

## DECLARATION

I hereby declare that except for references to other people's work, which have been duly acknowledged, this thesis is a result of my own research. Neither all nor part of this thesis has been presented for another degree elsewhere.

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## ABSTRACT

Human Immunodeficiency Virus (HIV) and Hepatitis B virus (HBV) share similar routes of transmission and therefore are more likely to co-exist in individuals. With the emergence and wide usage of Highly Active Antiretroviral Therapy (HAART), diseases associated with the Liver are increasingly becoming of much importance in the management of HIV infected patients. This

study was therefore conducted in the Holy Family Hospitals in Techiman and Berekum to determine the general prevalence of HIV/HBV co-infection in the two areas and also to determine whether HBV infection affects the treatment outcome of HIV infected individuals.

Eighty-nine (89) HIV infected patients who consented to the study were enrolled. Of the 89 HIV patients, 46 were from the Techiman Holy Family Hospital while 43 were from the Berekum Holy Family Hospital. Blood samples were taken from them for testing for Hepatitis B surface antigen (HBsAg). Immunological, haematological and biochemical tests were also conducted on all the subjects.

The prevalence of HIV/HBV co-infection was 32.6% (15 out of 46) and 37.2% (16 out of 43) for Techiman and Berekum respectively. The general prevalence of HBV infection among HIV patients for the two municipalities was found to be 34.8% (31 out of 89).

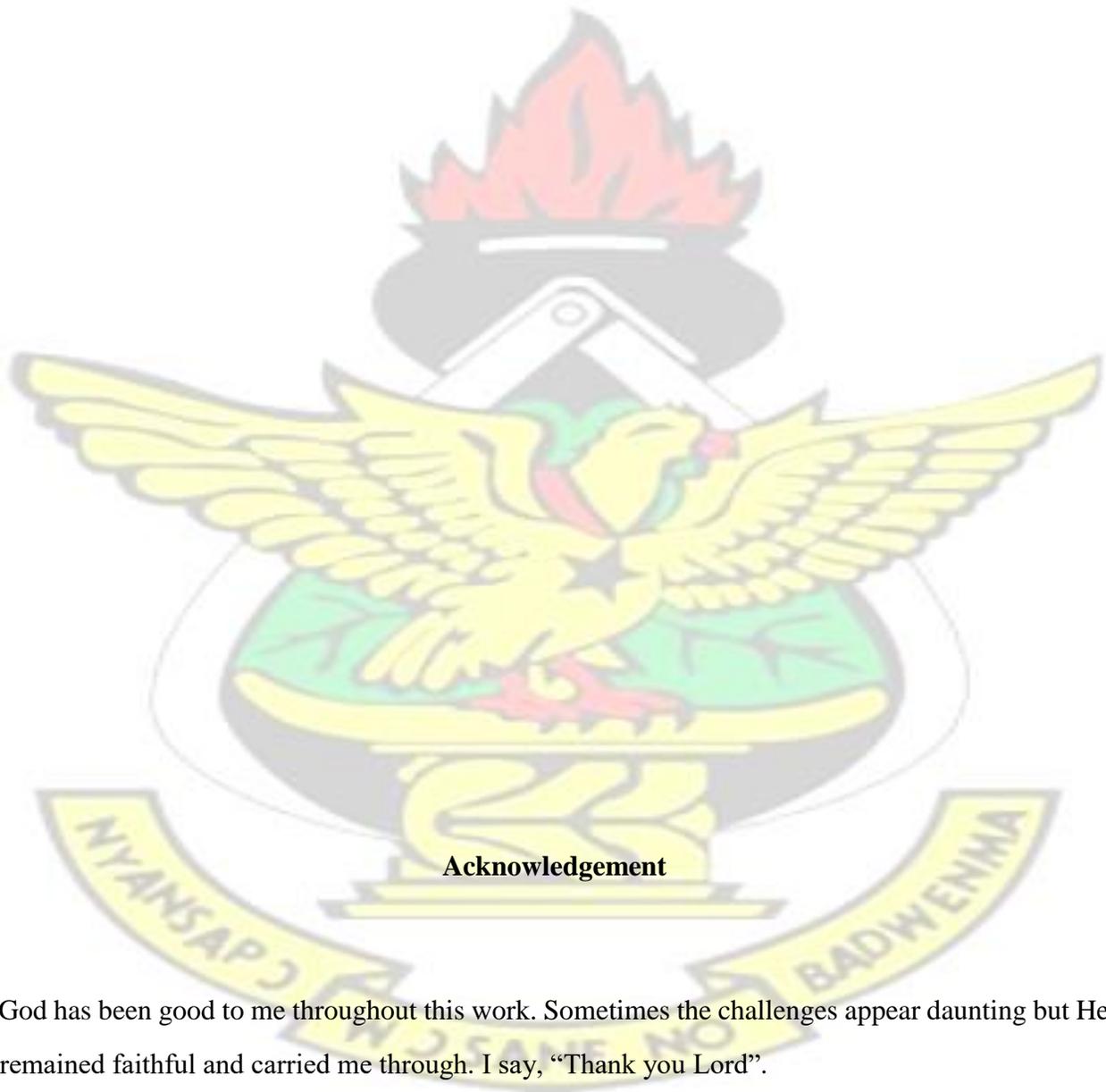
Majority of the participants were between the ages of 21 and 50, and were females. Most of the participants were of low economic status, but most of the co-infected subjects were of medium economic status. Haemoglobin and White blood cells levels of the co-infected group and the mono-infected groups showed similar changes after the start of the treatment. Mean liver enzymes were higher in the mono-infected group than the co-infected group. Changes in the liver enzymes after the initiation of the ART were similar for both groups of subjects. After the initiation of the treatment, CD4 counts of mono-infected subjects showed significant ( $p=0.022$ ) improvement by the second follow up while co-infected subjects showed significant ( $p=0.006$ ) reduction.

