

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT OF HEALTH SCIENCES



**FACTORS ASSOCIATED WITH HAND HYGIENE AMONGST HEALTH
CARE WORKERS AT CHIVI DISTRICT HOSPITAL.**

BY

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B231953B

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF
POSTGRADUATE DIPLOMA IN INFECTION**

PREVENTION AND CONTROL

YEAR: 2025

SUPERVISOR: Dr P. NDARUKWA

APPROVAL FORM

The undersigned certify that they have read and recommend to Bindura University of Science Education for acceptance, of a research project entitled:

Factors associated with hand hygiene amongst health care workers at Chivi District hospital.

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Factors associated with hand hygiene amongst health care workers at Chivi District hospital.

Programme: Post Graduate Diploma in Infection Prevention and Control

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I declare that a study entitled:

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DEDICATION

This research is affectionately dedicated to my mother Revina S. Chisi. I also dedicate this dissertation to all the Healthcare Workers at Chivi District Hospital.

ABSTRACT

This study examined the factors influencing hand hygiene (HH) compliance among healthcare workers (HCW's) at Chivi District Hospital, Zimbabwe. Hand hygiene remains a cornerstone of infection prevention, yet adherence among HCW's, particularly in resource-limited settings, continues to fall below global standards. A descriptive cross-sectional design was employed, utilizing self-administered questionnaires to gather data from nurses and doctors in direct patient care. Findings revealed high levels of knowledge and awareness, with the majority of participants familiar with the World Health Organization's "Five Moments for Hand Hygiene" and having received formal training. Despite this, consistent compliance was hindered by systemic barriers, including water supply disruptions, high workload, time constraints, and forgetfulness. Notably, essential Hand Hygiene (HH) resources such as soap, gloves, and alcohol-based hand rubs were largely available, and attitudes toward hand hygiene were overwhelmingly positive. The study underscores a critical gap between knowledge and practice, highlighting the need for multifaceted interventions. Recommendations include infrastructure improvements, continuous training, institutional support, and the integration of behavioral prompts to reinforce HH compliance. Strengthening HH practices is essential to reducing healthcare-associated infections and improving overall patient safety in similar healthcare settings.

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LIST OF ACRONYMS

HCW's	Health Care workers
BUSE	Bindura University of Science Education
HAI	Healthcare associated Infections
IPC	Infection prevention and control
WHO	World Health Organization
ZINWA	Zimbabwe National Water Authority
ABHR	Alcohol Based Hand Rub
HH	Hand Hygiene

CHAPTER 1

1.1 Introduction

Hand hygiene is defined as the process where one cleans and keeps their hands clean: free of dirt, microorganisms and other contaminants (Kramer, et al., 2024). Hand hygiene plays a pivotal role in healthcare environment by controlling infections and suppression of the spread of diseases through contact (Akinsuklie, et al., 2024). Healthcare workers' hands are the most common path which pathogen are transmitted, hence, effective hand hygiene is pivotal for preventing and suppressing healthcare-associated infections (HCAIs) and the propagation of pathogens which are resistant (Irehovbude, Okoye, 2020).

Hand hygiene accounts for one of the biggest medical cases in the world (Lotfinejad, et al., 2021). The most practical and effective way to decrease the frequency of toxic contact with internal fluids or bodily waste, damaged skin, mucous membranes, or wound care products when nursing patients is proper hand hygiene (Akinsulie, et al., 2024). A lack of awareness of such in healthcare settings can pose threats to the safety of vulnerable patients and may compromise the facilities.

There are a number of factors which affect the hand hygiene in healthcare facilities such as: Individual factors (such as lack of knowledge and general attitude towards hand hygiene practices), Organizational factors (institutional policies and systems), Environmental factors (such as intermittent water supply, availability of hand hygiene stations and general cleanliness), Behavioral (like negligence, and low perception of risk) and Technological (ability to use modern technology) factors amongst other factors (WHO, 2019). There are types of hand hygiene as well which may be classified as hand washing, hand sanitizing and hand rubbing (Sharon Lohr, 2022). All these are important as they prevent spread of diseases, a significant reduction of microbial resistance and eventually protects vulnerable communities. This study therefore seeks to assess factors associated with hand hygiene amongst health care workers at Chivi District hospital.

1.2 Problem Statement

As much as hand hygiene is crucial in preventing healthcare-associated infections (HAIs), adherence to hand hygiene practices amongst healthcare workers (HCWs) at Chivi District Hospital remains sub-optimal. The World Health Organization (WHO,

2009) estimates that HAIs affect more than a million patients worldwide annually, with a higher burden in low- and middle-income countries, including Zimbabwe and Chivi District Hospital is not spared.

At Chivi District Hospital, hand hygiene compliance rates were reported to be below the WHO's 2019 80% recommended target. Such poor adherence to hand hygiene practices can be tracked and attributed to numerous factors, including inadequate knowledge, attitudes, and practices amongst HCWs, as well as systemic and environmental barriers.

The end result of poor hand hygiene practices at Chivi District Hospital are devastating, resulting in increased affliction, mortality in worst cases, and increased healthcare costs as a result (Moyo, Moyo, Mangoya, et al 2023). Furthermore, the spread of antimicrobial-resistant organisms is exacerbated by poor hand hygiene practices, threatening the effectiveness of antibiotics and undermining efforts to combat infectious diseases. This prompted the researcher to assess the factors associated with hand hygiene amongst healthcare workers at Chivi District Hospital.

1.3 Purpose

To identify strategies to improve hand hygiene compliance and reduce the burden of healthcare associated Infections (HAIs) at Chivi District Hospital.

1.4 Objectives

1.4.1 General Objective

To investigate the factors associated with hand hygiene amongst healthcare workers at hospitals in Africa.

1.4.2 Specific Objectives

- i. To establish the relationship between hand hygiene compliance and the occurrence of healthcare-associated infections amongst patients at Chivi District Hospital.
- ii. To inform the development of specific interventions to improve hand hygiene and reduce HAIs at Chivi District Hospital.

1.5 Research Questions

- i. What is the relationship between hand hygiene compliance and the occurrence of healthcare-associated infections amongst patients at Chivi District Hospital.
- ii. What are the specific interventions to improve hand hygiene and reduce HAIs at Chivi District Hospital.

