Prevalence of *Plasmodium falciparum* and Intestinal Parasitemia, and Clinical Outcomes of these Co-Morbidities among Children in Kiryandongo Refugee Camp, Mid -Western Uganda

By

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DECLARATION

I, **Paul Oboth** hereby declare that except for references made to other people's work, which have been duly acknowledged, this dissertation is my original work and has neither in part nor completely been presented for consideration anywhere for any academic award.

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APPROVAL

This dissertation is being submitted to the Department of Public Health, Faculty of Health Sciences in partial fulfilment of the requirement for the award of the Degree of Master of Public Health of Busitema University by the approval of the supervisors.

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DEDICATION

This work is dedicated to my dear family members.

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LIST OF ACRONYMS

BUFHS	Busitema University Faculty of Health Sciences
CI	Confidence Interval
CME	Continuous Medical Education
EDTA	Ethylene-Diamine-Tetra Acetic Acid
g/dl	grams per decilitre
Hb	Haemoglobin
IPI	Intestinal Parasitic Infection
ITNs	Insecticide Treated Mosquito Nets
IRB	Institutional Review Board
IRS	Indoor Residual Spray
LLINs	Long Lasting Insecticide Nets
MAUC	Mid-Upper Arm Circumference
MDA	Mass Drug Administration
Ml	millilitre
MRRH	Mbale Regional Referral Hospital
MOH	Ministry of Health, Uganda
NaCl	Sodium Chloride
NTDs	Neglected Tropical Diseases
NGOs	Non-Government Organisation
P	Prevalence
PI	Principle Investigator
Pf-Hk	*Plasmodium falciparum* and *Hookworm*
Pf-Sch	*Plasmodium falciparum* and *schistosomes*
SSA	Sub-Saharan Africa
UNCST	Uganda National Council of Science and Technology
WBCs	White Blood Cells
WHO	World Health Organisation

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DEFINITIONS

Term	Definition
Malaria	is a febrile illness caused by the plasmodium parasite, which is transmitted via the bites of infected mosquitoes Adebayo, Akinyemi, and Cadmus (2015).
Haemoglobin (Hb)	is the iron-containing, oxygen-transport metalo-protein in RBCs. Normal Hb vary substantially with age, sex and race
Intestinal helminths	refers to worms infecting the gastro-intestinal tract of humans that are usually transmitted via the feco-oral route, or via contaminated soil, usually in areas with poor sanitation. Examples of such worms include- *Ancylostoma, Trichuris, Ascaris, Schistosoma* (Mengistu, 2010).
Anaemia	is a medical condition in which the number of red blood cells transporting oxygen to the various body parts is not sufficient to meet the needs of the body. Anaemia may result from varied causes but iron deficiency is a major cause of anaemia (Gutema, Adissu, Asress, & Gedefaw, 2014).
Infection	is the invasion by an endoparasite which lives within cells of the host.
Infestation	is the invasion by an ectoparasite which lives outside of the cells of the host.

ABSTRACT

BACKGROUND: The prevalence of *Plasmodium falciparum* and Intestinal Parasitic Infections (IPIs) - with the corresponding disease characteristics among children remain uncertain. This study aimed at determining the prevalence and evaluation of the nature of associations of the respective infections and the clinical outcomes.

METHODS: This was a cross sectional study conducted among 476-refugee camp schoolchildren. Kato-Katz technique was used to screen stool samples for intestinal parasites. Geimsa thick blood smear microscopy was used for malaria testing while the portable Hb calorimeter was used to measure haemoglobin concentration.

RESULTS: The overall prevalence of the mixed infections was 62.2%. *Plasmodium falciparum* was most prevalent of the single infections 262(55.04%) followed by *Taenia spp* 14 (2.9%), *Schistosoma mansoni* 12(2.5%), *Giardia lamblia* 7 (2.9%), *Trichuris trichiura* 2(0.4%), Hookworm 2(0.4%) and *Strongyloides stercoralis* 1(0.2%). The odds of developing simple or uncomplicated malaria infection or anaemia was 14 times higher in individuals with dual co-infection with; *Plasmodium falciparum+Taenia spp* compared to single parasitic infection (Odds = 14.13, *P* = 0.019). Co-infection with *Plasmodium falciparum+Taenia spp* was a strong predictor of Malaria and anemia. This is in agreement with studies conducted in North Western and Western Uganda, which have strongly indicated that Malaria and IPIs are risk factors for childhood anemia.

CONCLUSION: This study shows that *Plasmodium falciparum* and *Taenia spp* co-infections is a stronger predictor of malaria and anaemia. Even when there were vivid control measures in the camp, the prevalence of malaria and anaemia remains higher than the other regions in Uganda outside restricted settlements.