

AN ASSESSMENT OF *KITĀB TANBIḤ AL-IKHWĀN ‘ALĀ ADWIYAT AL-DIDĀN* OF SULTAN MUHAMMADU BELLO: EFFORTS TOWARDS HEALTH CARE DEVELOPMENT IN NIGERIA

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Abstract

Sokoto Caliphate scholars wrote a number of books on medicine. A number of these books are still in their manuscript form and their contents are not fully exposed to the modern science of medicine to show their relevance in promoting the health of the society. One of these important books is *Tanbiḥ al-Ikhwān ‘alā adwiyat al-Didān* by Muhammadu Bello. The book discussed extensively intestinal worm disease, its classifications, signs, method of its prevention and treatments. In view of the above, this study seeks to examine this aspect of human medicine as contained in the book in the light of the modern science of medicine on the same subject matter. The aim of the comparison is to show the relevance of the book and its application in the field of modern medicine. This helps in appreciating the effort of the author in laying the foundation of the science of medicine among the Muslims in Hausaland and beyond.

Keywords: *Tanbiḥ, Ikhwān, Adwiyah, Didān*, Health care, Development, Nigeria

Introduction

Reliable healthcare delivery is one of the indices of evaluating the development of a society. There is no gainsaying that Muslims have contributed enormously towards the development of the science of medicine in Islamic history. Allah has blessed Hausaland with Muslim scientists whose contributions to science remain relevant to the society to date. *Tanbiḥ al-Ikhwān ‘alā Adwiyat al-Didān* (meaning “Creating Awareness Among the (Muslim) Brethren on the Treatment of Intestinal Worms.”) of Sultan Muhammadu Bello is an example of the works of such scholars. The book examines human intestinal worm diseases. The aim of this study is to assess this book in the light of the modern medicine and its

relevance to healthcare delivery in contemporary Nigeria. To achieve this result, relevant modern scientific sources and opinions of some professional doctors concerning human intestinal worms are relied on. This includes analysis on what the author of the book under assessment discussed on intestinal worms in comparison with the modern scientific researches on the same subject matter. This is in order to show its relevance to the healthcare programmes of the contemporary society. This book was published along with other books of the author in one collection.¹ Similarly, this writer learnt that the book is currently being translated into Hausa language; however, the translation has not yet been published as at the time of writing this work.² This study therefore relied solely on the Arabic text.

Definition of Human Intestinal Worms

Human intestinal worm is a parasite (an organism that lives in or on and takes its nourishment from another organism) in the intestinal tract. Intestinal parasites include both helminths and protozoa. Helminths are worms such as tapeworms, pinworms, and roundworms. All of these worms can live, but typically not reproduce, inside the human intestine. In contrast to worms, which are composed of many cells, protozoa are single-celled organisms that can multiply inside the body. Examples of protozoa that can live in the intestinal tract are Giardia and Cryptosporidium. Human Intestinal worms are parasites that live in the human intestine, eat bowel content or suck blood from the intestinal wall.³ A parasite is that which lives on other organism called a host, receiving nourishment and shelter without any compensation for the host.⁴

Health Care

Health Care is the maintenance or improvement of health via the diagnosis, treatment, and prevention of diseases, illness, injury and other physical and mental impairments in human beings.⁵ Health care is the act of taking curative or necessary medical procedures to improve a person's wellbeing.⁶

Brief Biography of Sultan Muhammadu Bello bn Foduye

Muhammad Bello was born to a learned family renowned for scholarship in the month of Dhu'l-Qa'dah, 1195 A.H./ 28th December, 1780 C.E.⁷ He received a thorough education based on the pattern of the classical Islamic system. He was taught Arabic and rhetoric by his learned uncle,