1.6 Justification

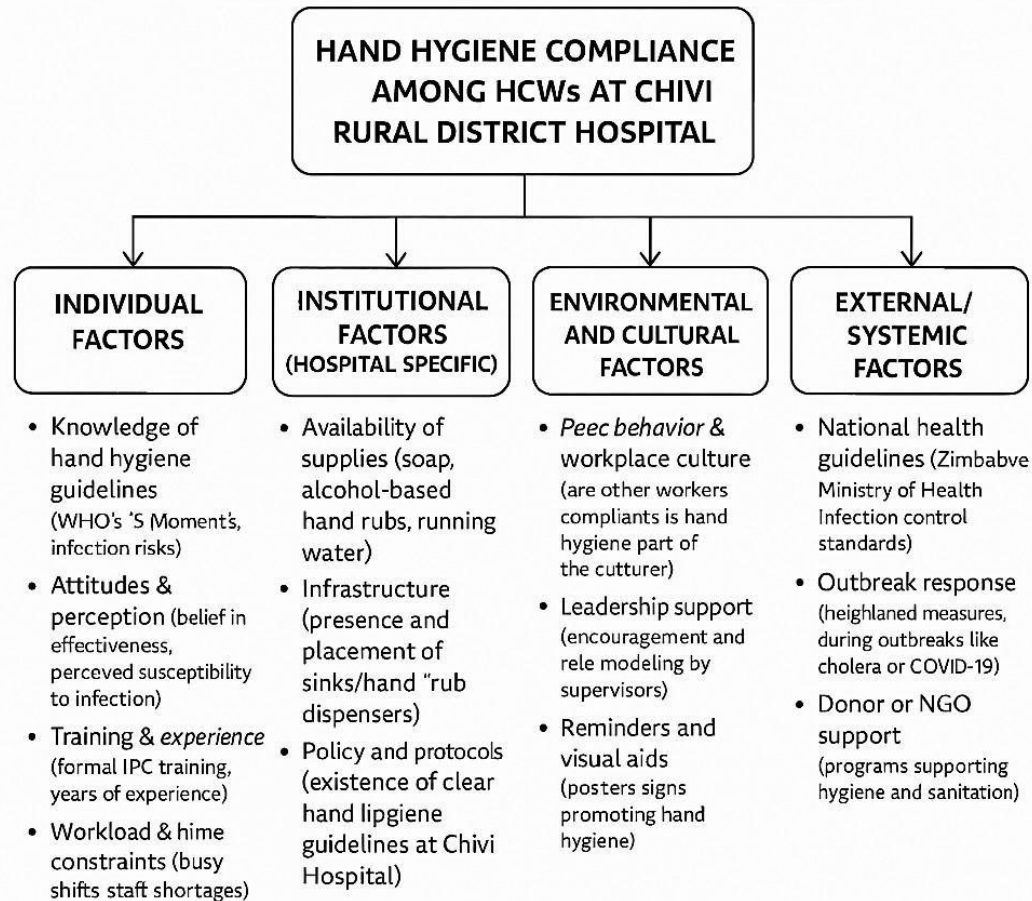
The study findings may significantly contribute to the understanding of the factors associated with hand hygiene amongst healthcare workers at Chivi Rural District Hospital. The results may therefore inform on the development of targeted, specific interventions to improve hand hygiene compliance and reduce the cases of healthcareworkers associated infections at Chivi District Hospital.

1.7 Conceptual framework

According to Creswell (2020) a conceptual framework is described as an analytical tool with a number of variations and contexts. It is a structured, visual or written representation that articulates key variables,factors or concepts involved in a study A conceptual framework as applied in the case of factors associated with and hygiene at Chivi Rural District Hospital can be illustrated as shown below.

Fig1. Factors associated with hand hygiene amongst health care workers at Chivi District hospital Conceptual Framework

FACTORS ASSOCIATED WITH HAND HYGIENE AMONGST HEALTH CARE WORKERS AT CHIVI RURAL DISTRICT HOSPITAL



CHAPTER 2

2 Literature review

In 2019, WHO specifies factors associated with hand hygiene amongst healthcare workers at hospitals in Africa as complex and multifaceted. These may stand as distinct factors and/or a combination of such factors.

Lack of awareness is one huge factor that has a significant impact on hand hygiene at healthcare facilities in developing countries (WHO, 2017). In Zimbabwe, many healthcare workers are ignorant and unaware of the full extent to which hand hygiene or lack knowledge on proper hand hygiene techniques are of high importance. It is therefore important to educate HCWs the importance of hand hygiene. More focus must be targeted on awareness campaigns, especially those backed by the media, have been efficient in accelerating public knowledge about the value of hand hygiene

(Tavoschi et al, 2016). It is a fact that healthcare professionals usually have a strong understanding of such practices however, continuous education, reminders and providing attended trainings may be a necessary remedy in this case. There is a gap in developing countries where HCW's fall short of proper hand hygiene as reported by (WHO, 2017). Providing trainings on hand hygiene provides notable improvements on compliance to hand hygiene among healthcare workers .

Professional experience is a huge factor which has a direct impact on hand hygiene in healthcare facilities (WHO, 2019). More experienced healthcare workers tend to have better hand hygiene practices and the opposite is therefore true; healthcare without experience sometimes exhibit poor hand hygiene practices. It is vital to foster good hand hygiene practices to workers with less experience from seasoned HCW with adequate experience.

There are Organizational Factors which have to be noted as they also influence hand hygiene abidance (Gebresilassie, .et al, 2014). These include hospital policies and guidelines. In the absence of proper guidelines and robust polices, there will be adverse results on health-care institutions hand hygiene. On the other hand, the presence of pellucid policies and guidelines on hand hygiene boosts better practices. Moreover, accessibility to resources plays a critical role on hand hygiene in healthcare institutions (Moyo, Moyo, Mangoya, 2023). Uninterrupted availability of adequate vital resources such as soap, water, and hand sanitizer is essential for hand hygiene abidance. Even with top awareness and robust policies, without key resources, it will be difficult to implement hand hygiene practices fully.

In addition, leadership support is another key factor associated with hand hygiene amongst health care workers in a health care setting: Support from health care facility leadership and management is necessary for promotion of good a culture of hand hygiene (Valim, Rocha, Souza, et al, 2019). The leadership provides support in form of acquiring resources as well as providing workshops and awareness campaigns hence keeping workers updated and monitored if they follow the required guidelines. There are environmental factors that are associated with hand hygiene amongst health care workers and can impact hand hygiene practices as well (WHO 2019). These include the availability of hand hygiene facilities: Accessibility to hand hygiene facilities, such as sinks and hand sanitizer dispensers, is critical have and is associated with hand hygiene amongst health care workers. Proximity and availability of such facilities have a direct

impact on hand hygiene. If there are no facilities, it means poor hygiene practice and if the facilities are far away from work space, it discourages proper hygiene practices (Gebresilassie, et al, 2014). On the flip side, if facilities are adequately available and at nearer points, it encourages proper hand hygiene practices. Moreover, general cleanliness of the environment is another factor that affects hygienic practices in healthcare work spaces (Mekonnen, Aga, Kinati, Shifera, 2018). General cleanliness refers to the overall cleanliness and tidiness of the healthcare environment. A clean environment promotes better hand hygiene practices. It has a psychological effect where one would not feel comfortable to be unhygienic. Moreover, general cleanliness directly impacts hand hygiene by reducing microbial load and decreasing cross-contamination. This promotes hand hygiene compliance thereby reducing the risk of healthcare-associated infections (HAIs) and in turn enhances patient safety. General cleanliness may be achieved by implementing cleaning protocols which emphasizes on high cleaning frequencies whilst applying proper methods as prescribed by (WHO, 2009). It is also very vital to adequately train the staff and equip them with resources and leadership support.

There are also other factors to be considered such as forgetfulness (Moyo, Moyo, Mangoya, et al, 2023). Usually this is a result of pressure associated with heavy workloads usually due to under staffing of health facilities as well as other reasons such as individual reasons. Moreover, availability of resources are a contributing factor as well which is attributed to intermittent water supply disruptions. Gender is a factor which is associated with hand hygiene in health facilities (Moyo, Moyo, Mangoya 2003). A gap between HH compliance between women and men can be noted after taking a closer look.