It was therefore concluded that, HBV infection affects negatively the (immunological) response to the antiretroviral therapy by the HIV infected patients.

### **Dedication**

This work is dedicated to my dear wife, Rakia Adamu, my lovely daughter, Newert Amo-Yeli Mills and my entire family for the sacrifice and unflinching support.

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## **Acknowledgement**

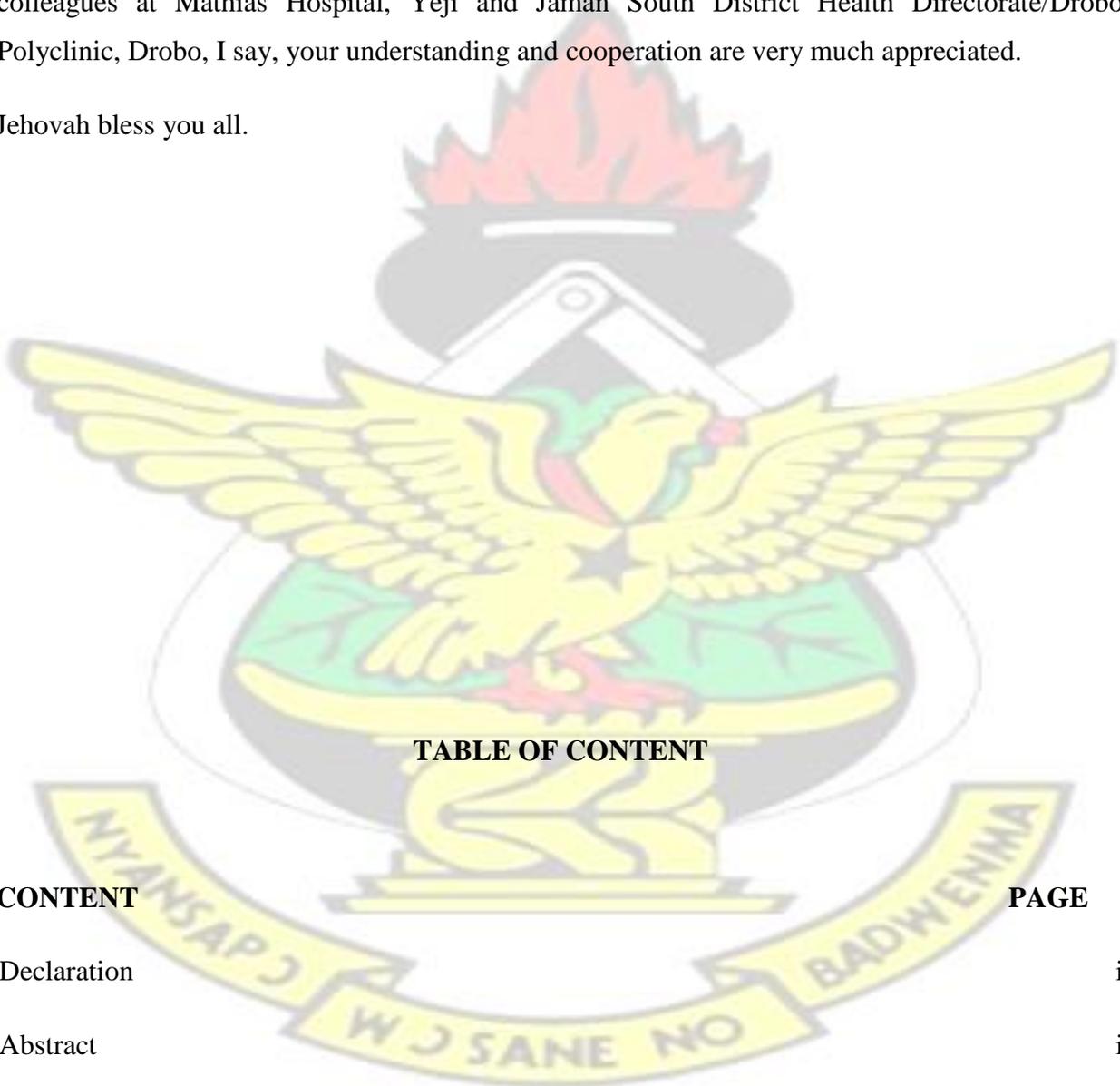
God has been good to me throughout this work. Sometimes the challenges appear daunting but He remained faithful and carried me through. I say, “Thank you Lord”.

