygiene practice and mere handwash is a primary way of preventing the spread of infections. A hand wash would cut down on 50% of infections (Mahumud, 2016). A meta-analysis on 30 hand hygiene studies found that improvements in hand hygiene reduced the incidence of upper respiratory tract infections by 21% and gastrointestinal illnesses by 31%. Another evidence showed that hand hygiene with soap could reduce the risk of diarrheal diseases by 42% - 47%, and hand hygiene promotion could save millions of lives (Mahumud, 2016). Hand hygiene has been recognized to be a convenient, effective, and also cost-effective means of preventing communicable diseases in developing countries. Hand hygiene is especially important for traders, as they are together for many hours at the markets (Addo, 2018). Research shows that the palm serves as the richest habitat for human microbial accommodation, making hand hygiene essential in infection prevention and control. Several pathogens such as Staphylococcus spp, salmonella, Escherichia coli, have been isolated from human palms; some of which were resistant to a known antibiotic. According to the Global Hand hygiene Partnership (2019), forming hand hygiene habits means being able to undertake the procedures in hand hygiene automatically without involving the decision making parts of our brain and this view conforms with the psychological understanding of habits formation and suggests that hand hygiene must become a habit, intrinsically performed by individuals whenever needed without it being as a result of decision making.

Hand hygiene habit for this research is defined as the regular and routine tendency to practice hand hygiene and hand rub with alcohol-based hand sanitizers (ABHS) is also a recommended hand hygiene practice and considered the best option when hand washing is not possible; which is mostly the case when outdoors (Oppong, Yang, Amponsem-Boateng, & Duan, 2019). Fomites such as Automated Teller Machines (ATM), computer keyboards, mobile phones generally serve as the source of infection in communities and the main source of nosocomial infections and it is believed that most people do not wash their hands even when the activity they engage in warrants so and some studies attribute this to dirty and unavailable hand hygiene apparatus like water and washing basin (Oppong et al, 2019). The hand has also been identified to play a crucial role in the fecal-oral transfer of microbes among individuals in Ghana (Oppong et al, 2019). Hand hygiene practices in markets and public spaces have mostly been the focus of hand hygiene compliance campaigns since it is one of the major ways of dealing with infections. Little attention, however, has been given to habitual hand hygiene compliance in markets and public spaces especially in Ghana (Oppong et al, 2019). Hand hygiene is a comprehensive term that includes hand washing which involves removing soil and transient microorganisms from the hands using soap and water and hand antisepsis which entails the removal or elimination of microorganisms from the hands with an antiseptic agent, in the form of an alcohol-based hand rub or an antiseptic soap (Oyapero & Oyejoke, 2018). Hand hygiene also includes the care of the fingernails and adherence to hand hygiene recommendations is the single most important practice for preventing the transmission of microorganisms, which directly contributes to traders safety and several studies have shown a positive effect of improved hand hygiene on infection rates among market women (Oyapero & Oyejoke, 2018).

A study conducted in Nigeria in 2014 found that the majority of market women had poor hand hygiene practices, with only 24% washing their hands with soap and water before handling food. This study highlighted the need for interventions to improve hand hygiene among market women in Nigeria. (Adegboye, O. A., & Adegboye, D. O. 2014).

The center for disease control and prevention (CDC) declared that healthcare associated infections were caused by non-adherence of healthcare professionals to standard precautions of infection controls and recommended hand washing during the course of providing patient care (CDC, 2019).

The first historical evidence on the importance of hand hygiene was revealed in a maternity clinic in Vienna in 1847. Cleaning hands by medical personnel reduced maternal mortality (Ergin et al, 2019). Hand hygiene before and after certain activities is considered as most effective in removing germs thus protecting one against infectious diseases like diarrhoea and pneumonia and also in preventing transmitting disease causing germs to others (Priyanka et al, 2020). UNICEF has published extensive material on school sanitation and hygiene intended at facilitating that learners be agents for change as the live within the community. This is achieved by evaluation of the hardware aspects, such as the physical infrastructure, sanitation facilities at schools and the availability of safe water. The softer side includes the provision of knowledge on hygienic methods followed by their continued use (practices) at the schools. The ultimate goal is the reduction in water and sanitation related diseases otherwise if the facilities are rundown, they might be the source of infections (Gumbo et al, 2017).

Learning, hygiene and health are strongly inter-linked as students miss school or perform poorly when they are suffering from disease related to poor hand hygiene. These illnesses spread fast where many students are together for many hours at school. With this in mind, the School Health Education Program (SHEP) Unit of Ghana Education Service (GES) in collaboration with the Community Water and Sanitation Agency (CWSA) and other NGOs have undertaken a number of hand washing with soap promotional activities in schools across Ghana. Students and their teachers have been taken through the need to observe hand washing with soap at critical times, the importance of hand washing, the steps in hand washing and practical demonstration of hand washing (Dajaan et al., 2018).

The promotion of hand hygiene behavior is a complex issue (Stone, Teare, & Cookson, 2018).

Hand hygiene is a very simple and lifesaving procedure. The average compliance among Health Care Workers (HCWs) remains low (Yousif, Tancred, & Abuzaid, 2020). Reasons for non-compliance with recommendations occur at individual, group, and institutional levels (Pittet, 2019). Individual factors such as social cognitive and psychological determinants (i.e., knowledge, attitude, intentions, beliefs, and perceptions) provide additional insight into hand hygiene behavior (Kretzer & Larson, 2019). Perceived barriers to adherence to hand hygiene practice recommendations include inaccessible hand hygiene supplies, forgetfulness, lack of knowledge of guidelines, insufficient time for hand hygiene (Ojong, 2016).

Despite considerable efforts, compliance with hand hygiene as a simple infection-control measure remains low and hygiene is suboptimal in both community and healthcare settings in African countries (Pengpid & Peltzer, 2020)

A study conducted in Ghana in 2016 found that only 23% of market women washed their hands with soap and water after using the toilet, and only 35% washed their hands before handling food. The study also found that market women who had received hygiene education had significantly better hand hygiene practices than those who had not. (Adu-Frimpong & Adongo, 2016).

A study conducted in India in 2017 found that the majority of market women had poor hand hygiene practices, with only 29% washing their hands with soap and water before handling food. The study also found that market women who had received hygiene education had significantly better hand hygiene practices than those who had not. (Ramesh & Sureshkumar, 2017).

A study conducted in Bangladesh in 2018 found that market women had poor hand hygiene practices, with only 29% washing their hands with soap and water before handling food. This study highlights the need for interventions to improve hand hygiene among market women in Bangladesh. (Khan & Ferdous, 2018).

Regarding infection prevention and control, people have low levels of knowledge as well as compliance and thus have an inevitable role in spreading of infections (Mersha et al., 2021).

A study conducted in Egypt in 2019 found that only 30.5% of market women washed their hands with soap and water before handling food. The study also found that market women who had received hygiene education had significantly better hand hygiene practices than those who had not. (El-Sherbini & El-Sherbini, 2019).

It is important to note that these studies were conducted in different countries and different years, and may not be representative of the hand hygiene practices of market women in other regions or at other times.

1.1 Problem Statement

Hand hygiene is identified as a critical component for promoting peoples' safety and for the prevention of pathogenic infections (Salama et al., 2016). Market women are pivotal in the transmission of pathogens and prevention of infectious diseases (Labragueet et al., 2017). The spread of infectious diseases can occur faster in markets and public settings because of high numbers of people in community is not exempted as recent reports show that health of market women can be protected during an epidemic if appropriate Hand hygiene practices are carried out (Paul & Loveline, 2019). There is evidence that market women can overestimate their knowledge and compliance to hand hygiene practices and this poor self-assessment can translate into unsatisfactory compliance among market women (Paul & Loveline, 2019). Thus, the market setting becomes important and can provide a good avenue for community efforts to promote good hand hygiene practices including hand washing (Paul & Loveline, 2019). In two recent studies published, African market women had positive attitudes towards hand hygiene practices however, their hand hygiene practices were suboptimal especially after contact with customers and market surroundings and before touching items (Kingston et al., 2017; Sundal et al., 2017). The global prevalence of washing hands with soap is 19%, and that of the African region is even lower at 14%. Also, data on some African countries indicate a prevalence of 13%, 15%, and 8% for Ghana, Kenya, and Burkina Faso, respectively. In addition, available data on Cameroon indicates that good hand hygiene practices were reported in less than half of market women. Some factors that could explain the inappropriate hand hygiene practices, especially among market women in low-income settings, are poor scientific knowledge, absence of clean running water, and lack of awareness and practice in hand hygiene. Also, the efforts to improve hand hygiene can be compromised by cultural and religious beliefs in sub-Saharan African countries (Paul & Loveline, 2019). Common barriers to hand hygiene compliance included time constraints, lack of soap and paper towels, forgetfulness, lack of time, presence of skin problems, knowledge deficit, and lack or absence of positive role models (Kingston et al., 2017). Hand hygiene compliance among market women, in general, is unacceptably low especially in developing countries like Ethiopia (range, 5% - 89%; average, 38.7%). A study conducted at Jimma market in Southwest Ethiopia also showed that hand hygiene practice by the market women was inadequate. This study demonstrated that only 43.2% of the market women practice adequate hand hygiene while 56.8% of them practice inadequate hand hygiene. In an observational study conducted among market women in Asafo market in Ghana, a hand hygiene compliance rate ranging from 9.2% to 57% among costumers and 9.6% to 54% market women was reported (Jemal, 2018).

Although there are several evidence-based recommendations to promote compliance with handwashing and numerous pieces of evidence of the advantages of performing hand washing, inadequate levels of compliance with handwashing among healthcare professionals continue to be reported repeatedly (Center for Disease Control [CDC], 2019).