Understanding these factors is essential for developing effective strategies to improve hand hygiene compliance among healthcare workers at Chivi Rural District Hospital. Considering all the prescribed factors, numerous literature suggest a very strong inverse relationship between hand hygiene and Hospital Acquired Infections (HAI's). (Mekonnen, Aga, Kinati, Shifera, 2018) suggests that as hand hygiene increases, there is a decrease in HAI's and the opposite is also true. A drop in infections rate can be noted with improved hand hygiene compliance. To investigate this relationship, studies usually look at the influencing factors (Independent variables) and the outcomes

(Dependent variables) within the healthcare system. This is then followed by statistical analysis tests for instance correlation co-efficiency tests, to mention a few.

To improve the HH compliance at a health care institution, a number of specific interventions may be included distinctly or simultaneously (Mekonnen, Aga, 2018). Such factors include: staff training, availability of adequate resources, monitoring and feedback, visual reminders and campaigns, HCW's engagement, leadership and accountability as well as infrastructure support. These when employed, they significantly improve HH compliance.

CHAPTER 3

3 Methodology

3.0 Overview

Methodology can be defined as simply the way in which data is collected, organized and analyzed to give answers to the research questions and produce information that is understandable as a result (Paul, Rialp, 2020). In this chapter, main focus is put on the research design, population, sampling method and sample size, data collection methods. Moreover, related tools and procedures employed to gather and process data to give answers as well as information that is understandable are given enough attention in this chapter.

3.1 Research Design

This study made use of the descriptive cross sectional study design. The Descriptive cross sectional study design is defined as a type of observational research that analyse data from a population a single point in time (Ahlbon, 2021). This design was used for this study because it is quick and cost effective. It is also useful for public health planning by estimating disease burden.

3.2 Study Setting

The study was conducted at Chivi District Hospital (appropriately 60 km due southwest of Masvingo town). This is the largest public healthcare facility in the district and provides a wide range of health services that include outpatients, maternity and emergency to mention a few.

3.3 Target Population

Population is described as the entire mass of observation. It is the parent group from which a sample is to be obtained (Singh, 2006). In this study the population was made up of the healthcare workers (84 nurses and 6 doctors) at Chivi District Hospital who had direct contact with the patients at the time at which the data was collected.

3.4 Sampling Techniques

Sampling procedure is described as the process of selecting study subjects from a large population (Teherdoost, 2016). In this study, the simple random sampling was used. This was to exploit its merits in having a well distributed presentation of HCW's across departments. It minimizes bias and improves statistical validity. The sample was selected from among healthcare workers who worked at Chivi District Hospital and had direct patient contact during the data collection period. Specifically, this group included nurses and doctors. A comprehensive list of qualified workers who fit the inclusion criteria was acquired. Every name was given a number and participants were chosen at random by drawing lots. Selection was not restricted to a particular ward or shift to guarantee equitable representation across all units and improve the findings generalization. 93 surveys were distributed and yielded a 96.7% response rate which increased the data's dependability.

3.5 Inclusion criteria

Included were nurses and doctors working only at Chivi District Hospital.

3.6 Exclusion criteria

Any other health care workers who are not doctors and nurses were excluded in this study. Also those nurses and doctors visiting the facility and are not employed at the district hospital were excluded as they did not have direct contact with patients admitted at the facility.

3.7 Research instruments

Research instruments are defined as tools which are used to collect data for the study (Singh, 2006). A self-administered questionnaire was developed to collect data from participants. The questionnaire had three sections which comprised of demographics,

knowledge based questions and practice based questions. The English language was used on the questionnaire as the primary language since all HCW's have a good command of English. Use of a questionnaire advantage is that it is less time consuming which makes it easy since the researcher did not have to meet every participant to collect the data.

3.8 Validity and reliability

Reliability can be defined as dependable. Thus, the reliability of instruments means the instruments' ability to collect precise information that answers or addresses the research objectives. Validity is the degree to which an instrument measures what it is supposed to measure and it has an effect on the general findings of the study (Lohr, 2022). The instrument measured the variables which were under investigation. To ensure validity and reliability a pilot study was done to check for validity and reliability of the instrument.

3.9 Ethical considerations

Ethical means 'in accordance with principles of conduct that are considered correct especially those of a given profession or group'' (Kumar, 2021 pg. 242). Permission to conduct the study was sought from Bindura University, department of Health Sciences and BUSE ethics committee. The support letter was then submitted together with the proposal and application letter to the Chivi District Hospital. All the study participants consented and signed an informed form after the purpose of the study was explained to them in order to gain cooperation so that they participate in the study willingly before the study commenced. Anonymity was achieved by withholding names as no names appeared on the questionnaire. Information obtained from participants was never unveiled to anyone and all the collected data was kept safe until the study was completed.

3.10 Pilot study

A pilot study is defined as a small scale parody study which is undertaken to develop, refine and/or test the measurement tools or procedures (Kumar, 2021). in this case the pilot study was conducted at Chivi District Hospital maternity ward on 5 nurses

included in the study before the actual study commenced. After the pilot study a few amendments were done to refine the questionnaire.

3.11 Data collection Procedure

Data collection can be described as the collection of particular evidence that enables the researcher to decently analyze the findings of all activities by their research design and procedures (Singh, 2006). In this case, data was gathered using a questionnaire. The researcher sought advice from the matron's office to get much needed support of the management. Participants were met individually and sometimes in groups being sensitive to the situation on the ground. Purpose of the study was clearly explained to the participants before issuing the questionnaire to answer discretely so that the participants would give a willful and enlightened consent. A checklist for all issued consent forms and questionnaires was made as a tracking system to make sure all questionnaires were returned. The participants answered the questionnaire at their own free time but they were not allowed to discuss the questionnaire with each other. All answered questionnaires were kept in a secure place under lock and key for confidentiality. It took an average of 20 minutes to fill in the questionnaire.

3.12 Data Analysis

Data analysis means to make the raw data meaningful or to draw some results from the data after the proper treatment (Singh, 2006). After data collection data cleaning was done through scrutinizing the research instruments for incompleteness. Data was grouped and classified to facilitate processing. Analyzing of data was done using Microsoft Excel. Descriptive statistics were used and presentation of data was done using frequency tables, graphs and pie charts.

CHAPTER 4

4 Results

4.0 Introduction

The study assessed the knowledge of HCW's at Chivi District Hospital regarding factors associated with hand hygiene. Data was collected using 93 self-administered questionnaires, to the available HCW's at Chivi District Hospital. 90 questionnaires were returned giving a return rate of 96.7%.

