

DEDICATION

*TO THE GREATEST
PERSONS IN MY LIFE*

*MY MOTHER AND MY FATHER
FOR THEIR LOVE AND
SUPPORT*

Acknowledgment

*First of all my thanks to **ALLAH**.*

*I wish to express my thanks and gratitude to my supervisor **Dr. Mohammad Baha Eldin Ahmed** for his close supervision, assistance and continuous support during this work. Without his help, this work could not have been accomplished.*

*My gratitude is also extended to **Mr. Ali Alamin, Mr. Amgad Mr. Ahmad Galander**, and **Miss Tayseer** in the department of parasitology, faculty of medical laboratory Science, Sudan university for their help throughout the study.*

I am also indebted to everyone who taught me and to all those who stood behind me and gave me kind, personal, close and distant support.

Abstract

This study was conducted in Dar alslam, East of Khartoum. The study was conducted on 500 individuals comprising different genders and age groups. Two technique were used in this study; centrifugation technique for all studied individuals and ELISA technique for 50 of the positive cases detected by centrifugation technique and 50 of the negative cases as well. The results revealed that out of 500 urine samples examined by the centrifugation technique, 61pupils were found to be positive for S.haematobi-um infection constituting an overall prevalence rate of 12.2%.

Out of 420 males examined, 58 males were found positive for S.haematobium infection and out of the 80 females examined, 3 females were found positive.

This constitutes 13.8% and 3.8% prevalence rate respectively.

The highest prevalence rate (14%) was reported among the 12 – 17 age groups, while the lowest rate (7.9%) was reported among the 18 – 22 age groups.

The result showed that the prevalence rate was 32.3% for those who had contact with water, while it was 1.5% for those who had no contact with water.

The result showed that the prevalence rate was 28.9% among those with a history of previous infection compared to the 8.5% rate for those with no previous schistosoma infection.

For those who received treatment, the prevalence rate was 22% compared to the 10.4% rates for those who did not receive treatment.

From the result, ELISA test proved sensitivity rate of 88% and specificity rate of 92%.

ملخص الدراسة

أجريت هذه الدراسة في دار السلام بشرق الخرطوم علي 500 شخص يمثلون كنادر مختلفة وفئات عمرية مختلفة. تم استعمال تقنيتين لهذه الدراسة، تقنية الطرد المركزي لكل الأشخاص تحت الدراسة وتقنية الالايه ل 50 حالة موجبة تم التأكد منها بواسطة تقنية الطرد المركزي وكذلك 50 حالة سالبة.

أظهرت النتائج أن من 500 عينة بول فحصت بواسطة تقنية الطرد المركزي ، 61 وجدت موجبة بعدوي طفيل بلهارسيا المجاري البولية ممثلة بذلك 12.2% مدي انتشار كلي.

من عدد 420 من الذكور التي فحصت وجد أن 58 كانت موجبة ومن بين 80 من الإناث وجد أن 3 كانت موجبة. هذا يمثل 13.8% و 3.8% معدل انتشار علي التوالي.

أعلي معدل انتشار (14%) سجل وسط الفئة العمرية 12 - 17 سنة بينما المعدل الأقل (7.9%) سجل وسط الفئة العمرية 18 - 22 سنة.

أظهرت الدراسة أن معدل الانتشار كان 32.3% بهؤلاء الأشخاص الذين كان لديهم اتصال بالماء بينما كان المعدل 1.5% للأشخاص الذين لم يكن لديهم أي اتصال بالماء.

أيضا أظهرت الدراسة أن معدل الانتشار كان 28.9% وسط هؤلاء الذين كان لديهم تاريخ عدوي سابقة مقارنة معدل 8.5% لهؤلاء الذين لم يكن لديهم أي تاريخ إصابة سابقة.

بالنسبة للأشخاص الذين سبق وأن تلقوا العلاج كان معدل الانتشار 22% مقارنة بمعدل 10.4% في الأشخاص الذين لم يتلقوا العلاج.

أثبتت النتائج أن حساسية الالايظه كانت 88% بينما معدل النوعية كان 92%.