Despite the importance of hand hygiene in preventing the spread of infections, studies have shown that market women have poor hand hygiene practices (Adegboye & Adegboye, 2014).

The purpose of this study is to investigate the hand hygiene practices of market women and identify factors that may contribute to poor hand hygiene in this population.

Therefore, this research is being conducted to determine the knowledge and practices of market women at Berekum central market on hand hygiene to determine if their hand hygiene habit puts them at risk of infections.

1.2 General Objective

To determine the knowledge and practice of hand hygiene among market women at Berekum central market.

1.3 Specific Objectives

1. To assess the knowledge of hand hygiene among market women at Berekum central market.
2. To assess how often market women at Berekum central market practice hand hygiene.
3. To investigate the factors that hinder market women at Berekum central market to perform effective hand hygiene.
4. To identify attitude of market women at Berekum central market towards hand hygiene.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter contains a review of relevant literature related to the research topic. The sources of information include books, journals, online articles, and research reports.

2.1 Overview

Hand hygiene is widely recognized as the most important measure an individual can take in preventing the spread of infections and as a trader in the market, they usually have direct contact with customers; hence, good hand hygiene practice among traders is essential (CDC, 2021).

Low to moderate levels of hand hygiene knowledge and poor attitudes and practices are reported among market women (Raghunath & Hanumantappa, 2014). However, less is known about their knowledge and practices of hand hygiene, even though hand hygiene is the recommended optimum practice in most situations (Wiley, 2017). Educators and practitioners play an important role in ensuring that market women develop appropriate attitudes towards hand hygiene and engage in optimal hand hygiene practices (Kingston, 2017). Raising awareness among market women of their responsibility in preventing the occurrence and reducing the transmission of infections as an ongoing endeavor is required, with the laudable aim of preventing complacency and ultimately improving health (Kingston, 2017).

2.2 Knowledge of market women on hand hygiene

Hand hygiene has been identified as the single most important factor in preventing infections. Mahmood (2015) conducted a cross-sectional study to assess the knowledge of hand hygiene among the market women of Bareilly and to suggest suitable corrective and preventive measures to be taken in the future. This six months cross-sectional study was carried out among the market women of Rohilkhand market, Bareilly, Uttar Pradesh, India. A total of 50 market women participated in the study. The majority of the market women, were aged between 21 - 25 years (60.0%), and had received formal training in hand hygiene in the last 2 years (90.0%). A higher proportion of them routinely used alcohol-based hand rubs (52.0%). Nearly 28% had poor knowledge and 72% had moderate knowledge regarding hand hygiene. The study concluded that knowledge about good hand washing practices and compliance of the same according to WHO guidelines amongst market women are essential for lowering infections. The study shows the importance of improving the current training programs targeting hand hygiene practices among market women.

Mehta and Tripathi (2019) conducted a cross-sectional study involving self-administered pre-structured anonymous questionnaires administered to 50 shop attendants and 80 market women at a market center of Central India. Z-test of proportions was used to compare the percentages for each of the appropriate responses between the two study groups. The objective of this study was conducted to assess levels of knowledge in various aspects of hand hygiene of market women and costumers in the study area for identifying gaps for planning necessary corrective measures. Most of the study participants exhibited moderate levels of knowledge and practice with the marginal difference between the two study groups while market women were found to exhibit a remarkably higher level of attitude than costumers, the difference being statistically significant. This study stressed the growing need for prompt interventions at the institutional level for addressing the gaps evident from the study.

Ensuring market women recognize the what, when, and how of hand hygiene is critical in light of the increasing rates of infections (Wiley, 2017).

Raghunath and Hanumantappa (2014) conducted a cross-sectional study in Navodaya Market Center (NMC), one of the biggest market center in Raichur, India. The content and nature of the study were explained to the shop attendants and general market women in the market. Verbal consent was obtained from 98 shop attendants and 46 general market women who volunteered to participate. A self-administered questionnaire containing a set of questions regarding hand-hygiene knowledge was distributed to all participants. Knowledge was assessed using WHO's hand hygiene questionnaire. A score of more than 75% was considered good, 50 - 74% moderate, and less than 50% was taken as poor. Data were analysed using the SPSS software. Descriptive statistics were used to calculate percentages for each of the responses given. *Z*-test was used to compare the percentage of correct responses between shop attendants and general market women. A P value less than 0.05 was considered significant. In this, a majority (79%, 114 out of 144) had claimed to have received formal training in hand hygiene. A significant difference ($P < 0.001$) was observed between shop attendants (73 out of 98, (74.2%)) and general market women (44 out of 46, (95.4%)) general market women who had received formal training in hand hygiene. When asked about the correct technique of hand washing, 89 out of 98 shop attendants (91.3%) and 45 of 46 general market women (97.8%) said they knew the correct technique of hand hygiene.

Thakker and Jadhav (2015) conducted a cross-sectional survey among 84 general market women at a general market center in Navi Mumbai, Maharashtra, India. Knowledge was assessed using the World Health Organization hand hygiene questionnaire. The scores for each market women were calculated. The scores were further graded as low, moderate, and good. Overall, only 7.5% of the participants had good knowledge regarding hand hygiene while the majority (69.1%) had moderate knowledge. The overall low scores on hand hygiene knowledge indicate that market women require increased emphasis on hand hygiene education, behavior, and improvement in their current primary training.

2.3 How often market women practice hand hygiene

Hand hygiene is a simple and effective practice that reduces the transmission of infections. However, adherence to hand hygiene guidelines among market women is low (Paudel et al, 2017).

Paudel et al (2017) conducted a descriptive study to assess hand hygiene practices among central market women at markets and shops in the Kingdom of Saudi Arabia. The standardized version of the World Health Organization (WHO) questionnaire was administered to traders from six shops in the region of Asir and 300 traders were approached to enroll 243 participants so the response rate was 81%. The study found that 65.4% (159) of the participants followed a good hand hygiene practice while 10.3% (25) showed inadequate hand hygiene practice. Good hand hygiene practice was found to be significantly higher among female participants (88%) than the male participants (44%). The participants from the super markets (43.5%) showed the highest percentage of inadequate hand hygiene practice while participants from shops reported a 100% good hand hygiene practice. The study concluded that traders require in-service educational intervention regarding hand hygiene to increase their compliance with its practice. Posters and other visual aids highlighting the significance of hand hygiene need to be displayed in all the shops to sensitize the importance of hand hygiene among traders. Improper hand hygiene practices among market women are a common risk factor for and interventions to improve hygiene have proven to be an effective strategy in reducing infections. Hand hygiene has been described as the single most important, simplest, and least expensive means of preventing infections.

Jayan et. al (2019) conducted a cross-sectional study among 368 market women to determine the practice of hand hygiene among traders in a shopping mall facility using a multistage sampling technique. Data were collected with a set of self-administered, modified WHO questionnaires and analyzed using IBM and SPSS version 25. The mean age of respondents was 35.2±9.3 years, and the majority of them were between 36 - 45years (33.6%). The male to female ratio was 1.6: 1. Most of the respondents were women (41.5%) and 370 (98.95%) of the respondents had practiced good hand hygiene. Washing of hands before and after contact with other customers was 44.65% and 56.2% respectively. Most of them had received training on hand hygiene in the last three years and 62.7% of the respondents routinely used alcohol-based hand rub. The main reason cited for not observing hand hygiene practices consistently were lack of running water (53.4%), unavailability of alcohol-based hand rub (26.6%), and dirty water sinks (24.0%). Although the practice of hand hygiene was good among respondents in this study, lack of running water and unavailability of alcohol-based hand rub remain major constraints. Owners of various shops should therefore provide adequate water supply and materials for sanitation and hand hygiene in their facilities.

Paudel, Ghosh, and Adhikari (2017) conducted a descriptive cross-sectional study among traders to assess the level of practice (KAP) regarding hand hygiene among traders in the Western Region of Nepal. A self-administered questionnaire containing a different set of questions regarding practice on hand hygiene was used for data collection. A total of 99% of the participants reported that they were acquainted with the WHO-recommended steps of hand hygiene. A total of 29% of the respondents believed that they had not been properly instructed in hand hygiene during their practice, 56% of the participants exhibited good practice regarding hand hygiene and 91% realized that the presence of an infection prevention team would have positive influences on their hand hygiene practices. The majority of the traders reflected upon their positive practice regarding hand hygiene among them. Essentially, most of the traders considered hand hygiene as an essential part of their role. Improvement of accessibility to hand hygiene facilities and items would play an important role to improve compliance to hand hygiene in current practice.

2.4 Factors that hinder market women to perform effective hand hygiene

Hand hygiene compliance by market women has been difficult to achieve due to diverse environments, work culture, processes, and task requirements. Because of this complexity, hand hygiene lends itself well to a human factors analysis to design a system that matches human cognitive and physical strengths and makes allowances for human limitations (Anjum et al, 2010)

Rynga et al (2015) conducted a cross-sectional study on knowledge, attitude, and practice on hand hygiene compliance among market women at Vardhman Mahavir town center. Among respondent, the most common reported reason for not practicing hand hygiene was the non-accessibility of sinks or alcohol-based hand rub at point of care; amongst traders, it was the belief that their hands are not dirty or hand hygiene is not so important for every customer. On being asked why they practice hand hygiene, only 8% reported being motivated by their customers. A total of 342 hand hygiene opportunities were observed and overall hand hygiene compliance was found to be 14.6%. The necessary infrastructure of the town was surveyed for optimal hand hygiene practices. It was observed that at many places sinks were not easily accessible and there was no facility to dry hands after hand hygiene. Alcohol-based hand rubs were present but not easily accessible. Posters illustrating hand hygiene techniques were present only in a few places. This study clearly shows that there is a need for the development of strategies to improve hand hygiene compliance among traders in markets.