Abdullah b. Foduye, who also taught him the Qur'ān and the Hadith. He learnt grammar from his elder brother; Muhammad Sa'd, while he also studied under his father, Sultan Uthman bn Foduye *Tafsir*, *'Uṣulud-dīn*, *al-Hadith* and *Taṣawwuf*. His father taught him a *ṣūfī* book titled: *al-'Insān al-Kāmil* written by Abdul-Karim al-Jīlī. Sultan Muhammadu Bello dedicated significant time to teaching(s) and writing(s). He documented his thought(s) practically by writing many books and pamphlets on a great variety of subjects in spite of his military and administrative responsibilities. At least, eighty-two of his works have been discovered. They include the following: *Tibbal- 'ayn* on disease of the eyes. He also wrote on the science of grammar and kind treatment of wives. He also wrote a number of works which have historical significance. *Infaq al-Maysur fī Tārīkh bilād al-Takrur* is his major historical work.⁸ He largely wrote on some aspects of medical sciences relating to humans and their environment. It is indeed worthy to note that about ten of his books are on medicine. These include *Tanbih al-Ikhwān 'ala Adwiyat al-Didān*, *Tibb al-Hayn fī auja' al-'Ayn*, *Al-Raḥmāh fī al-Ṭibb wa al-Ḥikmah*, *Kitāb Ṭibb al-Nabawī*, *Risālat al-Kilyah wailajiha*, among others.⁹

Assessment of *Kitāb Tanbih Al-Ikhwān 'Ala Adwiyat Al Didān*

Sultan Muhammadu Bello wrote this book in order to draw the attention of the people to the dangers of human intestinal worms. The book is therefore a purely medical science material. The author discussed the general causes, symptoms of the diseases and their treatment. He also explained the classification, nature and categories of human hosts.

General Causes of Human Intestinal Worms

According to Sultan Muhammadu Bello, worm and flies are part of Allah's creations. They came into being from rotten or undercooked foods. They eat from these rotten foods and spread the diseases among people or it can happen through the breath in the environment which became contaminated with these rotten foods through which people become infected.¹⁰ Human intestinal worm may also result from phlegm when it became hot, rotten and remained in the intestine. Some of the things that cause intestinal worms, according to Muhammadu Bello, include taking contaminated foods, spoiled cow milk, spoiled fishes, contaminated water, forage, pap, spoiled meat, cassava, yam, potatoes, orange, other forms of contaminated fruits, vegetables and weak digestive system.¹¹

In the modern medical science, almost the same findings were made. According to the findings, the following are some of causative agents or medium of transmitting of being infected with worms:

1. Unhygienic ally prepared food, polluted water and dirty fingernails: This is generally benign, asymptomatic condition, but the host continuously expels eggs of *T. sodium* which contaminate hands and foods under poor sanitary conditions.¹²
2. Undercooked meats or foods: The eggs are ingested by animals where the eggs hatch into a larval form called *cisticerci*. Human infection begins with consumption of undercooked meats or foods containing these larvae (*cisticerci*).¹³
3. A sluggish digestive system that provides a perfect place for the worms to breed and thereby causing the infections.
4. Unhealthy eating habits and diet through foods contaminated with larvae (baby worms) which infect the disease.
5. Some worms may enter the body through bare feet if the person walks on earth that is infected with worms.
6. Weak immune system and HIV or AIDS. This is due to the inability of the system to provide protection against the disease which infects it.
7. Exposure to livestock that have been affected with worms. The eggs are ingested by animals such as grazing cattle, where the egg hatches into larvae called *cysticercus*.¹⁴

From the forgoing, some similarities between the modern scientific findings and that of Muhammadu Bello on the causes of intestinal worms are observed. For instance, both emphasised poor sanitation of the environment, foods and water as the main causes of the diseases.

Symptoms of Intestinal Worm

Sultan Muhammadu Bello identified some symptoms of the disease. He said:

فصل: في العلامات المشتركة فهي سيلان اللعاب ورطوبه الشفتين بالليل وجفوفها با لنهار وضجر, واستنقال الكلام ويكون في هيئة المغضب السىء الخلق, وربما هذى وصريف الأسنان وخصوصا ليلا وكأنه يعضغ شيئا وكأنه يشتهي ذلع اللسان ويعرض له توثب في النوم وصراخ فيه وتململ واضطراب وضيق صدر على من ينبهه ويعرض له على الطعام عثيار وكرب يكون برازها في الأكثر رطبا وسقوط شهوة تارة واشتدادها أخرى وربما عطش للري معه وإذا شتدت سقطوا وتشنجوا والتؤوا¹⁵. كأنهم مصرعون وربما تقيئوها في مثل هذا الوقت وربما انتفخو وتهيجوا

Meaning:

Chapter: (explaining) the common symptoms (of worms). They include: releasing of saliva, wetness of the lips in the night and their dryness during the day time, tiredness, weakness of the body, difficulty in speech, looking sad and ugly, grinding of teeth particularly in the night as if he chews something and as if he wants to draw out his tongue, disturb sleeping, screaming or roaring in it (sleeping), fidget, nervousness, feeling unhappy during meal, provocation, sadness, his feces in most cases become wet, having no interest (in food) and sometime it (the lack of interest) worsen, and at times with severe thirst. If (the thirst) worsen, they (the patients) fell down and convulsed like those who fainted and at times they vomit it (the worms) during this time. They (the patients) sometimes produce cold sweat with bad odor.

From the above quotation, Sultan Muhammadu Bello identified a number of symptoms of Intestinal worms as follows:

1. Releasing of saliva from the mouth
2. Wetness of the lips during the night and dryness in the day time
3. Weaknesses of the body
4. Tiredness
5. Difficulty in speech
6. Looking sad and ugly nature
7. Grinding of teeth during sleep
8. Disturbed sleeping
9. Screaming or roaring in sleeping
10. Fidget
11. General nervousness
12. Sadness and Provocation
13. Wet feces
14. Lack of interest in food
15. Severe thirst
16. Passing out worms in vomiting
17. Passing out bad odor
18. Cold sweat with bad odor.¹⁶

Sultan Muhammadu Bello pointed out that passing out the worms in the stools alive from a sick person is a sign of its predominance but passing out dead worms or alive along with blood or in a vomiting are all signs that the worms have not predominated.¹⁷ Quoting from his book as explained above, he said:

وإذا خرجت من صاحب الحميات حية دل على صحة من القوة وإذا
خرجت ميتة فهي علامة ردية, وإذا خرجت في غير حال الحمى وكان
معهما دم وهو ردى أيضا ومنذ بأفأة في البدن أو الأمعاء وأما خروجها
بالبقيء فيدل على أخلاط ردية في المعدة¹⁸

Meaning:

Passing out the worms alive by a sick person indicates its predominance while passing it dead is a sign that the worms have not predominated in the patient. Passing it out along with blood by a person who is not sick also indicates that the worms are not prevalent in the patient. However, there is tendency of having an infection in his body or intestines. And passing it out along with vomiting is a sign that contaminated particles entered the intestine.

According to the modern scientific findings, the following symptoms of Intestinal worms are observed:

1. Stomach pain / tenderness of the stomach
2. Gas or bloating: to cause to become distended
3. Dysentery : A disease characterised by inflammation of the intestines, especially the colon (large intestine), accompanied by pus (white blood cells) in the feces, fever, pain in the abdomen, high volume of diarrhea and possible blood in the feces.
4. Diarrhea: A gastrointestinal disorder characterised by frequent and very fluid or watery bowel movements
5. Bad breath:
6. Constant feelings of hunger: Ulcers
7. Dark circles under the eyes
8. Bad dreams or restless sleep at night
9. Anemia: A medical condition in which the capacity of the blood to transport oxygen to the tissues is reduced, either because of too few red blood cells or because of too little hemoglobin resulting in pallor and fatigue
10. Headaches

11. Loss of weight
12. Exhaustion
13. Fever
14. Irritability
15. Increased feelings of anxiety and nervousness
16. Passing a worm in stool
17. Itching around the rectum or vulva (caused by pin worms and thread worms)
18. Nausea, vomiting and inflammation of the intestines or lungs (caused by round worms)
19. Cough, fever, diarrhea and constipation and loss of weight (caused by thread worms)
20. Weakness or pain in the legs (caused by giardia) and
21. Nutritional disorders (caused by hookworms)¹⁹

According to the modern research findings, the adult tapeworm (*taenia saginata*) can live in the human intestines for 25 years and reaches a length of 6 meters (18 feet) or longer.²⁰ If one examines the modern scientific findings on the symptoms of intestinal worms, one will understand the vast wisdom of knowledge of the medical science bestowed upon Sultan Muhammadu Bello by Allah (The Glorified, The Exalted).