4.1 Demographic Characteristic.

Figure 4.1: Ages of the study participants

n=93

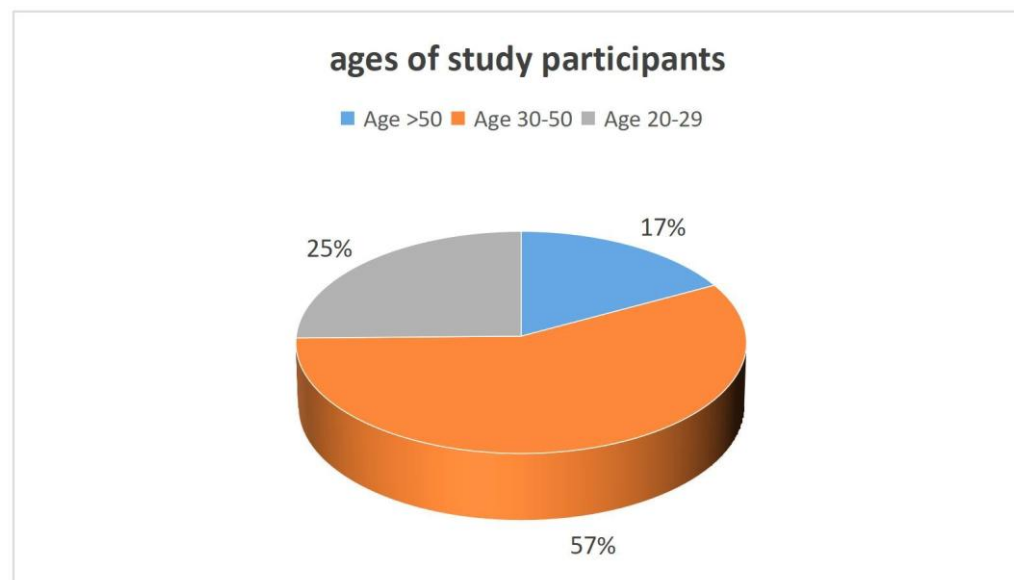


Figure 4.1 above illustrates that the majority, 51 participants (57%) fell within the of 30–50 age range, followed by 24 (25%) aged 20–29, and 15 (17%) aged over 50.

Figure 4.2: Participants' gender

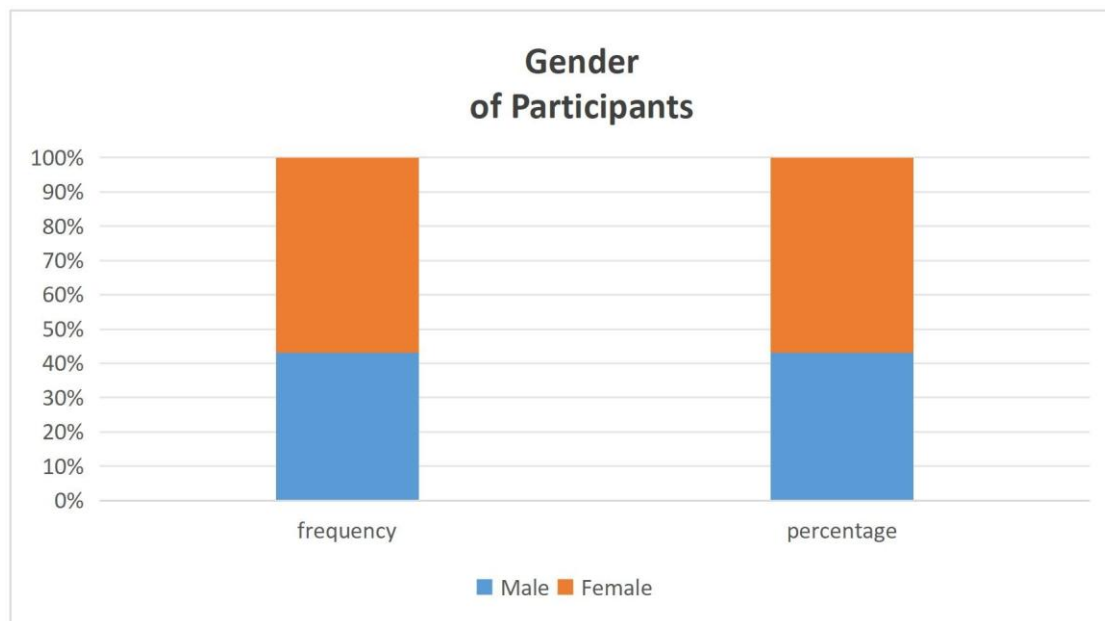


Figure 4. 2 depicts that females constituted the majority with a number of 51 which constituted 57% of the total number, compared to males at 39 (43%). This study sought factors associated with hand hygiene among health care workers at Chivi District Hospital. This reflected on the proportions of health workers at Chivi District Hospital where many of them are females.

Figure 4.3: Participants' highest qualification

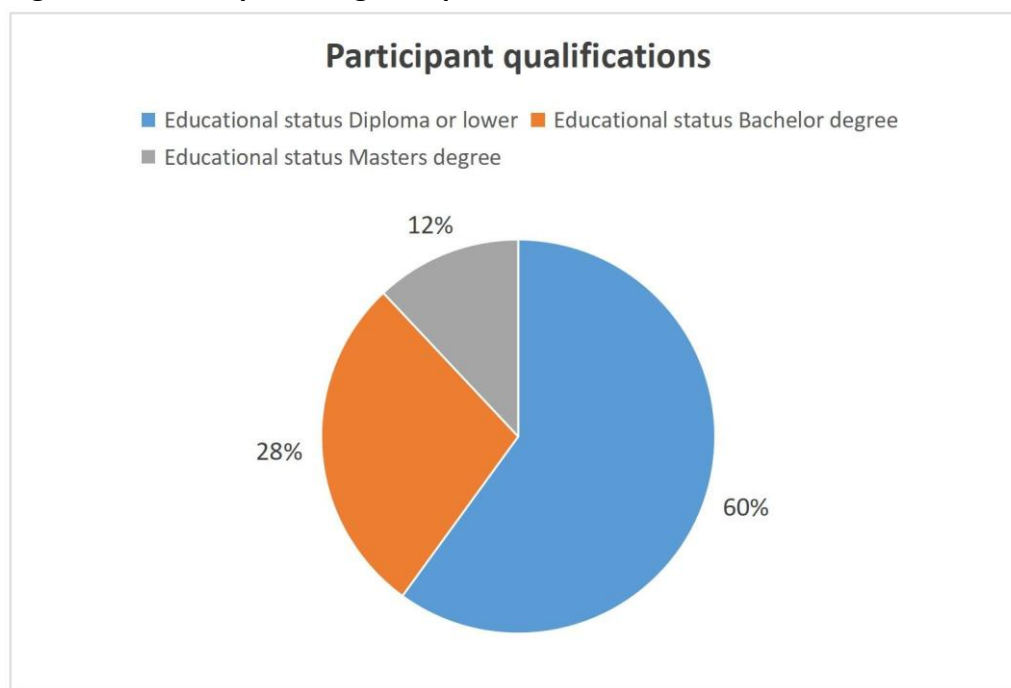


Figure 4. 3 showed that 54 (60%) held a diploma or lower whilst 25 (28%) had obtained a bachelor's degree, and 11 (12%) possessed a master's degree. Of the 28% who had a First level degree, 6(7%) where doctors where as other 21% were nurses. This an indication that nurses are participating in higher education and all the other 12% were also nurses who had secured a Masters Degree level. This is very encouraging to note that nurses are actually engaging in rigorous learning making it easier for them to appreciate hand hygiene at Chivi District Hospital.