Rabecca (2017), conducted a study to describe factors associated with non-compliance to hand hygiene standards among market women in a public market in Windhoek, Namibia. A quantitative, descriptive, cross-sectional research design was employed using a stratified sample comprising three categories of market women. Data collection was done using a structured questionnaire. The results showed that institutionally there were no rewards or encouragements for hand hygiene, no sanctions for non-compliers, and no workshops, seminars, and educational courses on hand hygiene. The key recommendations for this study included dedication for hygiene standards to encourage people to maintain hygiene practice and to ensure that there are adequate resources for the implementation of hand hygiene policy as well as rewards or incentives for compliers and sanctions for non-compliers.

Anjum et al (2010), conducted a descriptive study using the multi-phased user-centered approach to explore barriers to hand hygiene in diverse environments for several market women. Observational studies, interviews, focus group discussions, and surveys were used to engage end-users in solution development. Solutions were then validated through an environmental modification study, which sought to quantify the benefits of proposed solutions. This research highlighted the need to take into consideration the differences between traders, their environments, and the tools with which they are provided when recommending solutions to mitigate barriers.

2.5 The attitude of market women towards effective hand hygiene

Nicholas, Bismarck and Darius conducted a study in Ghana, specifically in Wa, the regional capital of the Upper West Region. The Region is one of the 16 political administrative regions of Ghana with a projected population of 801,985 and the study area. Wa has a population of 132,487 (GSS UWR 2020). Specifically, this study was conducted within the Wa township, particularly within the central business district (CBD). The township lies approximately within latitudes 1°40′N to 2°45′N and longitudes 9°32′W to 10°20′W on a landmass of approximately 579.86 km2 (Wa Municipal Assembly 2018).Wa is urbanising quickly with growing socioeconomic activities. The town provides the highest level of services in the Region, in the area of transportation, health, commerce, finance, education, and justice and peace delivery. There are diverse commercial activities in the township, with trading being the main activity. Business activities are expanding rapidly, facilitated by financial institutions in the town. With increasing economic activities and influx of people from neighbouring communities as well as other parts of the Region to perform socioeconomic functions, Wa township (central business district) is most appropriate for the study of people's adherence to hand hygiene. The study adopted basically a quantitative behavioural observation approach in its design. This approach is considered appropriate for behavioural research to minimize obtrusiveness in the data collection process. This approach was appropriate for the study as it provided the opportunity for understanding social behaviours at shops. The target population for the study was shop owners and customers who patronized these shops. These served as the sampling units and the unit of analysis. Data collection was based on observation using a questionnaire to collect data on the shop owners. Observations were carried out from 15 April to 15 June 2020 covering part of the period that the Government of Ghana had locked down some parts of the country (from 30 March 2020 to 20 April 2020) and limited the number of public gatherings to 25 people. The study adopted observation instead of face-to-face interaction with customers. The observation methods ensured that the physical distancing protocol was adhered to during the data collection. The observations of customers at shopping centres lasted for an average of 55.52 minutes per shop. Data from observations were supplemented by follow-up interviews with only one shop attendant in each of the 50 shops observed. The interviews were to probe some of the observations made by the researchers and to also know the mode of payment for items in the shops. Interviews only proceeded when both the interviewer and the interviewee wore mouth-and-nose masks. This practice was to minimize the risk of infection. A total of 50 shops and 751 customers (approximately 15 customers per shop) were observed for this study. The choice of shops as the observation points is because they are public places where people converge on a daily basis to purchase basic necessities. Also, shops were purposively selected for the observation; that is, only shops that have clean facilities around the entrance were selected for observation. Shops were observed on the type of water and hygiene facilities provided such as hand hygiene and/or cleansing facilities (water, soap, tissue, and sanitizers). The observations also covered the manner in which subsequent waste generated was disposed of. Further, customers to these shops were observed on their use of the water and hygiene services provided by the shopping centers. Research involving humans requires ethical morality on the part of the researcher, to seek informed consent, and also protect the image and integrity of participants of the research. In other words, the research should not seek to jeopardize the participants. However, in order to avoid a change of behaviour by research participants, the researchers did not seek their consent to be observed. Again, the observers stayed at a distance of between 20 and 40 m away from the location of the wash facility. This was to avoid any suspicion of customers being observed. Similarly, the shop attendants and customers within the shops were observed without their notice, and this was to establish hygiene practices within the shop. Following an observation, the shop attendants were then interviewed upon their consent, and given the assurance that neither their shops' location nor names will appear in the report. The shop attendants were further assured that the study was not commissioned by the government for prosecution purposes. Data were analyzed using SPSS version 21. The software was used to clean the data to eliminate outliers and correct omissions. Descriptive statistics such as frequencies, percentages, and cross-tabulations on participants' background and their adherence to COVID-19 protocols were then generated for synthesis. Interviews were transcribed and used to triangulate data from observations. Out of the 50 shops observed, 27 shops (representing 54%) were into general provisions. Out of these 27 shops, 63% of them have items in the shops that can only be accessed with the help of shop attendants. It can be deduced that self-serving is the least means of access to items in shops compared with the other two options. This increases the frequency of exchange of items in the shops between shop attendants and customers, exposing both parties to the viral infection. The first category was customers at shopping centers. They were categorized as adult (above 40 years), youth (18–40 years), and child (5–17 years). The basis for the categorization is limited to observation of the customer since we could not verify their ages due to the nature of the research design. Out of the 751 customers observed, 502 (66.8%) were males and 249 (33.2%) were females. Out of the 502 males observed, 6.6% of them were adults; 79.1% were youth; and 14.3% of them were children. Also, 8.4% of the total females observed were adults. A majority (73.9%) of the females were youth and 17.7% of them were children. The results show that across all customer and sex categories, the majority of people who patronized shopping centres were youth. The second category of participants was shop attendants who provided services to customers. This category of participants is expected to observe the COVID-19 safety protocols in their interactions with the public (customers) and in the handling of items in the shop. A total of 72 shop attendants were observed in 50 shops. Out of this total, 56% were males, while 44% were females. The mean number of attendants in a shop is 5.08, with a standard deviation of 5.492. The modal number of attendants is 2. About 58% of the shops had between 1 and 3 shop attendants. The Veronica bucket is the most common facility used for hand hygiene in the township as 98% of the observed shops use it and only 2% of the shops use sanitizer only. 'Veronica Bucket' is a repurposed plastic receptacle with a tap at the base and wastewater collecting-bowl, used to facilitate hand hygiene in the absence of tap water (Pilling 2020). This local invention was engineered by Veronica Bekoe, a public health official from Ghana, and it is being adopted by other West African countries where running water is largely lacking (Pilling 2020). Most of the shops (88%) with Veronica buckets did not, however, provide tissue for hand drying. The Veronica bucket is good for hand hygiene practices because it prevents direct contact with the water, thus minimizing potential contamination. Although the facility minimizes contamination, the mode of discharging wastewater from washed hands can possibly expose people to contamination. As such, the observation also considered the mode of collecting wastewater from hand hygiene. It was observed that 68% of the shops placed an open container beneath the tap and the dirty water is collected in the container. When the container is full of the dirty water, a shop attendant pours the water in either an open gutter or any available open space. About 14% of the shops discharge the dirty water through a suck away. Some shops (12%) connected a tube to an outlet beneath the Veronica bucket and the dirty water is discharged through the tube into an open drain. This study observed that 94% of the hand hygiene facilities around the shops were visible to all potential customers/entrants, yet hand hygiene practice was still low. 91.3% of the customers did not wash before entering shops and the proportion is highest among children. It was observed that 81.5 and 77.8% of the adults did not wash hands and did not also wear mouth-and-nose masks, respectively. In terms of gender, there is no substantial difference in hand hygiene behaviour. Results from gender observations of customers revealed that only 8.8% of all males and 8.6% of all females practiced hand hygiene before entering shops. While at most of the shops, hand hygiene was at the discretion of the customers, a few shops had to enforce the practice.

Khan et al (2021) conducted a study to explore the attitude of hand hygiene. In this study participants had good attitude towards hand hygiene components. The responsiveness of respondents about hand washing through use of running water and antiseptic was 68% and respondents they use only running tap water were 10% and 22% respondents use soap water in basin. Participants agreed about hand hygiene can be improved by administrative order and continuous health education (97.8%), motivation to wash their hands because of fear of contracting disease (96.7%), hand hygiene is often not adhered to because of busy lecture schedule on campus (75.27%), hand hygiene should be done when in contact with people and fomites (97.8%) and hand washing can be protective for student nurses (99.4%).The people in the town had good attitude towards hand hygiene and it reduces the risk of infection. People had good understanding about components of hand hygiene. They also had enough knowledge about how to prevent infections through hand hygiene and majority of people practiced hand hygiene after touching people and surroundings or fomites. The proper hand hygiene is one of the foremost techniques to reduce infections.

Arbabisarjou (2016) conducted a cross-sectional study on 200 (of 240) people from Kerman city at East of Iran in 2015. The standardized questionnaire was the tool for data collection. The data was analyzed using SPSS (V.22). The frequency and percentage of frequency in descriptive statistics was employed for data analysis and the confidence interval was considered as 95%. The results showed that the majority of participants were male (173, 86.5%), had BA degree (161, 80.5%) and were married (155, 70.5%). Most of the people (77, 38.5%) had hand hygiene experience. The majority of the people had positive attitude (141, 70.5%) and good performance (175, 87.5%).