Classifications of Intestinal Worms

Muhammadu Bello identified four major types of worms. He said:

ومنها طوال عظام يبلغ طولها فوق ذراع, و مستديرة ومعتضة وهي حب القرم. وصغار وهي مطلق الدود وأقلها ضرر "الصغار" إلا أنها إن عظمت وبقيت مدة كانت شر الجميع والطوال أشد تشبثا ثم العراض
 "21...والصغار أسهل اندفاعا

Meaning:

Among them (the classes of worms) are: Long ones (*Askaris*) which are (normally) more than one foot in length. And the round ones (round worms), and then there are white ones (known as *taenia* of tape worms). There are smaller ones which are less harming except that if they predominated and remained for a while, they will be the most dangerous ones. The long ones are more widespread and then followed by the flat ones. (However), the smaller ones are more easily curable.

Four classes of intestinal worms were identified by Sultan Muhammadu Bello, their habits and habitats. These are *Askaris* or round worms, tape worms or flat worms, trichinella and hookworm. Round worm is relatively large in size and flat worm is segmented in form. According to Muhammadu Bello the smaller ones are less harmful than the larger ones. If however, the smaller ones live in the human intestines for a long time, they can be very dangerous. On the other hand, round worms which are large in size cause severe infections. Similarly, the smaller ones are more easily curable than the larger ones. The larval forms of worms may invade the various tissue of man and cause serious trouble. They may block the intestine and the appendix. They may enter the bile and interfere with digestion or may injure the intestine. Sultan Muhammadu Bello pointed out that intestinal worms are more prevalent in children than in adults.²²

In similar findings by the modern medical scientists, infection is more common in children and they dull the mental capacity and stunt growth. Their juveniles cause inflammation and hemorrhage in the lungs which result in pneumonia which may prove fatal.²³ However, the following are identified as types of worms in modern medicine and the dangers they portend:

1. **Tapeworm:** These are contracted by the consumption of undercooked beef, pork, or fish containing encysted larvae (*cysticerci*). The scolex attaches to the intestinal mucosa of humans (the definite host) and matures into an adult tapeworm. Eggs are shed in feces and must be ingested by the intermediate host. Adult tapeworm can be undiagnosed in human.²⁴
2. **Hookworms:** Hookworm larvae bore through skin and migrate to the intestine to mature into adults. In the soil, hookworm larvae hatch from eggs shed in feces.²⁵
3. **Trichinellosis:** *Trichinella spiralis* larvae encyst in muscles of humans and other mammals to cause trichinellosis. The roundworm is contracted by ingesting the under cooked meat containing larvae. Adult females mature in the intestine and lay eggs; the new larvae migrate to invade muscles. Symptoms include fever, swelling around the eyes and gastro intestinal upset.²⁶
4. **Ascariasis:** *Ascaris lumbricoides* adults live in human intestines. It is acquired by ingesting *ascaris* eggs.

5. **Pinworms:** Humans are the definitive host for pinworms, *entrobilus vermicularis*. The disease is acquired by ingesting *entrobilus vermicularis*.²⁷

Prevention and Treatments

The methodology employed by Sultan Muhammadu Bello in providing preventive measures against intestinal worms was to educate the *Ummah* on the causes with a view to avoiding them. For instance, when he pointed out that taking contaminated water, foods and living in an unhygienic environment cause intestinal worms, keeping good sanitary conditions is the way to prevent the infection of the diseases. Pollution of soil with human feces should be avoided. Fruits should be properly washed before eating and avoid taking contaminated water and foods.²⁸ According to the findings of the modern medicine, the diseases transmitted by contaminated water are numerous. Prominent among them are parasites found in the feces and urine of sick persons particularly typhoid and various kinds of helminthiasis.²⁹

This is the reason why Islam emphasises good sanitary condition of foods, body, clothes and the environments. Allah loves those who always keep themselves tidy. Allah says:

They ask you concerning menstruation. Say: that is an *Adha* (a harmful thing for a husband to have a sexual intercourse with his wife while she is having her menses), therefore keep away from women during menses and go not unto them till they have purified (from menses and have taken a bath). And when they have purified themselves, then go in unto them as Allâh has ordained for you (go in unto them in any manner as long as it is in their vagina). Truly, Allâh loves those who turn unto Him in repentance and loves those who purify themselves (by taking a bath and cleaning and washing thoroughly their private parts, bodies, for their prayers, etc.) (Qur'an 2:222)

