

**PREVALENCE, ASSOCIATED FACTORS AND OUTCOMES OF VISCERAL  
LEISHMANIA INFECTION IN MOROTO DISTRICT: A CROSS-SECTIONAL STUDY**

**BY**

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**A RESEARCH DISSERTATION SUBMITTED TO BUSITEMA UNIVERSITY IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF**

**THE DEGREE OF MASTER OF PUBLIC HEALTH OF**

**BUSITEMA UNIVERSITY**

**April, 2022**

**Declaration**

I Patrick Sagaki, declare that this dissertation is my original work, in instances where I have used other scholarly works, I have clearly referenced them appropriately. It has been done in partial fulfillment for the award of Master of Public Health (MPH) of Busitema University. This work has not been published before or submitted for any other academic qualification in other institutions.

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## **Dedication**

I would like to dedicate this book to my Mum Mrs. Beatrice Sagaki and my late Daddy Mr Sagaki Alozio for their efforts in making me what I am today.

## **Acknowledgment**

I would like to acknowledge the staff of Busitema University most especially the faculty of Health Sciences. My special thanks to Drugs for Neglected Diseases *initiative* (DNDi), Prof. Peter Olupot-Olupot, Dr. Wanume Benon and Dr. Dinah Amongin. I would like also to thank the following for their encouragement:- My Late Dad Mr. Sagaki Alozio, My wife Nanziri Dinafence, My colleague Mr. Mulalu Posiano with who I spent sleepless nights during the course, My children: Jacinta Kasobya Sagaki, Patricia Mbaiti Sagaki, Daisy Kasiri Sagaki and my colleagues in the health department of Amudat District Local Government.

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## OPERATIONAL DEFINITIONS

<b>Term</b>	<b>Definition</b>
<b>Asymptomatic:</b>	A condition or a person producing or showing no symptoms of VL according to Ministry of Health guidelines(Kenya Ministry of Health 2017).
<b>Endemic:</b>	Occurrence of a disease or condition regularly found among particular people or in a certain area. For purposes of this study in the Karamoja region is the endemic region for VL(Kebede 2004).
<b>Manyatta:</b>	The homesteads are organized into groups of family units, living within mud walls and grass thatched roofed houses encircled by thorny fencing(Odoch & Olobo 2013).
<b>Visceral leishmaniasis</b>	Also known as kala-azar is a disease caused by infection with Leishmania parasites. Visceral leishmaniasis is spread by sand fly bites (Dhariwal <i>et al.</i> 2015).

## **List of Abbreviations and Acronyms**

CL	Cutaneous leishmaniasis
DAT	Direct Agglutination Test
DHO	District Health Officer
GCLP	Good Clinical and Laboratory Practices
HIV	Human Immunodeficiency Virus
IgG	Immunoglobulin G
IQR	Inter Quartile Range
ML	Muco-cutaneous leishmaniasis
MOH	Ministry of Health
PKDL	Post Kalaazar Dermal leishmaniasis
PNFP	Private Not For Profit
SC	Schedule Cast
SD	Standard Deviation
ST	Schedule cast
REC	Research Ethics Committee
RDC	Residence District Commissioner
RRH	Regional Referral Hospital
UNCST	Uganda National Council of Science and Technology
VL	Visceral Leishmaniasis
WHO	World Health Organization

## **Abstract**

**Introduction:** Visceral leishmaniasis (VL) remains one of the neglected tropical diseases (NTD) of public health importance. The condition remains poorly studied for instance, the contribution of admissions from Moroto district to Amudat Hospital may not reflect the burden, magnitude and true picture of the condition in Moroto District. No previous studies have described prevalence, associated factors and outcomes of VL in Moroto District. Moreover, given its geographic and ethnic preponderance, data remains incomplete in Moroto District. The overarching aim for this study is to describe prevalence, risk factors and outcomes in Moroto District as an initial step to understanding the condition in these settings and as a contribution to the VL map in the region and country.

**Methods:** We conducted a cross-sectional study in which community cases were identified amongst the 288 individuals sampled at baseline. They were followed up at Amudat hospital Kala azar treatment centre for treatment outcome. At baseline, information relating to demographic, socio-economic and anthropometric data of participants was captured using an interviewer-administered structured questionnaire. Prevalence and factors associated with VL infection at baseline were determined. Chi-square was the test statistic and logistic regression analysis was done with clustering being factored in at county level. At follow up stage, the outcomes were determined.

**Results:** The overall prevalence of VL infection in Moroto district was found to be 5.21 % (95%CI: 3.15% - 8.48%), Matheniko county having the highest prevalence of 6.90%, followed by Tepeth county at 4.49% and Moroto Municipality with the lowest prevalence of 3.61%. From the results, the high-risk factor for VL infection in Moroto district included; - incorrect knowledge of habitat for Sand flies (AOR 5.33 (95%CI: (1.69-16.82)). The signs and symptoms of VL disease included: fever, headache, abdominal pain and swelling, coughing, night sweats, diarrhea, fatigue, breathlessness and nose bleeding. The average hospitalization for VL was 17 days. All the patients who were treated at the hospital cured.

**Conclusion and Recommendation:** This neglected tropical disease is still prevalent in Moroto district, with a prevalence of 5.21 %. The high-risk factors for VL infection included lack of knowledge about the habitat for Sand flies. The outcome for VL infection were;- hospitalization of not more than 17 days, and all the treated patients cured.

The prevalence of 5.2 % in Moroto district is within the scope for elimination proportion and therefore the Ministry of Health should start elimination activities so as to prevent this from escalating into a public health problem.

# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction

The burden of visceral leishmaniasis (VL) remains high in Low- and Middle-Income Countries (LMIC) like Bangladesh, Ethiopia, India, Nepal, South Sudan, Sudan and Brazil. In these settings it accounts for more than 95% of case load, and it has been reported to peak during the sunny and pleasant season in India(Jervis *et al.* 2017). In East Africa the heaviest burden is in Kenya, Uganda, Sudan, South Sudan, Somalia and Ethiopia, where the disease contribute an estimated 15% of the global burden. This area has also been marred by civil wars, adverse climate patterns, poverty and malnutrition; all of which have been associated with VL (Al-Salem *et al.* 2016). In East Africa, published data does not show who is mainly affected and the seasonality pattern of Visceral Leishmaniasis. The scarcity of data is partly responsible for lack of evidence based policies, guidelines and practices for the disease prevention, control, elimination and/or eradication of VL in these settings. Some data exist (Kolaczinski *et al.* 2008; Reithinger *et al.* 2007a) but they have their limitations. For instance, most data reports are from retrospective studies and health facility based with limitations in data quality; and generalizability and these require urgent updating (Kolaczinski *et al.* 2008; Reithinger *et al.* 2007a). Yet other data are limited by the fact that VL has a location, geographical and ethnic tendency and so generalizability is problematic.

The global distribution of VL affects mainly the middle and low income countries as reflected in the map below (Figure.1 & 2)

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