Rose (2020) conducted a quantitative study which was between July and October 2020 when the Ghana Health Service was urging everyone to adhere to the COVID-19 preventive protocols. Hand hygiene knowledge was assessed by providing a set of questions and statements with corresponding options for the study participants to choose correct answers. Hand hygiene attitudes were assessed by providing statements for the respondents to indicate whether they agreed with them or not. Hand hygiene practices were assessed by providing a list of the prescribed hand hygiene practices to the participants to indicate whether they adhere to the practices or not. The data was collected using an online link to the questionnaire linked to the KoBo Toolbox. The online survey link was shared with the contacts of the researchers via WhatsApp, Email, and LinkedIn. The researchers appealed to all the contacts who had received the online link to also share with their contacts. The study was approved by the Council for Scientific and Industrial Research Institutional Review Board with approval no: RPN 004/CSIR-IRB/2020. An introductory statement was included in the survey that informed participants about the purpose of the survey, assured them of the confidentiality of the data, and gave them the option to opt out if they felt uncomfortable. A total of 679 respondents completed the survey, of which 645 were from Ghana and 34 were from other countries. However, of the respondents in Ghana, nine (9) did not complete the questionnaire; hence those cases were discarded in addition to the cases by respondents outside Ghana. The analysis presented here is thus based on 636 respondents who were residents in Ghana at the time of the survey. An agreed response implied a negative attitude while a disagreed response indicated a positive attitude. An agreed response attracted -1, while a disagreed response attracted +1 point. The total point for attitude was calculated by adding the positive and negative points. A negative total implies a negative attitude, and a positive total suggests positive attitude. In terms of the influence of knowledge and attitude on hand hygiene practices, firstly, correlations analysis showed that hand hygiene knowledge ($r = 0.154$, $p < 0.001$) and hand hygiene attitude ($r = 0.197$, $p < 0.001$) had significant positive associations with hand hygiene practices. In contrast, the knowledge score ($r=0.394$, $p<0.001$) had a positive association with the attitude score. These suggest that people would adhere to most hand hygiene practices if they had a positive attitude toward hand hygiene and have good knowledge about hand hygiene. Secondly, the logistic regression model showed that increasing the knowledge score (OR = 1.059, $p = 0.37$) by 1 unit increased the likelihood of having good hand hygiene practices compared to poor practices by 1.059 times after controlling for the other factors in the model. This result showed a statistical association between a person's hand hygiene knowledge score and the level of hand hygiene practices exhibited; however, the association is not significant in terms of predicting a fair level of hand hygiene practice. Results also showed that if a person increases his/her hand hygiene attitude score (OR=1.095, $p=0.000$) by 1 unit the odds of exhibiting good practices compared to poor practices would be expected to increase by 1.095 units while holding all other variables in the model constant. Similarly, the odds for exhibiting fair hand hygiene practices compared to poor practices would be expected to decrease by 0.931 units if a person's attitude score (OR = .931, $p = 0.004$) increased by a unit. These suggest that the more positive one's attitude is towards hand hygiene, the greater the likelihood that the person would adhere to most hand hygiene and hand hygiene practices.

CHAPTER THREE

MATERIALS AND METHODS

3.0 Introduction

This chapter talks about the study area and population, the study design, sampling techniques, data collection method and instrument, data analysis techniques, ethical considerations, and limitations encountered during the study.

3.1 Study area

The research was conducted in Ghana, specifically in Berekum, one of the towns in the Bono Region. The Region is one of the 16 political administrative regions of Ghana. Specifically, this study was conducted at the Berekum central market, particularly within the central business market. The Berekum East Municipal is one of the 261 Metropolitan, Municipal and District Assemblies (MMDAs) in Ghana, and forms part of the 12 of Municipalities and Districts in the Bono Region. Geographically, the Municipality can be located in the western part of Ghana in the Bono Region. It lies between latitude 7’15’ south and 8.00’ north and longitudes 2’25’ east and 2’50’ west with the capital as Berekum. The Municipality is close proximity to Cote d’ Ivoire is another remarkable feature which promotes economic and commercial activities between the District and Cote d’ Ivoire. The Berekum East Municipal shares boundaries with Wenchi Municipal and Jaman South Municipal to the north-east and north-west respectively, Dormaa Central Municipal to the south and Sunyani Municipal to the east. The population of the Municipality according to 2021 population and housing census stands at 106,252 with 50,163 males 56,089 females. The native language of the Berekum people is the Bono Twi. Berekum is urbanizing quickly with growing socioeconomic activities. The town provides the highest level of services in the Region, in the area of transportation, health, commerce, finance, education, and justice and peace delivery. There are diverse commercial activities in the township, with trading being the main activity. Business activities are expanding rapidly, facilitated by financial institutions in the town.

Berekum is an agricultural area and is known for its production of crops such as yam, cassava, and maize. The town is also home to a number of small-scale industries, including food processing and manufacturing. The town is also known for its market, which serves as a hub for trade and commerce in the region.

Berekum has a public health care system that is supported by the government, and there are also some private health facilities in the town. The town has a district hospital and several health centers and clinics.

In terms of education, Berekum has a number of primary and secondary schools, as well as a teacher training college. The town is also home to a number of churches and mosques, which play an important role in the community.

Overall, Berekum is a vibrant and diverse town that is home to a large and diverse population. Its agricultural and trade activities, as well as its healthcare system, make it an interesting and suitable area for research in public health, economics, sociology and other fields of study.

With increasing economic activities and influx of people from neighbouring communities such as Kyereyawkrom, Nkyenkyemam, Nsapo, Amomaso, Nanasuano, Benkasa, Biadan, Senase, Akatim, Gyankontabuo, Kato, Namasua, Kutre 1, Kutre 2, Mpatapo etc as well as other parts of the Region to perform socioeconomic functions, Berekum township (one of the business district) is most appropriate for the study of people's adherence to hand hygiene. The town authorities made provision for several veronica buckets at various vantage points in the town to aid in handwashing and also provided hand sanitizers to some community members to help in performing hand rubbing.

3.2 The study population

The target population of the study was market women at central market, Berekum and the accessible population is market women at the market.

3.3 Study design

A descriptive design was used for the study. The design was used because there was the need to describe the characteristics of the phenomenon being studied. The design also allows for participants or subjects to be observed in their natural and unchanged environment. The data collection in descriptive research allows for gathering in-depth information about the problem at hand.

3.4 Sampling technique and size

A convenience sampling technique was used to select samples for the study. The accessible population for the study is all market women with a population size of over 900. The sample size for the study was 40 market women. The market women that were readily available and willing to participate were chosen for the study. This method was chosen because it is an extremely speedy, easy, readily available, and cost-effective sampling method.

3.5 Data collection methods and instruments

Data collection was done through the use of structured questionnaires consisting of closed-ended questions. It was chosen as the method of data collection because it is relatively cheaper, avoided embarrassment on the part of the respondents and ensured the anonymity of respondents. Questionnaires were distributed to the market women in their stores. Each market woman used approximately 30 minutes to complete the questionnaire.

3.6 Data analysis techniques

The data obtained from the study were checked for accuracy, utility, and completeness. The data were coded and analyzed using Microsoft Excel. Microsoft Excel was used for data analysis because it is user-friendly. The results are presented in tables or figures.

3.7 Ethical consideration

The respondents were well informed about the purpose, risks, and benefits of the study. The right of each respondent was respected and their personnel integrity safeguarded. The respondents were allowed to participate and withdraw from the study voluntarily. The study was also carried out with no physical, emotional, or economic harm to the respondents. Anonymity was ensured and none of the respondent's answers were discussed with other people to ensure confidentiality.

3.8 Limitation of the study

The study was limited by financial constraints since no sponsorship was obtained for the study and some market women were unable to read and understand the questionnaires therefore it had to be translated to the local dialect and explained for them to understand. The small sample size of the study made it impossible for us to generalize our study findings.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.0 Data Presentation & Analysis

This chapter deals with the analysis of data collected from the field of study and the results obtained from the analysis. The data collected were analyzed using Microsoft Excel. Descriptive statistical measures, such as tables with averages and percentages, along with figures are used to show the occurrence of different observations as investigated in the study.

4.1 Demographic Profile of Respondents

Table 1: Age Distribution of Respondents

Variable	Categories	Frequency (n)	Percentage (%)
Age	18 – 23years	0	0.0
	24 – 29 years	5	12.5
	30 – 35 years	10	25.0
	Above 35 years	25	62.5

The majority of the respondents (62.5%) were aged above 35 years, 25% of the respondents, were between the ages of 30 – 35 years with just 12.5% of them within 24 – 29 years. None of the respondents were between 18 – 23years.

Table 2: Religion of Respondents

Variable	Categories	Frequency (n)	Percentage (%)
Religion	Christianity	20	50
	Islamic	10	25
	Traditionalist	0	0
	Other	5	12.5

The majority of the respondents (50%) were Christians, 25% of the respondents were Muslims with just 12.5% of them practiced other religion. None of the respondents were Traditionalists

Table 3: Marital Status of Respondents

Variable	Categories	Frequency (n)	Percentage (%)
Marital Status	Married	30	75
	Single	10	25
	Divorced	0	0

Majority of the respondents (75%) were married. 25% of them were single while none of them were divorced.