I would forever remain grateful to my supervisor, Dr. T. B. Kwofie whose criticisms and corrections contributed immensely to the successful completion of this work.

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I am also grateful to my brother, Daah Yaw Daniel for supporting the work financially. To my colleagues at Mathias Hospital, Yeji and Jaman South District Health Directorate/Drobo Polyclinic, Drobo, I say, your understanding and cooperation are very much appreciated.

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**TABLE OF CONTENT**

<b>CONTENT</b>	<b>PAGE</b>
Declaration	i
Abstract	i
Dedication	ii
Acknowledgement	iii

List of Figures viii

List of Tables ix

List of Abbreviations x

# KNUST

**Chapter One: Introduction 1-3**

1.1. Background of the Study 1

1.2. Aims and Objective 3

**Chapter Two: Literature Review 4-23**

2.1. Human Immunodeficiency Virus (HIV) 4

2.1.1. Structure of HIV 4

2.1.2. Replication of HIV 6

2.1.3. Epidemiology 8

2.1.4. HIV prevention and treatment 9

2.2. Hepatitis B Virus (HBV) 10

2.2.1. Structure of HBV 11

2.2.2. Replication of HBV 12

2.2.3. Epidemiology 13

2.2.4. Prevention and management 15

2.3. HIV/HBV Co-infection 16

2.3.1. Epidemiology 16

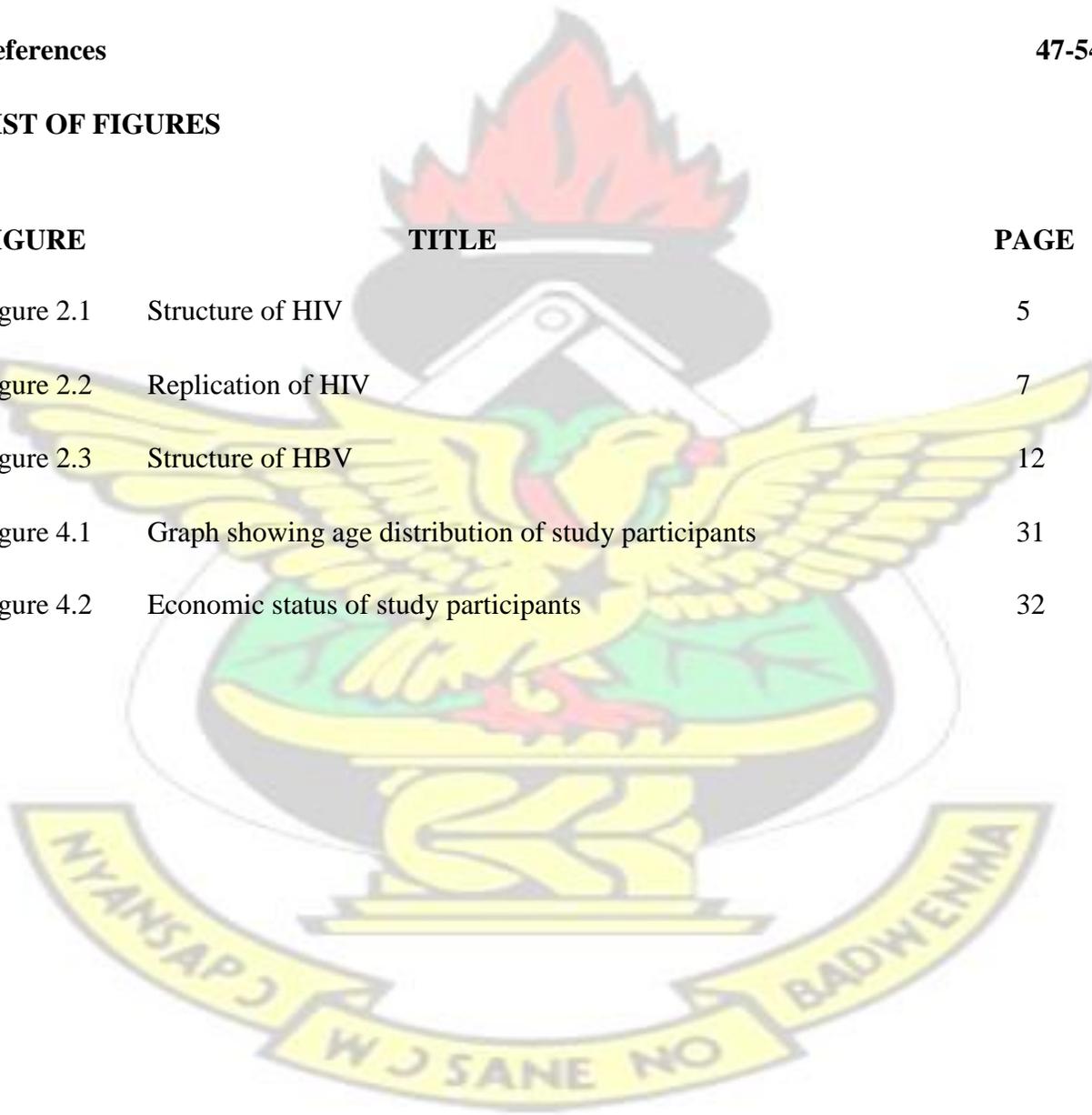
2.3.2. The effects of HIV on Hepatitis B	19
2.3.3. The effects of HBV on HIV	20
2.3.4. Management of HIV/HBV co-infection	22
<b>Chapter Three: Methodology</b>	<b>24-29</b>
3.1. Study population	24
3.2. Sample and sampling method	24
3.3. Ethical clearance	24
3.4. Sample collection and analysis	25
3.5. Hepatitis B surface antigen (HBsAg) testing	25
3.5.1. Principle	25
3.5.2. Test procedure	25
3.5.3. Interpretation of Results	26
3.5.4. Quality control	26
3.6. CD4 cells count	26
3.6.1. Principle	26
3.6.2. Running CD4 controls	27
3.6.3. Sample preparation and running	27
3.6.4. Quality control	27
3.7. Liver function tests	27
3.7.1. Principle	28
3.7.2. Procedure	28