Figure 4.4: Years of Experience in the clinical practice

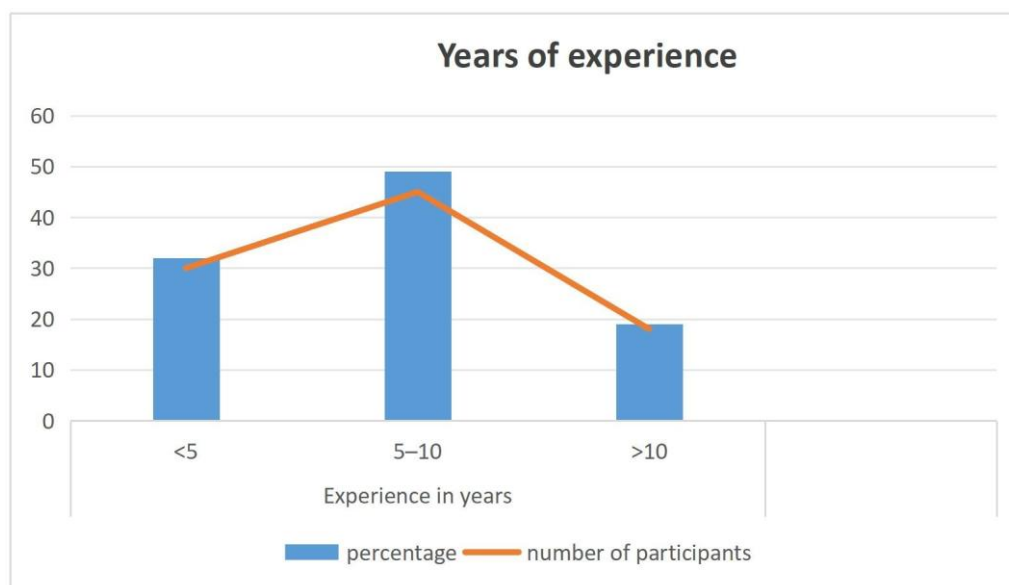


Figure 4.4 show nearly half: 44(49%) had 5–10 years of experience in the clinical practice, 29 (32%) have less than 5 years, and 17 (19%) exceed 10 years of clinical practice.

Hand Hygiene Compliance and Associated Factors

The participants were examined to asses their Hand hygiene (HH) knowledge, attitudes, as well as their behaviors. Primary findings exposes that the majority of the participants had sufficient knowledge about hand hygiene as well as the five movements needed for HH.

HCW's should receive proper HH trainings to promote compliance amongs HC's (Nyika et al., 2018). It was evident that the majority had received necessary HH

trainings. Thus, they were conscious of the importance of HH in infection control. (Arbaee & Ghazali, 2018) asserts that hospital admin plays a key role in Infection Control by supporting and providing necessary resources for good HH practices. The hospital admin tried its best to support its personnel in this regard as shown in table

4.1. Hand Washing and Associated Factors Hand hygiene were evaluated and observations show that the majority of the participants in the study were aware and tried their best to wash their hands before contact, sanitized their hands after contact, before an aseptic procedures and after getting in contact with body fluids. Washing time was generally about 60 seconds. Most of HCW's believed that hand washing protects them from getting infected.

Table 4.1 Hand Washing and Associated Factors

Factor		N	%
Knowledge on hand hygiene	Yes	91	98.2
	No	2	1.8
Knows the 5 moments of hand hygiene	Yes	87	93.4
	No	6	6.6
Received training on hand hygiene	Yes	83	89.7
	No	10	10.3
Knew the presence of infection control committee (IPC)	Yes	83	88.9
	No	10	11.1
Available soap and water	Yes	90	97.3
	No	3	2.7
Presence of posters on hand hygiene	Yes	87	93.5
	No	6	6.5
Presence of gloves	Yes	92	99.1
	No	1	0.9
Attitude towards hand hygiene	Positive	92	99.1
Positive	Negative	1	0.9

Alcohol based hand rub is available Yes	Yes	91	97.9
	No	2	2.1
Promotion of hand hygiene by hospital	Yes	92	98.5
	No	1	1.5

With more than half of the workers believing that hand washing protects from infection at a very high rate, they washed their hands. Most of participants used disposable paper towels to dry their hands after washing their hands. With interrupted water supplies, there was a high rate on the use of alcohol-based aseptic products and procedures. The data indicates a high level of awareness and training among participants, with 98.2% understanding hand hygiene principles, 93.4% familiar with the "5 moments" of hand hygiene, and 89.7% having received formal training. In addition, 88.9% are aware of infection control committees. The admin? supports the HCW's through resource mobilization. This is shown by the significant availability of resources. Essential supplies such as soap and water (97.3%), gloves (99.1%), and alcohol-based hand rubs (97.9%) are readily accessible, while 93.5% report the presence of visual prompts like hand hygiene posters. Additionally, a vast majority (99.1%) express a positive outlook toward hand hygiene practices. Most of these positive results are attributed to the practices embedded into HCW's during the Covid-19 era where hand hygiene was emphasized religiously.

Table 4.2 Behavioral Characteristics of Hand Hygiene Compliance and Its Associated Factors Among Healthcare Workers

Behavior and Associated Factors		N	%
Wash hands before patient contact	Yes	73	78.2
	No	20	21.8
Wash hands after patient contact or bedside procedure	Always	87	93.1
	Sometimes	4	3.9
	Rarely	1	1.5
	Never	1	1.5

Wash hands before clean/aseptic procedure	Always	76	81.6
	Sometimes	8	8.2
	Rarely	5	5.5
	Never	4	4.8
Wash hands after body fluid exposure risk	Always	89	95.9
	Sometimes	2	1.9
	Rarely	1	1.1
	Never	1	1.1
Duration required for effective hand washing with soap and water	10–20sec	1	0.6
	30–40sec	2	2.1
	40–60sec	79	85.3
	Longer than 60sec	11	12.0
Hand washing can be protective to healthcare workers	Yes	73	79.0
	No	20	21.0
Effectiveness of hand-washing on preventing nosocomial infections	Very high	50	54.2
	High	34	36.2
	Low	2	2.1
	I don't know	7	7.5
Hand washing method used	Use of tap water only	11	11.7
	Use of tap water+soap	61	65.9
	Use of alcohol hand rub only	2	2.5
	Use of tap water+antiseptic soap	19	19.9
Dry hands after washing	I mostly dry my hands	73	79.0
	I often dry my hands	14	14.8
	None	6	6.2
Hand drying methods	Use of common towel	3	2.7
	Use of disposable paper towel	82	89.2
	Use of personal handkerchief	1	0.6
	None	7	7.5

Use of alcoholbased hand rub antiseptic	Sometimes	52	56.2
	Always	34	36.1
	Never	7	7.7
Reason for not using alcohol based hand rub antiseptic	Skin reaction/allergy	11	12.4
	Heavy work load	44	46.9
	Shortage of time	36	38.3
	Thought not important	2	2.4
Reasons for not performing hand washing	Workload/shortage of time and water	51	54.8
	Lack of awareness/knowledge	12	12.7
	Forgetfulness	29	31.5
	No reason	1	1.0

When it comes to actual hand hygiene behaviors, 78.2% wash their hands before contact with patients. Some participants did not wash their hands because at times hands are not visibly dirty or the person may be in a rush or doesn't have access to other options. Only to a lesser extent may the shortfall be attributed to poor awareness or training as more than 90% of participants know about 5 key moments of hand hygiene. 95.9% of participants wash hands after exposure to body fluids. This may be attributed to the fact that the hands will be visibly dirty from body fluids such as blood and they are aware of risk of transmission from microorganisms. About 85.3% adhere to the recommended hand-washing duration of 40–60 seconds while, 12% washed hands for more than 60 seconds. Only a few with less than 2.8% wash their hands for 40 seconds and less.