4.2 Knowledge of market women on hand hygiene

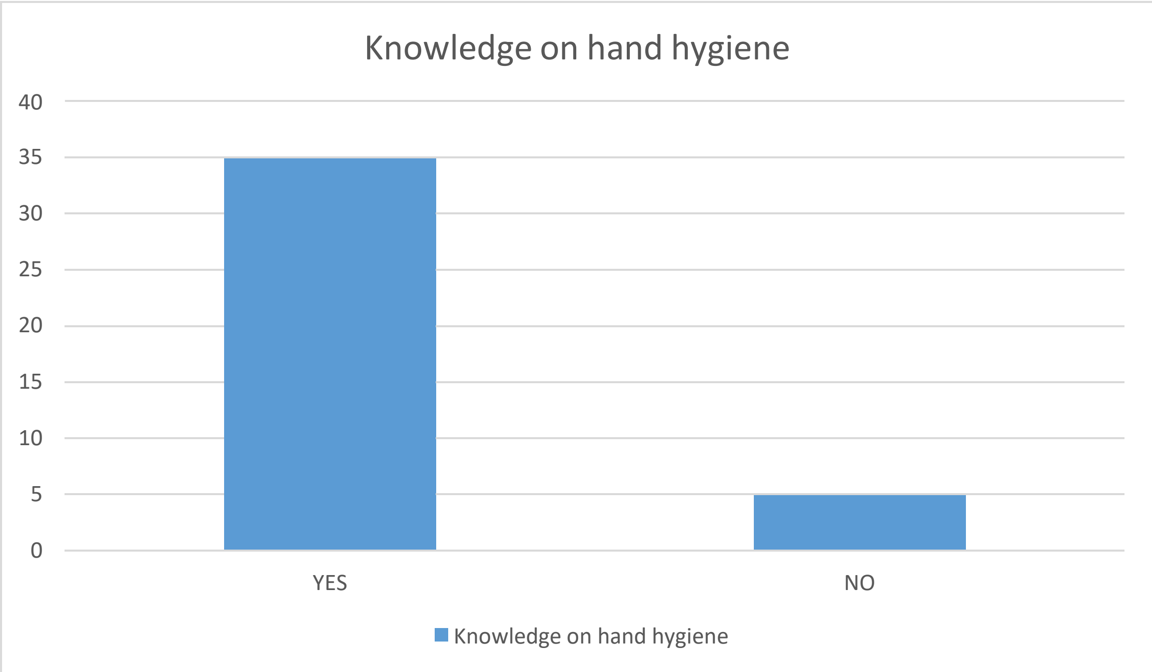

Figure 1: Respondents knowledge on hand hygiene

Most of the respondent's (87.5%) knew the steps for hand hygiene and 12.5% of the respondent's had no or little knowledge on hand hygiene.

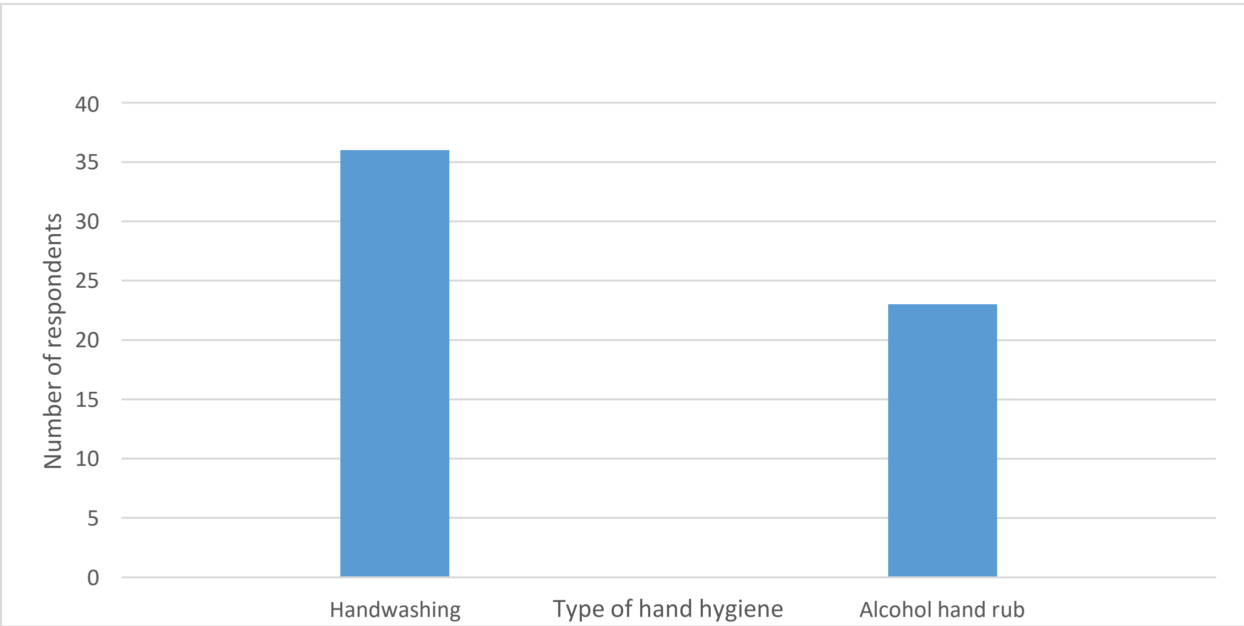

Figure 2: Respondents on the steps on alcohol hand rub and hand washing

Most of the respondents (90%) knew about handwashing and 60% of the respondents knew about alcohol hand rub.

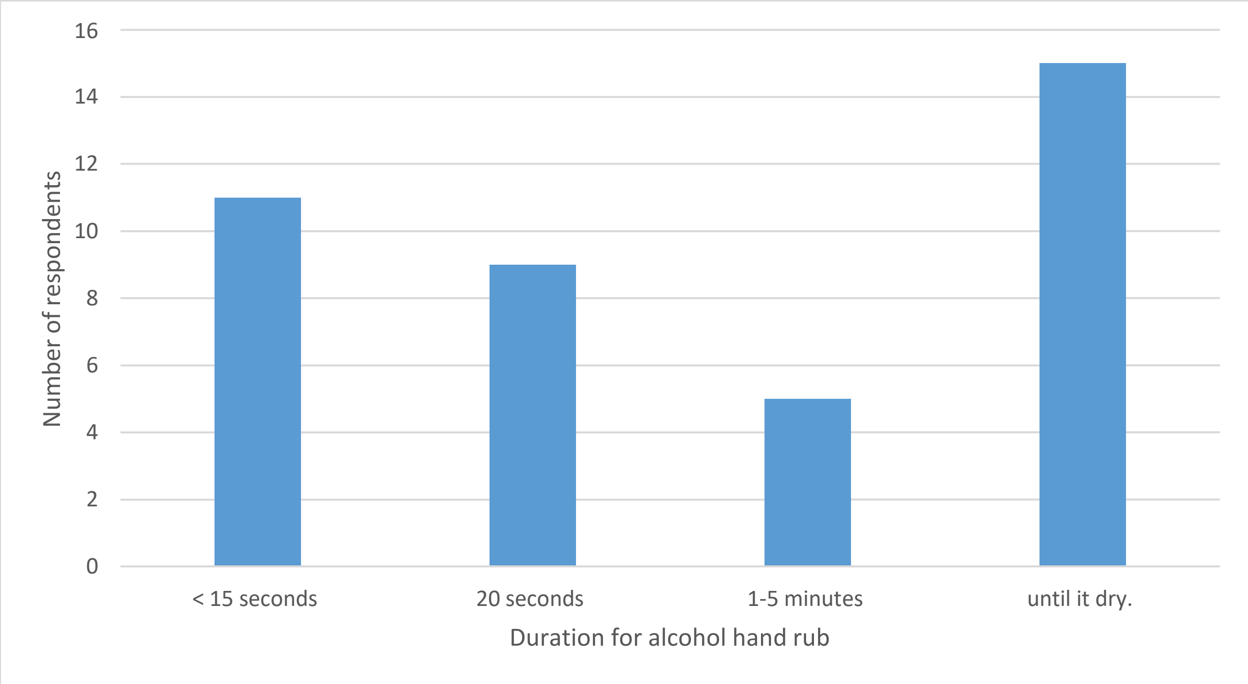

Figure 3: The least time used by respondents perform alcohol hand rub

From figure 3, 27.5% of the respondents indicated that they use less than 15 seconds to perform hand hygiene, 22.5% of the respondents indicated that they use 20 seconds to perform alcohol hand rub whiles 12.5% of the respondents indicated that they use between 1 - 5 minutes to perform alcohol hand rub and 37.5% of the respondents indicated that they perform alcohol hand rub until their hands are dry.

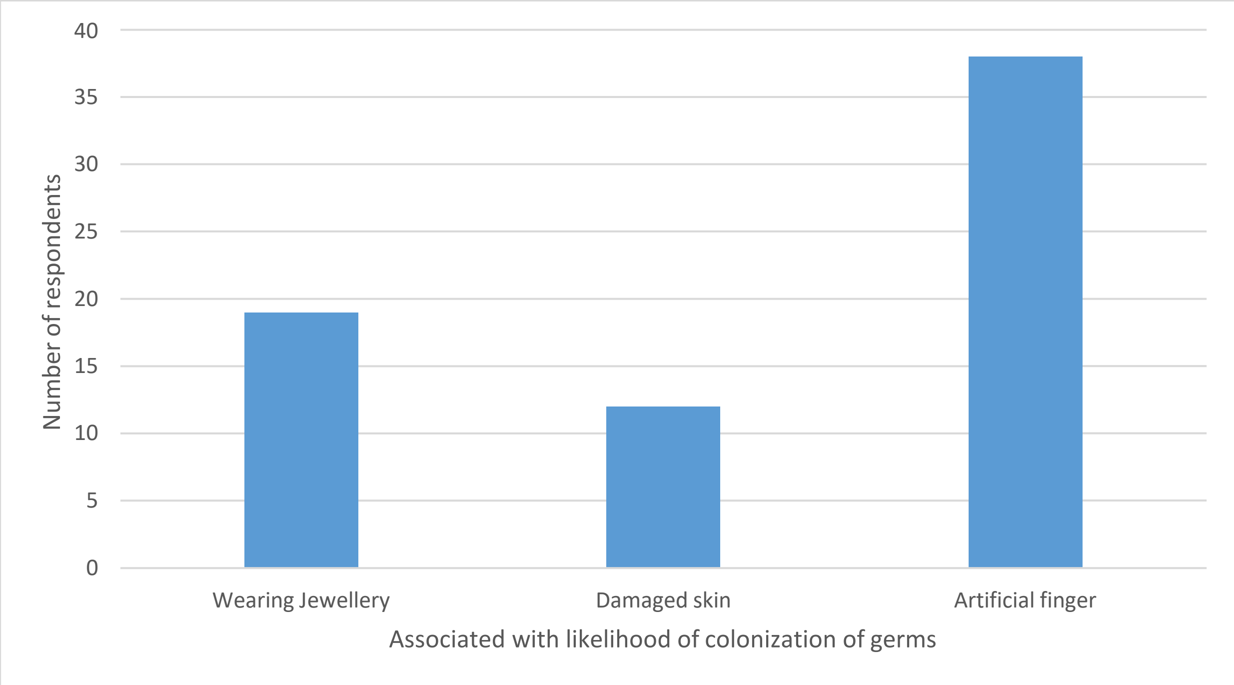

Figure 4: Respondents on what should be avoided because it is associated with an increased likelihood of colonization of hands with harmful germs