3.7.3. Quality control	28
3.8. Full blood count	28
3.8.1. Principle	29
3.8.2. Procedure	29
3.8.3. Quality control	29
3.9. Statistical analysis	29
<b>Chapter Four: Results</b>	<b>30-41</b>
4.1. Prevalence of co-infection	30
4.2. Information on participants	30
4.2.1. Sex distribution	30
4.2.2. Age distribution	31
4.2.3. Economic status of participants	31
4.2.4. Hepatitis B surface antigen status	32
4.3. CD4 count of participants	33
4.4. Haemoglobin and White blood cell counts of participants	34
4.5. Liver function test	37
<b>Chapter Five: Discussion, Conclusion and Recommendations</b>	<b>42-47</b>
5.1. Discussion	42
5.1.1. General prevalence	42
5.1.2. Demographic information of participants	42

5.1.3. Haematological parameters of participants	43
5.1.4. Biochemical parameters of participants	44
5.1.5. Immunological parameters of participants	44
5.2. Conclusion	46
5.3. Recommendations	46
<b>References</b>	<b>47-54</b>

**LIST OF FIGURES**

<b>FIGURE</b>	<b>TITLE</b>	<b>PAGE</b>
Figure 2.1	Structure of HIV	5
Figure 2.2	Replication of HIV	7
Figure 2.3	Structure of HBV	12
Figure 4.1	Graph showing age distribution of study participants	31
Figure 4.2	Economic status of study participants	32



# KNUST

## LIST OF TABLES

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
Table 4.1	Sex distribution of Participants	30
Table 4.2	Hepatitis B Surface Antigen status of participants	33
Table 4.3	CD4 count of participants in the study	34
Table 4.4	Haemoglobin levels of study participants at various visits	35
Table 4.5	White blood cell levels of study participants at various visits	36
Table 4.6	AST levels of study participants at various visits	38
Table 4.7	ALT levels of study participants at various visits	39
Table 4.8	ALP levels of study participants at various visits	40
Table 4.9	GGT levels of study participants at various visits	41

# KNUST

## LIST OF ABBREVIATIONS



ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
ART	Antiretroviral therapy
FACSCount	Fluorescence Activated Cell Sorting and Counting
DNA	Deoxyribonucleic acid
GGT	Gamma-glutamyl transpeptidase
HB	Haemoglobin
HBsAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HIV	Human Immunodeficiency Virus
LFT	Liver Function Test
RNA	Ribonucleic acid
WBC	White blood cells