List of contents

	Topic	No
	<i>Dedication</i>	<i>I</i>
	<i>Acknowledgement</i>	<i>II</i>
	<i>Abstract (English)</i>	<i>III</i>
	<i>Abstract (Arabic)</i>	<i>V</i>
	<i>List of contents</i>	<i>VI</i>
	<i>List of tables</i>	<i>VIII</i>
	<i>List of figures</i>	<i>IX</i>
	Chapter one: Introduction and literature review	
<i>1.1</i>	<i>Historical background</i>	<i>1</i>
<i>1.2</i>	<i>Schistosoma species</i>	<i>2</i>
<i>1.2.1</i>	<i>Schistosoma mansoni</i>	<i>2</i>
<i>1.2.2</i>	<i>Schistosoma haematobium</i>	<i>2</i>
<i>1.2.3</i>	<i>Schistosoma japonicum</i>	<i>2</i>
<i>1.2.4</i>	<i>Schistosoma mekongi</i>	<i>2</i>
<i>1.2.5</i>	<i>Schistosoma intercalatum</i>	<i>3</i>
<i>1.3</i>	<i>transmission</i>	<i>3</i>
<i>1.4</i>	<i>Life cycle</i>	<i>3</i>
<i>1.5</i>	<i>Epidemiology of schistosomiasis</i>	<i>5</i>
<i>1.5.1</i>	<i>Schistosoma mansoni and Schistosoma haematobiun</i>	<i>5</i>
<i>1.5.2</i>	<i>Prevalence of S.mansoni and S. haematobium</i>	<i>7</i>
<i>1.6</i>	<i>Distribution of schistosomiasis in Sudan</i>	<i>11</i>
<i>1.7</i>	<i>pathogenicity and pathology of S.haematobium</i>	<i>14</i>
<i>1.8</i>	<i>Diagnosis of S. haematobium</i>	<i>16</i>
<i>1.9</i>	<i>Immunological techniques of schistosomiasis</i>	<i>19</i>
	<i>Rationale</i>	<i>21</i>
	<i>Objectives</i>	<i>22</i>
	<i>General objective</i>	<i>22</i>
	<i>Specific objectives</i>	<i>22</i>
	Chapter two: Material and methods	
<i>2.1</i>	<i>Study design</i>	<i>23</i>
<i>2.2</i>	<i>Study area</i>	<i>23</i>
<i>2.3</i>	<i>Study population</i>	<i>23</i>
<i>2.4</i>	<i>Sample size</i>	<i>23</i>
<i>2.5</i>	<i>Ethical consideration</i>	<i>23</i>
<i>2.6</i>	<i>Data collection</i>	<i>23</i>
<i>2.7</i>	<i>Specimen and samples</i>	<i>24</i>
<i>2.8</i>	<i>Methods</i>	<i>24</i>
<i>2.8.1</i>	<i>Urine centrifugation technique</i>	<i>24</i>
<i>2.8.2</i>	<i>Indirect ELISA</i>	<i>24</i>
<i>2.9</i>	<i>Data analysis</i>	<i>25</i>
	Chapter three: results	<i>26</i>

List of tables

<i>Table No</i>	<i>Title</i>	<i>Page No</i>
<i>Table 1</i>	<i>The overall prevalence rate of S.haematobium in the study population using sedimentation technique.</i>	<i>28</i>
<i>Table 2</i>	<i>Prevalence of S.haematobium according to gender using centerifugation technique.</i>	<i>29</i>
<i>Table 3</i>	<i>Prevalence of S.haematobium according to age group using centerifugation technique.</i>	<i>30</i>
<i>Table 4</i>	<i>The prevalence of S.haematobium according to contact with canal water using centerifugation technique.</i>	<i>31</i>
<i>Table 5</i>	<i>Prevalence of S.haematobium according to history of previous infection using centerifugation technique.</i>	<i>32</i>
<i>Table 6</i>	<i>Prevalence of S.haematobium according to receiving treatment using centerifugation technique.</i>	<i>33</i>
<i>Table 7</i>	<i>Calculation of the sensitivity and specificity rates of the ELISA technique:</i>	<i>34</i>

List of figures

<i>Figure No</i>	<i>Title</i>	<i>Page No</i>
Figure 1	<i>Life cycle of schistosomes</i>	4
Figure 2	<i>Prevalence of S.haematobium according to gender using centerifugation technique.</i>	29
Figure 3	<i>Prevalence of S.haematobium according to age group using centerifugation technique.</i>	30
Figure 4	<i>the Prevalence of S.haematobium according to contact with canal water using centerifugation technique.</i>	31
Figure 5	<i>Prevalence of S.haematobium according to history of previous infection using centerifugation technique.</i>	32
Figure 6	<i>Prevalence of S.haematobium according to receiving treatment using centerifugation technique</i>	33