Thirty percent (30%) of the respondents indicated that damaged skin could increase the likelihood of colonization of hands with harmful germs whiles 47.5% of the respondents indicated that wearing of jewelry could increase the likelihood of colonization of hands with harmful germs and most of the respondents (95%) indicated that artificial fingernails could increase the likelihood of colonization of hands with harmful germs.

Table 4: Respondents on whether hand washing and hand rubbing are recommended to be performed in sequence and hand rubbing causes skin dryness more hand washing

Statement		Agree	Disagree	Not sure
Hand washing and hand rubbing are recommended to be performed in sequence	n	36	2	2
	%	90	5	5
Hand rubbing causes skin dryness more hand washing	n	24	14	2
	%	60	35	5

Five percent (5%) of the respondents do not know whether hand hygiene should be performed in sequence whiles another 5% of the respondents disagreed that hand hygiene should be performed in sequence. The majority of the respondents (90%) agreed that hand hygiene should be performed in sequence. Also, five percent (5%) of the respondents do not know if hand rubbing causes skin dryness more than hand washing whiles 35% of the respondents disagreed that hand rubbing causes skin dryness more than hand washing and the majority of the respondents (60%) agreed that hand rubbing causes skin dryness more than hand washing.

4.3 Factors that hinder market women to perform appropriate hand hygiene according to the recommended guidelines

Table 5: Factors that hinder market women to perform appropriate hand hygiene according to the recommended guidelines

Statement		Agree	Disagree	Do not know
Inadequate liquid soap for hand hygiene.	n	25	12	3
	%	62.5	30	7.5
Inadequate paper towel/tissue.	n	25	15	0
	%	62.5	37.5	0
Statement		**Agree**	**Disagree**	**Do not know**
Inadequate water	n	20	19	1
	%	50	47.5	2.5
Dirty and faulty veronica buckets	n	15	25	0
	%	37.5	62.5	0
Insufficient time for hand hygiene	n	24	15	1
	%	60	37.5	2.5
	n	7	31	2

I do not perform hand hygiene because other colleagues do not practice them	%	17.5	77.5	5

More than half of the respondents (62.5%) agreed that inadequate liquid soap for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines whiles 30% disagreed with the above and 7.5% did not know.

Most of the respondents (62.5%) agreed that inadequate paper tissue/towel hinders market women from performing appropriate hand hygiene according to the recommended guidelines and 37.5% of the respondents disagreed that inadequate paper tissue/towel hinders market women from performing appropriate hand hygiene according to the recommended guidelines.

Half of the respondents (50%) agreed that inadequate water hinders market women from performing appropriate hand hygiene according to the recommended guidelines and 47.5% disagreed that inadequate water hinders market women from performing hand hygiene whiles 2.5% did not know that inadequate water hinders market women from performing appropriate hand hygiene according to the recommended guidelines.

More than half of the respondents (62.5%) disagreed that dirty and faulty veronica buckets hinder market women from performing appropriate hand hygiene according to the recommended guidelines whiles 15% of the respondents agreed with the above statement.

Most of the respondents (60%) agreed that insufficient time for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines whiles 37.5% of the respondents disagreed with this statement and 2.5% did not know that insufficient time for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines.

Few of the respondents (17.5%) agreed that they do not practice hand hygiene because other colleagues do not practice hand hygiene. Most of the respondents (77.5%) disagreed that they do not practice hand hygiene because other colleagues do not practice hand hygiene, and 5% did not know that they do not practice hand hygiene because other colleagues do not practice hand hygiene. Twenty-five percent (25%) of the respondents stated other reasons why they do not follow appropriate guidelines for hand hygiene which included forgetfulness, the time factor, length of the steps and some just do not practice hand hygiene.

4.4 The practice of appropriate hand hygiene according to the recommended guidelines

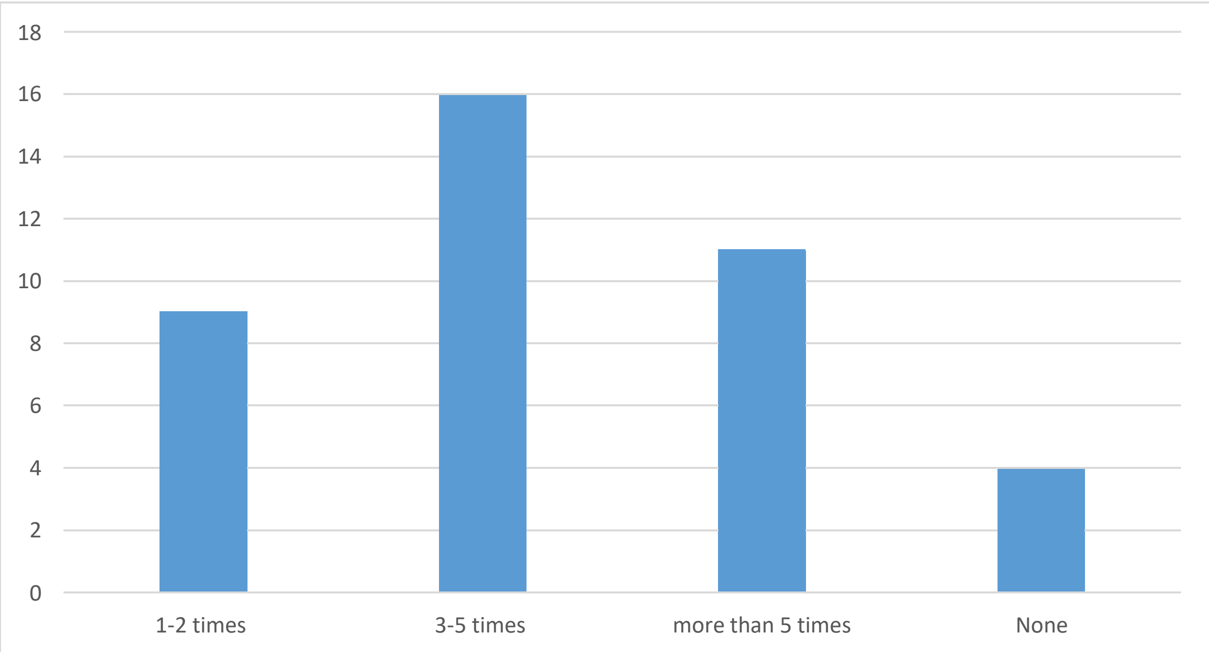

Figure 5: Respondents on number of times they perform hand hygiene

Most of the respondents (40%) perform hand hygiene 3-5 times whiles 27.5% of the respondents perform hand hygiene more than 5 times, 22.5% of respondents perform hand hygiene 1-2 times and only 10% of the respondents do not have any number of times they perform hand hygiene.

Table 6: Respondents on the practice of appropriate hand hygiene according to the recommended guidelines

Statement		**Agree**	**Disagree**
The frequency of hand hygiene required makes it difficult for me to carry it out as often as necessary	n	25	15
	%	62.5	37.5
Statement		**Agree**	**Disagree**
I often practice hand hygiene after interacting with customers.	n	24	16
	%	60	40
I sometimes forget the rules of cleaning my hands.	n	21	19
	%	52.5	47.5
Hand hygiene is an essential part of my role	n	32	8
	%	80	20
I sometimes miss out on hand hygiene because I forget.	n	28	12
	%	70	30
Keeping hand sanitizer in your bag/pocket when out of home	n	30	10
	%	75	25

Most of the respondents (62.5%) agreed that the frequency of hand hygiene required makes it difficult for them to carry it out as often as necessary whiles 37.5% disagreed with the statement.

More than half of the respondents (60%) agreed that they often practice hand hygiene after interacting with other customers while 40% disagreed with the aforementioned statement.

Most of the respondents (52.5%) agreed that they sometimes forget the rules of cleaning their hands while 47.5% of the respondents disagreed with the statement.

Eighty percent (80%) of the respondents agreed that hand hygiene is an essential part of their role whiles 15% of respondents disagreed with the statement.

The majority of the respondents (70%) agreed that they sometimes miss out on hand hygiene because they forget whiles 30% disagreed with the statement.

The majority of the respondents (75%) agreed that they keep hand sanitizer in your bag/pocket when out of home whiles 25% disagreed with the statement.