The majority (65.9%) use soap and tap water, with 29.9% opting for alcohol-based rubs. Some participants chose alcohol based rubs because they found them convenient. Instead of spending close to a minute washing hands only, they pointed that sanitizing hands is fast and convenient. 89.2% of the participants were found to use disposable paper towels for drying while 7.5% do not dry their hands where as use of common towel contributes to 2.7% and only 0.6% personal handkerchief .

However, barriers were noted. Avoidance of alcohol rubs was primarily due to hefty workload (46.9%) and skin irritation contributes to 12.4%. Missed hand-washing opportunities stem from workload pressures (54.8%), lack of awareness (27.2%), and forgetfulness (11.5%). (Rumon et al., 2016) emphasizes on the importance of constant and reliable water supply to promote proper HH compliance. However, there were significant n problems in accessing water due to ZINWA water cuts. Resources such as soap, alcohol-based disinfectant and relevant PPE were available and easily accessible.

Chapter 5:

5 Summary, Discussion of findings, conclusions and recommendations.

5.0 Introduction

This chapter provides a comprehensive analysis of the study's principal findings, anchoring them within the context of the initial research objectives. It not only delivers a critical analysis of the data but also extends into practical, evidenceinformed recommendations aimed at improving hand hygiene (HH) adherence among healthcare workers (HCW's). The chapter concludes by highlighting the study's key contributions to the ongoing discourse on infection prevention and control at Chivi District Hospital.

5.1 Summary

The primary goal of this research was to investigate the factors influencing HH compliance among HCW's at Chivi District Hospital. The findings indicate commendable levels of foundational knowledge and attitudes among staff. However, despite this promising groundwork, actual compliance was only moderately adequate. Several enduring systemic and behavioral challenges were identified, underscoring the need for targeted, multidimensional interventions.

Discussion of Findings

5.1.1 Knowledge and Awareness Levels

The survey results revealed that a vast majority of participants had strong knowledge of core HH principles, and being able to accurately identify the WHO's "5 Moments for Hand Hygiene." These findings are consistent with international standards and cement the critical role of structured training and sustained educational efforts, as highlighted in studies by the (WHO 2019) and (Mekonnen et al. 2018). Moreover, this study showed that HCW's underwent HH training, and were aware of the hospital's Infection Prevention and Control (IPC) committee. These findings concur with the findings of the study by (Gerland et al., 2017) who seemed to agree with the findings from our study. This affirms that knowledge dissemination strategies at Chivi District Hospital are robust and have a positive impact. These educational efforts appear to be bearing positive results for hand hygiene. Because of these trainings, the health care

workers are likely to reduce risk of spreading infections by their hands as they see the importance of hand hygiene. (WHO 2022) has shown that hand of the health care practitioners can actually spread infections by almost 85% chances. Therefore, cleaning of hand which is being done at Chivi District Hospital has been shown to reduce nosocomial infections significantly.

5.1.2 Resource Accessibility and Constraints

The majority of HCW's reported consistent availability of key HH resources: soap and water, gloves, and alcohol-based hand rub. This level of resource availability is vital for enabling HH compliance, particularly in resource-constrained healthcare settings. It aligns with findings from (Moyo et al. 2023) and (Gebresilassie et al. 2014), who emphasize that adequate material support is a foundational prerequisite for good HH practices. However, a critical issue was noted around water supply reliability, with frequent service disruptions linked to infrastructural challenges under the Zimbabwe National Water Authority (ZINWA). These interruptions severely compromise waterdependent HH practices and in turn threaten the hospital's ability to maintain consistent hygiene standards.

5.1.3 Attitudes Versus Observed Practices

Despite nearly universal agreement on the importance of HH, a disconnect was noted between these positive attitudes and the actual implementation of HH protocols. Specifically, while of HCW's consistently performed HH after exposure to bodily fluids, only did so before patient contact exposing a crucial moment in the HH continuum. This knowledge-practice discrepancy mirrors the patterns observed by (Valim et al. 2019), suggesting that while awareness and positive sentiment are necessary, they are insufficient to guarantee compliance. Bridging this gap requires supporting mechanisms that convert good intentions into established behaviors, including environmental cues, leadership modeling, and systematic accountability.

5.1.4 Identified Barriers to Consistent Compliance

The study identified several barriers that contribute to HH non-compliance, even in the face of adequate knowledge and resources. Chief among these were excessive workload, forgetfulness amidst multiple competing tasks, and time constraints. These challenges were especially pronounced in relation to ABHR usage. These findings echo the work of (Tavoschi et al. 2016) and others who underscore the significant influence of work environment dynamics—such as understaffing and high patient loads—on HH behavior. These barriers not only reflect operational realities but also point to structural inefficiencies that require immediate institutional attention.

5.2 Strategic Recommendations

In light of the barriers and gaps identified, the following strategic recommendations are proposed to enhance HH adherence at Chivi District Hospital. These interventions are grounded in empirical evidence and tailored to the local context:

5.2.1 Strengthen Continuous Education and Skills Development

- Introduce compulsory, periodic refresher courses (e.g., quarterly) focused on reinforcing WHO’s “5 Moments for Hand Hygiene” and other key HH principles.
- Incorporate experiential learning modalities such as hands-on simulations, role-play scenarios, and real-time feedback sessions to promote deeper understanding and practical skill integration.

5.2.2 Improve Infrastructure and Resource Resilience

- Address the issue of water insecurity by installing backup systems (e.g., largecapacity water storage tanks, rainwater harvesting systems, or a dedicated borehole) to mitigate ZINWA-related disruptions.

- Create a digitally tracked inventory management system for critical HH supplies (soap, ABHR, gloves, disposable towels) to ensure uninterrupted availability and prompt restocking.

5.2.3 Embed Accountability and Monitoring Mechanisms

- Empower the IPC Committee with authority and tools to conduct routine, unannounced compliance audits using standardized WHO checklists. Publicly report these metrics to encourage transparency.
- Implement peer-observation and recognition programs that reward units or individuals demonstrating outstanding compliance, thereby fostering a culture of mutual accountability and positive peer influence.

5.2.4 Reduce Workload and Streamline HH Integration

- Engage with hospital leadership and health authorities to advocate for increased staffing, thereby reducing workload and allowing HCWs more time to perform HH without compromising care.
- Integrate reminders and HH checkpoints into existing clinical workflows such as including HH prompts in ward checklists or during handovers to make compliance easier and more automatic.

5.2.5 Deploy Behavioral and Environmental Nudges

- Position high-visibility prompts (e.g., posters, signage, floor decals) at strategic decision points such as ward entrances and medication stations to cue HH behavior.
- Utilize low-cost, context-appropriate technology such as motion-activated buzzers at sinks or digital HH screensavers on hospital computers to reinforce messaging passively.

5.3 Concluding Synthesis

In conclusion, this study reveals a complex landscape in which HCWs at Chivi District Hospital possess strong foundational knowledge and highly positive attitudes towards

hand hygiene. Yet, the translation of this awareness into consistent action remains hindered by practical barriers including time constraints, water shortages, and environmental pressures. While the hospital has made commendable progress in improving resource availability and raising awareness, these advances must now be matched with integrated, systemic interventions. These include infrastructure upgrades, routine skills reinforcement, behavioral nudging, and enhanced staffing.