Similarly, Allah says in the Qur'an: "And your garments purify!" (Qur'an 74:4). Furthermore, Allah says:

O you who believe! When you intend to offer *As-Salât* (the prayer), wash your faces and your hands (forearms) up to the elbows, rub (by passing wet hands over) your heads, and

(wash) your feet up to ankles. If you are in a state of Janâba (i.e. had a sexual discharge), purify yourself (bathe your whole body). But if you are ill or on a journey or any of you come from answering the call of nature, or you have been in contact with women (i.e. sexual intercourse) and you find no water, then perform *Tayammum* with clean earth and rub therewith your faces and hands. Allâh does not want to place you in difficulty, but He wants to purify you, and to complete His Favour on you that you may be thankful (Qur'an 5:6).

The verses quoted above show that Muslims are commanded to maintain good sanitary conditions which include washing their clothes, hands, faces, legs, heads and whole of their bodies depending on the circumstances. These acts serve not only as preliminaries to observing acts of worship but also help against some infectious diseases like worms.

The Prophet (SAW) also stresses the need for good sanitation in a number of *Aḥādith*. For instance, the Prophet (SAW) said: “Do not urinate in stagnant, unrunning water and then use it for bathing.”³⁰

Stagnant water is the best place for breeding of parasites. This is therefore meant to inform and educate people about unhealthy practice of urinating in water and in order to protect other people against infectious diseases. That is why also the Prophet (SAW) prohibited defecation in the shade.³¹ The Prophet (SAW) warned against leaving food and drink containers uncovered. Thus, the Prophet (SAW) commanded us to tie up the mouth of our water skins and to cover our containers.³² This is in order to prevent harmful insects from getting into food and drink, thereby transmitting diseases.

Relevance of *Kitāb Tanbiḥ al-Ikhwān ‘alā Adwiyat al-Didān* to Health Care Development in Nigeria

In comparison, a number of what has been explained in the book about intestinal worms has also been confirmed in the modern medical scientific findings. For instance, Sultan Muhammadu Bello explained the causes, symptoms, nature and preventive measures of intestinal worms which were equally confirmed in the modern medical scientific findings.³³ Sultan Muhammadu Bello also in comparison with other modern medical scientific researchers, confirmed that intestinal worms are more prevalent in

children particularly *trichinella* and they are not common among adults and they are more prevalent during rainy season than in the other periods.³⁴ However, Sultan Muhammadu Bello in contrast with modern medicine provided pure traditional herbs for the treatment of worms as contained in his book.³⁵

From the foregoing, it is understood that this important scientific document is more relevant to our society towards prevention and treatments of intestinal worms particularly among our children who mostly fall victims of the diseases. This effort by Sultan Muhammadu Bello can be utilised in collaboration with the modern medical scientists in order to make it a reality. For instance, as part of its efforts to disseminate the true Islamic principles in the field of public health, the Islamic Educational, Scientific and Cultural Organisations (ISESCO) has translated into English and French, Health promotion through Islamic lifestyles: The Amman Declaration jointly published by ISESCO and WHO regional office for eastern Mediterranean. It is being disseminated on a wide scale in order to gain maximum benefit to the public.³⁶ The same can be done in this regard; the government can support and finance the project for the benefit of the people. The book should be translated and included in the schools' curriculum from primary to tertiary levels for its relevance to our society. This will help in adding to the existing literature on the medical sciences in our institutions of learning.

Conclusion

This study examines *KitābTanbiḥ al-Ikhwān 'alā adwiyat al-Didān* which is a scientific material on human intestinal worms written by Sultan Muhammadu Bello. The content of the book is important as it addresses one of the common infectious diseases that are common in Nigerian environment particularly among children. The author enlightens the *Ummah* on the need to observe good sanitary conditions of foods, water and the environment in order to avoid the infection of the diseases. This study realised the immense contribution of the book towards health care development; however, the book has not been exposed to show its relevance in promoting the health of the society. This can however be done with the support of the government in collaboration with the medical experts and professionals. The appraisal of the book shows how relevant it is in addressing the current health problems of the society. It is believed that, good utilisation of this medical scientific work of Sultan Muhammadu Bello contributes to health care development in Nigeria.

Notes and References

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