4.5 Attitude of market women towards hand hygiene

Table 7: The attitude of respondents toward hand hygiene

Statement		**Agree**	**Disagree**
I adhere to correct hand hygiene practices at all times.	n	24	16
	%	60	40
Adhering to hand hygiene practices is easy in the current setup.	n	26	14
	%	65	45

I feel resentful when others do not adhere to the rules of hand hygiene	n	24	16
	%	60	40
I am reluctant to ask others to engage in hand hygiene.	n	22	18
	%	55	45
Sometimes, I have more important things to do than hand hygiene	n	24	16
	%	60	40
I advise others to abide by the rules of hand hygiene	n	31	9
	%	77.5	22.5
Hand hygiene is very important in daily activities	n	40	0
	%	100	0
Performing hand hygiene is very cumbersome and difficult	n	28	12
	%		

Most of the respondents (60%) agreed that they adhere to correct hand hygiene practices at all times. The majority of the respondents (65%) agreed that adhering to hand hygiene practices is easy in the current setup whiles 45% disagreed with the statement.

More than half of the respondents (60%) agreed that they feel resentful when others do not adhere to the rules of hand hygiene while 40% disagreed with the aforementioned statement.

Most of the respondents (55%) agreed that they are reluctant to ask others to engage in hand hygiene while 45% of the respondents disagreed with the statement. Sixty percent (60%) of the respondents agreed that sometimes, they have more important things to do than to practice hand hygiene whiles 40% of respondents disagreed with the statement.

The majority of the respondents (77.5%) agreed that they advise others to abide by the rules of hand hygiene whiles 22.5% disagreed with the statement.

All the respondents (100%) agreed that hand hygiene is very important in daily activities whiles no one disagreed with the statement.

Most of the respondents (70%) agreed that performing hand hygiene is very cumbersome and difficult while 30% of the respondents disagreed with the statement.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter provides an in-depth look at the major findings that emerged out of the research, comparison of the analyzed data with findings from other literature, conclusions, and recommendations.

5.1 Discussions

5.1.1 Knowledge of market women on hand hygiene

The study found that all the respondents know the steps for hand hygiene. This finding is similar to a study conducted by Mahmoud (2015), who reported that 28% of the respondents had poor knowledge and 72% of the respondents had moderate knowledge regarding hand hygiene and this showed the importance of improving the current training programs targeting hand hygiene practices among market women.

The study found that 39% of the respondents know about the procedure for alcohol hand rub and 61% also know about the procedures for handwashing. This finding is similar to a study conducted by Mahmoud (2015), who reported that a higher proportion of market women (52.0%) knew about alcohol-based hand rub.

Mehta and Tripathi (2019) found that most of the study participants exhibited moderate levels of knowledge and practice with the marginal difference between the two study groups while market women were found to exhibit a remarkably higher level of attitude than shop attendants. This finding is in line with the study which found that 5% of the respondents do not know whether hand hygiene should be performed in sequence whiles 5% of the respondents disagree that hand hygiene should be performed in sequence and the majority of the respondents (90%) agree that hand hygiene should be performed in sequence.

Few of the respondents (5%) do not know whether hand hygiene should be performed in sequence whiles 5% of the respondents disagree that hand hygiene should be performed in sequence and the majority of the respondents (90%) agree that hand hygiene should be performed in a sequence which is similar to a study conducted by Raghunath and Hanumantappa (2014) who reported that when asked about the correct technique of hand washing, 89 out of 98 shop attendants (91.3%) and 45 of 46 general market women (97.8%) said they knew the correct technique of handwashing.

Five percent (5%) of the respondents do not know hand rubbing causes skin dryness more than handwashing whiles 35% disagree that hand rubbing causes skin dryness more than handwashing and the majority of the respondents (60%) agree that hand rubbing causes skin dryness more than handwashing. This finding is contrary to the report given by Thakker and Jadhav (2015) that 7.5% of the participants had good knowledge regarding hand hygiene while the majority of the respondents (69.1%) had moderate knowledge and overall low scores on hand hygiene knowledge indicated that market women require increased emphasis on hand hygiene education, behavior and improvement in their current primary training.

5.1.2 Factors that hinder market women to perform effective hand hygiene

More than half of the respondents (62.5%) agree that inadequate liquid soap for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines whiles 30% disagree that inadequate liquid soap for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines and 2.5% do not know that inadequate liquid soap for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines. Most of the respondents (62.5%) agree that inadequate paper tissue/towel hinders market women from performing appropriate hand hygiene according to the recommended guidelines and 37.5% of the respondents disagree that inadequate paper tissue/towel hinders market women from performing appropriate hand hygiene according to the recommended guidelines. These findings were in line with a study conducted by Rynga et al (2015) in which the necessary infrastructure of the College was surveyed for optimal hand hygiene practices. It was observed that at many places, sinks were not easily accessible and there was no facility to dry hands after hand hygiene. Alcohol-based hand rubs were present but not easily accessible. Posters illustrating hand hygiene techniques were present at a few places. This study clearly shows that there is a need for the development of strategies to improve hand hygiene compliance among market women.

Most of the respondents (60%) agree that insufficient time for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines whiles 37.5% of the respondents disagree that insufficient time for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines and 2.5% do not know that insufficient time for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines. Few of the respondents (17.5%) agree that they do not perform hand hygiene because other colleagues do not practice hand hygiene while most of the respondents (77.5%) disagree that they do not perform hand hygiene because other colleagues do not practice hand hygiene and 5% do not know that they do not perform hand hygiene because other colleagues do not practice hand hygiene. Few of the respondents (25%) stated other reasons why they do not follow appropriate guidelines for hand hygiene which include forgetfulness, the time factor, length of the steps and some just do not perform hand hygiene which is contrary to a study conducted by Rabecca (2017) in which the results showed that institutionally there were no rewards or encouragements for hand hygiene, no sanctions for non-compliers and no workshops, seminars and educational courses on hand hygiene.

5.1.3 How often market women practice hand hygiene

Most of the respondents (39.5%) perform hand hygiene 3 - 5 times whiles 26.3% of the respondents perform hand hygiene more than 5 times, 23.7% of the respondents perform hand hygiene 1 - 2 times and 10.5% of the respondents do not have any number of times they perform hand hygiene. These findings were in line with a study conducted by Paudel, Ghosh, and Adhikari (2017) which found that 65.4% of the participants followed a good hand hygiene practice while 10.3% showed inadequate hand hygiene practice.

A study by Jayan et. al (2019) reported that most of the respondents (98.95%) had practiced good hand hygiene and although the practice of hand hygiene was good among respondents in this study, lack of running water and unavailability of alcohol-based hand rub remain major constraints. In the study, most of the respondents (62.5%) agree that the frequency of hand hygiene required makes it difficult for them to carry it out as often as necessary whiles 37.5% disagree with the statement. More than half of the respondents (60%) agree that they often practice hand hygiene after interacting with customers while 40% disagree with the aforementioned statement.

5.1.4 The attitude of market women towards effective hand hygiene

Most of the respondents (60%) agree that adhering to hand hygiene practices is easy in the current setup whiles 45% disagree with the statement. More than half of the respondents (60%) agree that they feel resentful when others do not adhere to the rules of hand hygiene while 40% disagree with the aforementioned statement. This finding is contrary to a study conducted by Khan et al (2021) who reported that the participants agreed that hand hygiene is often not adhered to because of busy lecture schedule on campus (75.27%), hand hygiene should be done when in contact with people and fomites (97.8%) and hand washing can be protective for market women (99.4%).

Sixty percent (60%) of the respondents agree that sometimes, they have more important things to do than hand hygiene whiles 40% of respondents disagreed with the statement. The majority of the respondents (77.5%) agree that they advise others to abide by the rules of hand hygiene whiles 22.5% disagree with the statement. This finding is not in line with a study conducted by Arbabisarjou (2016) who reported that the majority of the market women (70.5%) had a positive attitude towards hand hygiene.

5.2 Conclusions

The following conclusions were drawn from the study;

1. The majority of the respondents (n=35, 87.5%) have good knowledge of proper hand hygiene.
2. The majority of the respondents (95%) believe that artificial fingernails could increase the likelihood of colonization of hands with harmful germs.
3. The majority of the respondents (90%) agree that hand hygiene should be performed in sequence.
4. The majority of the respondents (60%) agree that hand rubbing causes skin dryness more than handwashing.
5. Most of the respondents (60%) agree that insufficient time for hand hygiene hinders market women from performing appropriate hand hygiene according to the recommended guidelines.
6. Eighty percent (80%) of the respondents agree that hand hygiene is an essential part of their role.
7. The majority of the respondents (77.5%) agree that they advise others to abide by the rules of hand hygiene.

5.3 Recommendations

Based on the findings of the study, the following recommendations are made:

1. Artificial fingernails should not be worn by market women and natural ones should also be kept short because it could increase the likelihood of colonization of hands with harmful germs.

2. Hand hygiene posters and literature should be placed at vantage points to help market women to perform hand hygiene in proper sequence.

3. Market women should be encouraged to use the easiest form of hand hygiene when they do not have enough time to perform them.