By implementing the proposed recommendations, Chivi District Hospital stands to not only improve HH adherence but also significantly reduce healthcare-associated infections (HAIs), thereby enhancing patient safety and overall healthcare quality

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APPENDICES

Appendix A; Letter of seeking permission to carry out study – to BUSE

Chivi District Hospital

Bag 551 Chivi, Masvingo

Masvingo

19 February 2024

The Chairperson

Department of Health Sciences

Bindura University of Science Education

Ref: request for the University support letter for my research ‘project at Chivi District Hospital; B231953B Dadirai Chisi

Postgraduate Diploma Infection Prevention and Control

I’m writing this letter requesting for a support letter for me to carry out my research project at Chivi District Hospital.

Research Title: Factors associated with hand hygiene amongst health care workers at Chivi District hospital.

Facility: Chivi District Hospital

The letter should be addressed to:

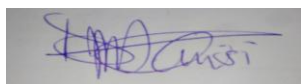
The Director Research office,

Chivi District Hospital

Bag 551 Chivi, Masvingo

Masvingo

Email address letter to be send to: melodychisi82@gmail.com

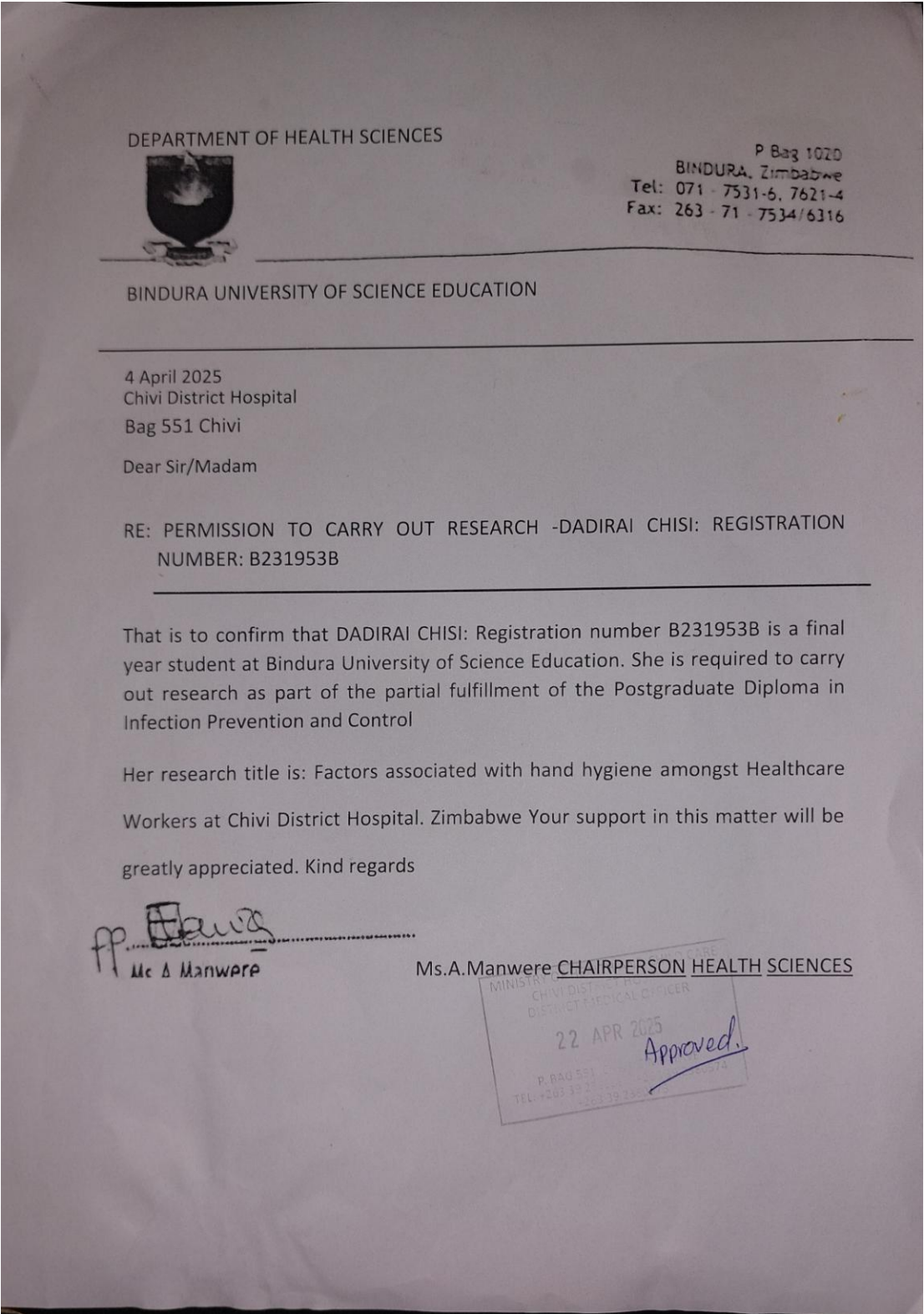


Yours sincerely

Dadirai Chisi

B231953B

Appendix B: Approved Support letter from BUSE



**Appendix C: Letter of seeking permission to carry out study – to Chivi District
Hospital.**

MEMORANDUM

To: Director Research Office

From : 4001190T DADIRAI CHISI

Cell : 0772449238

Ref:

Date : 01 February 2024

**RE: REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH
PROJECT AT CHIVI DISTRICT HOSPITAL; 4001190T DADIRAI CHISI
(B231953B)**

6. Reference is made to the above subject.

2. 4001190T DADIRAI CHISI , do hereby request for permission to carry out my research project at Chivi District Hospital, as partial fulfillment for the Postgraduate Diploma in Infection Prevention and Control which I'm doing with Bindura University of Science Education.

I am currently stationed at Chivi District Hospital in the health directorate.

3. **Research topic:** Factors associated with hand hygiene amongst health care workers at Chivi District hospital.

Research period: 01 February to 21 March 2024

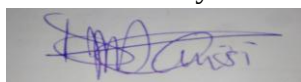
4. May you find attached copies of:

- a) Support letter from Bindura University of Science education.
- b) My research proposal.

5. Looking forward to your favorable response.

6. Submitted for your consideration.

Yours Sincerely



.....
4001190T DADIRAI CHISI

Student number: B231953B

Appendix D: Letter of approval from Chivi District Hospital

DEPARTMENT OF HEALTH SCIENCES



P Bag 1020
BINDURA, Zimbabwe
Tel: 071 - 7531-6, 7621-4
Fax: 263 - 71 - 7534/6316

BINDURA UNIVERSITY OF SCIENCE EDUCATION

4 April 2025
Chivi District Hospital
Bag 551 Chivi
Dear Sir/Madam

RE: PERMISSION TO CARRY OUT RESEARCH -DADIRAI CHISI: REGISTRATION
NUMBER: B231953B

That is to confirm that DADIRAI CHISI: Registration number B231953B is a final
year student at Bindura University of Science Education. She is required to carry
out research as part of the partial fulfillment of the Postgraduate Diploma in
Infection Prevention and Control

Her research title is: Factors associated with hand hygiene amongst Healthcare
Workers at Chivi District Hospital. Zimbabwe Your support in this matter will be
greatly appreciated. Kind regards


Ms. A. Manwere

Ms.A. Manwere CHAIRPERSON HEALTH SCIENCES





Appendix E: Consent Form
INFORMED CONSENT FORM

Project title: Factors associated with hand hygiene amongst health care workers at Chivi District hospital

Investigator: Ms Dadirai Chisi B231953B Post Graduate Diploma in Infection Prevention and Control (PGDIPC) Bindura University of Science Education

Phone number(s): 0772 449 238

What you should know about this study.