4. Market women should also be encouraged to remind others to perform hand hygiene when they forget.

5. There should be rewards for compliance and punishment for non-compliance to hand hygiene protocols.

REFERENCES

Addo, H. (2018, September 25). *Hand washing knowledge and practices among schools in the Kintampo Municipality of Ghana*. Retrieved from researchgate.net: https://www.researchgate.net/publication/325304255_Hand_washing_knowledge_and_practices_among_public_primary_schools_in_the_Kintampo_Municipality_of_Ghana

Anjum, C., Carleene, B., Raquel, L., & Cafazzo, J. A. (2010, October 13). *Challenges of Hand Hygiene in Healthcare: The Development of a Tool Kit to Create Supportive Processes and Environments*. Retrieved from https://www.longwoods.com/content/21968/healthcare-quarterly/challenges-of-hand-hygiene-in-healthcare-the-development-of-a-tool-kit-to-create-supportive-process

Arbabisarjou, A. (2016, August 1). *Knowledge, Attitude, and Performance of market women toward Hand Hygiene in Hospitals*. Retrieved from https://europepmc.org/article/pmc/5016353

Asaduddin, M., & Nair, S. S. (2014, February 6). *Knowledge, Attitude, and Practice of Hand Hygiene among market women at a Town Centre in Raichur, India*. Retrieved from europepmc.org: https://europepmc.org/article/pmc/4045463#sec1

Centre for Disease Contro[CDC]. (2016, March 1). *Hand Hygiene*. Retrieved from cdc.gov: https://www.cdc.gov/oralhealth/infectioncontrol/faqs/hand-hygiene.html

Centre for Disease Control. (2021, February 21). *Cleaning, Disinfection, and Hand Hygiene in Schools – a Toolkit for School Administrators*. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/clean-disinfect-hygiene.html

Jayan, R., Paul, R., Abraham, R., Roy, R., Dominic, R., Abraham, R., . . . Aranha, P. R. (2019, August 03). *Attitude of market women towards hand hygiene*. Retrieved from ijcmph.com: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwi6ydigpaXyAhWTunEKHWoKBZYQFnoECAgQAQ&url=https%3A%2F%2Fwww.ijcmph.com%2Findex.php%2Fijcmph%2Farticle%2Fview%2F5123&usg=AOvVaw1Lqjpz2vmhLx_gF9q63JU5&cshid=162855854232

Jemal, S. (2018, November 22). *Knowledge and Practices of Hand Washing among market women in Dubti market, Dubti, Afar, Northeast Ethiopia*. Retrieved from hindawi.com: https://www.hindawi.com/journals/apm/2018/5290797/

Khan, M. H., Akhtar, Z., Jamila, Bano, N., & Rafique, S. (2021, May 3). *Knowledge, Attitude, and Practice toward Hand Washing Among market women in Lahore*. Retrieved from https://saudijournals.com/media/articles/SJNHC_47_158-163_FT.pdf

Kingston, N. O. (2017). *Survey of attitudes and practices of Irish market women towards hand hygiene*. Retrieved from https://www.semanticscholar.org/paper/Survey-of-attitudes-and-practices-of-Irish-nursing-Kingston-O%E2%80%99Connell/613b54fa7af593937b23fc8d95d2e4ff45a72fb8

Mahmood, S. E. (2015, October). *Hand hygiene practices among market women: importance of improving current training programs*. Retrieved from https://imsear.searo.who.int/handle/123456789/175616

Mehta, A., & Tripathi, K. (2019). *Knowledge, attitude and practices of hand hygiene among market women in the market center of Central India: a questionnaire-based study*. Retrieved from https://www.ijcmph.com/index.php/ijcmph/article/view/5493

Nasirudeen, A. M. (2017, december 9). *Hand hygiene knowledge and practices of market women in Singapore*. Retrieved from researchgate.net: https://www.researchgate.net/publication/230653174_Hand_hygiene_knowledge_and_practices_of_ *market women* _in_Singapore

Oppong, T. B., Yang, H., Amponsem-Boateng, C., & Duan, G. (2019, June 3). *Hand Hygiene Habits of Ghanaian Youths in Accra*. Retrieved from ncbi.nlm.nih.gov: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6603880/

Oyapero, A., & Oyejoke. (2018, November 27). *An assessment of hand hygiene perception and practices among market women in Lagos State*. Retrieved from ncbi.nlm.nih.gov: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6282479/

Paudel, I. S., Ghosh, V., & Adhikari, P. (2017, June 30). *Knowledge, Attitude, and Practice of market women regarding hand hygiene in the Western region of Nepal*. Retrieved from https://www.researchgate.net/publication/312564700_Knowledge_Attitude_and_Practice_of_ *market women* _regarding_hand_hygiene_in_Western_region_of_Nepal

Paul, G. M., & Loveline, M.-T. (2019, December 28). *An Institution-Based Assessment of market women Hand Washing Behaviour*. Retrieved from hindawi.com: https://www.hindawi.com/journals/bmri/2019/7178645/

Rabecca, M. (2017). *Factors associated with noncompliance to hand hygiene.* Windoek.

Raghunath, P., & Hanumantappa, R. (2014, February 06). *Knowledge, Attitude, and Practice of Hand Hygiene among market women and shop attendants at a market centre in Raichur, India*. Retrieved from https://europepmc.org/article/pmc/4045463#sec1

Rynga, D., Kumar, S., Gaind, R., & Rai, A. K. (2015). Hand hygiene compliance and associated factors among market women in tertiary. *International journal of infection control*, 1-2.

Thakker, V. S., & Jadhav, P. R. (2015, october 4). *Knowledge on hand hygiene of market women: A cross-sectional survey*. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4776613/

Wiley, J. (2017, March 14). *The hand hygiene compliance of market women during market days*. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1111/jocn.13811

APPENDICES

HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM

QUESTIONNAIRE

INTRODUCTION

Dear Respondent,

We are students of the above institution researching the topic: "Knowledge and practice of hand hygiene among market women at Berekum central market".

Kindly answer the under-listed questions by ticking (√**)** the appropriate box or writing in the space provided. Any information you provide is confidential. Your opinion is neither considered right nor wrong. You can choose to withdraw your participation at any time. It will take approximately 30 minutes to answer this questionnaire.

Thank you.

PLEASE TICK [√] THE APPROPRIATE BOX WHERE APPLICABLE

SECTION A: DEMOGRAPHIC DATA

1. Age: (a) 18 – 29 years[ ] (b) 30 - 39 years[ ] (c) Above 40 years[ ]
2. Religious background: (a) Christian [ ] (b) Islam [ ] (c) Traditionalist [ ]

   (d) Other, specify……………………………
3. Marital status: (a) Single [ ] (b) Married [ ] (c) Divorced [ ]

SECTION B: KNOWLEDGE ON HAND HYGIENE

4. Do you know hand hygiene?

   (a) Yes [ ] (b) No [ ]

5. If yes, which of them do you know? (**Please tick as many that apply**)

   (a) Handwashing [ ] (b) Alcohol hand rub [ ]

6. What is the least time necessary to sterilize your hands with alcohol to eliminate most germs in your hands?

   (a) < 15 seconds [ ] (b) 20 seconds [ ] (c) 1-5 minutes [ ] (d) Until it is dry [ ]

7. Which of the following should be avoided because it is associated with an increased likelihood of colonization of hands with harmful germs?

   (**Please tick as many that apply**)

   (a) Wearing jewellery [ ] (b) Damaged skin [ ] (c) Artificial fingernails [ ]

8. Hand washing and hand rubbing are recommended to be performed in sequence.

   (a) Agree [ ] (b) Disagree [ ] (c) Do not know [ ]

9. Hand rubbing causes skin dryness more than hand washing

   (a) Agree [ ] (b) Disagree [ ] (c) Do not know [ ]

SECTION C: FACTORS THAT HINDER MARKET WOMEN TO PERFORM EFFECTIVE HAND HYGIENE

No.	Statement	Agree	Disagree	Do not know
10.	Inadequate liquid soap for hand hygiene.			
11.	Inadequate paper towel/tissue.			
12.	Inadequate water.			
13.	Dirty and faulty veronica buckets.			
14.	Insufficient time for hand hygiene.			
15.	I do not perform hand hygiene because other market women do not practice them.			

SECTION D: THE PRACTICE OF EFFECTIVE HAND HYGIENE

16. How many times do you perform hand hygiene?

(a) 1 - 2 times [ ] (b) 3 - 5 times [ ] (c) More than 5 times [ ] (d) None [ ]

No.	Statement	Agree	Disagree
17.	The frequency of hand hygiene required makes it difficult for me to carry it out as often as necessary.		
18.	I often practice hand hygiene after interacting with customers.		
19.	I sometimes forget the rules of cleaning my hands.		
20.	Hand hygiene is an essential part of my role.		
21.	Sometimes i miss out on hand hygiene because I forget.		
22.	Keeping hand sanitizer in your bag/pocket when out of home		

SECTION E: ATTITUDE OF MARKET WOMEN TOWARDS HAND HYGIENE

No.	Statement	Agree	Disagree
23.	I adhere to correct hand hygiene practices at all times.		
24.	Adhering to hand hygiene practices is easy in the current setup.		
25.	I feel resentful when others do not adhere to the rules of hand hygiene.		
26.	I am reluctant to ask others to engage in hand hygiene.		
27	Sometimes, I have more important things to do than hand hygiene.		
28.	I advise others to abide by the rules of hand hygiene		
29.	Hand hygiene is very important in daily activities		
30.	Performing hand hygiene is very cumbersome and difficult		

NATIONAL CATHOLIC HEALTH SERVICE (DIOCESE OF SUNYANI)
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Your Ref. ....

Date January 30, 2023

To Whom It May Concern

PERMISSION TO CONDUCT RESEARCH

I wish to introduce to you the under listed names of final year students of the College:

1. Asante-Kumi Amanda
2. Tuah Esther
3. Asum Freda

As part of the pre-requisite for the award of Diploma in Nursing they are to conduct a research study, on the topic **'Knowledge and the Practice of Hand Hygiene among Market Women at Berekum Central Market.'**

I would be grateful if you could assist them with any material or help they may need to accomplish this task.

Thank you.

Yours faithfully

....

Rita Agyei Boakye
Supervisor

For: Principal