- I am giving you this consent so that you may read about the purpose, risks and benefits of this research study
- The goal of this research study is to assess the knowledge of clinicians regarding hand hygiene.
- There are no known potential risks expected due to participation in the study.
- You have the right to refuse or agree to participate in the research study now and change your mind later. Whatever decision you make; you will not be penalized for it.
- Please review this consent form carefully. If there is anything you do not understand you are free to ask me before you make a decision.
- Your participation is voluntary.

Purpose of the study: You are being asked for your voluntary participation in my Infection Prevention and Control project towards my studies for the PGDIPC. You are selected as a possible participant because your duties entail factors associated with Hand Hygiene practices. The purpose of this study is to assess the knowledge and practices of nurses and doctors regarding factors associated with Hand Hygiene practices at Chivi District Hospital.

Procedures and duration. If you decide to participate in the study you will be given a self-administered questionnaire to answer the questions on it. You will be asked to do this once during the month of JANUARY 2025.

Risks and discomforts

There are no known or anticipated potential risks expected due to participation in the research study. **Benefits or compensation.**

There are no financial benefits or compensation expected through participation in this study, but professional knowledge gain.

Confidentiality

Any information which has been obtained in this study that identifies with you will remain confidential and can only be disclosed with your permission. The study data will be accessible to Bindura University of Science Education. **Voluntary participation:** Participation in this study is completely voluntary and you will not be penalized for not participating. Please note that if you choose to participate in this study you may withdraw at any time if you do not want to continue and you may choose not to answer any specific questions without any implications. You will get a copy of the signed consent form whether you agree or decline to participate. Your participation in the study may be terminated without regard to your consent if you resign from work or transfer from Chivi District Hospital.

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered, and you have made your voluntary decision.

I attest that I have read and understood the above information and that I'm **freely giving my consent to participate/declining to participate** in this study. *(Cancel the inapplicable)*

Name of Research Participant (please print)	Signature	Date
Time		

Name of Staff Obtaining Consent	Signature	Date
Name of Witness	Signature	Date

Appendix F: Data Collection Instrument

Hand Hygiene Survey Questionnaire

Questionnaire on factors associated with hand hygiene amongst health care workers at Chivi District Hospital **Instructions**

Read each question and select the most appropriate answer using a tick where applicable and may specify when necessary. Provide any other information deem necessary in the comment section. **Demographic Information**

- **Age range:** ☐ Under 25 ☐ 25–34 ☐ 35–44 ☐ 45–54 ☐ 55 or older

- **Gender:** ☐ Male
☐ Female
- **Marital Status:** ☐ Single ☐ Married
☐ Divorced/Separated ☐ Widowed ☐ Other

- **Educational Status:** ☐ College diploma/University degree
☐ Postgraduate degree ☐ Other
(specify).....

- **Profession/Qualification:** ☐ Doctor

- ☐ Nurse or Midwife
 - ☐ Other
(specify).....
- **Years of Professional Experience:**
 - ☐ Less than 1 year ○ ☐ 1–5 years ○ ☐ 6–10 years ○ ☐ More than 10 years
- **Department/Unit:** ○ ☐ Medical Ward ○ ☐ Surgical Ward
 - ☐ Maternity Ward
 - ☐ Other
(specify).....

Knowledge on Hand Hygiene

- **Have you received any formal training on hand hygiene?**
○ ☐ Yes ○ ☐ No
- **Are you aware of the “Five Moments for Hand Hygiene” guidelines?** ○ ☐ Yes ○ ☐ No
- **Are you aware of an Infection Prevention and Control (IPC) committee in your facility?** ○ ☐ Yes ○ ☐ No
- **Do you believe that washing hands with soap and water can protect healthcare workers from infection?** ○ ☐ Yes ○ ☐ No
- **How effective do you think hand washing is in preventing healthcare-associated infections?**
 - ☐ Very high ○ ☐ High ○ ☐ Low
 - ☐ I don't know
- **What is the recommended duration for effective hand washing with soap and water?**
 - ☐ 10–20 seconds ○ ☐ 30–40 seconds ○ ☐ 40–60 seconds
 - ☐ More than 60 seconds

Attitudes Toward Hand Hygiene

- **How would you describe your personal attitude toward hand hygiene?**
 - ☐ Positive ○ ☐ Negative

Hand Hygiene Facilities

- **Is soap and running water readily available in your work area?** ○ ☐ Yes ○ ☐ No
- **Is alcohol-based hand sanitizer available in your work area?** ○ ☐ Yes ○ ☐ No

- **Are informational posters or reminders about hand hygiene displayed in your workplace?** ☐ [] Yes ☐ [] No
- **Are disposable gloves readily available when needed in your department?**
☐ [] Yes ☐ [] No
- **Does your hospital or facility actively promote hand hygiene (e.g. through campaigns or training)?**
☐ [] Yes ☐ [] No

Behavior and Compliance

- **Do you wash your hands before touching a patient?** ☐ [] Yes ☐ [] No
- **How often do you wash your hands after touching a patient or performing bedside care?**
☐ [] Always ☐ [] Sometimes ☐ [] Rarely ☐ [] Never
- **How often do you wash your hands before performing any clean or aseptic procedure?**
☐ [] Always ☐ [] Sometimes ☐ [] Rarely ☐ [] Never
- **How often do you wash your hands after any exposure to body fluids (e.g. blood, saliva)?**
☐ [] Always ☐ [] Sometimes ☐ [] Rarely ☐ [] Never
- **Which method do you primarily use to clean your hands?**
☐ [] Tap water only (no soap) ☐ [] Tap water with soap ☐ [] Alcohol-based hand rub (sanitizer) only ☐ [] Tap water with antiseptic soap
- **How often do you use alcohol-based hand sanitizer as part of your hand hygiene?**
☐ [] Always ☐ [] Sometimes ☐ [] Never
- **Do you usually dry your hands after washing?** ☐ [] Yes ☐ [] No
- **Which method do you typically use to dry your hands? (Select all that apply)** ☐ [] Common/shared towel or cloth ☐ [] Disposable paper towel ☐ [] Personal handkerchief or cloth ☐ [] Air dry / Do not dry hands

Barriers to Hand Hygiene

- **If you do not use alcohol-based hand sanitizer, what are the reasons? (Select all that apply)**
☐ [] Skin irritation or allergy to sanitizer ☐ [] High workload or heavy work demands ☐ [] Shortage of time ☐ [] I don't consider it important

- **If you have skipped hand washing or hand hygiene in the past, what are the reasons?**
(Select all that apply)
 - ☐ High workload or lack of time
 - ☐ Lack of knowledge or awareness
 - ☐ Forgetfulness
 - ☐ No specific reason (hand hygiene is not a concern)

Comments.....
.....
.....
.....
.....

Thank you for completing this questionnaire.

End of questionnaire