

Assessment Of Knowledge, and Attitudes Of General Public Attending Abu Khalifa Primary Health Care Unit Regarding Schistosomiasis In Ismailia, Egypt

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Abstract: Schistosomiasis is the third most devastating tropical disease in the world, being a major source of morbidity and mortality for developing countries around the world. This study investigated the public knowledge about the prevalence and complications of schistosomiasis in Abu-Khalifa, Ismailia, Egypt as well as to identify prevalence of the disease among the studied population. Questionnaires were administered to each participant to collect information on socio-demographic data, knowledge and attitude regarding schistosomiasis. Females were making up 64% while the males represented 36%. Primary-educated accounted for 13.0% and completed junior high school was 30%. However, illiterate or semiliterate were presented 40%. The study revealed that the total knowledge rate (94.0%) about the disease. Most of the respondents acquired their knowledge from doctors or television, followed by hearing from others. Majorities (82%) agreed about the high prevalence of the disease. The participants agreed (96%) about washing vegetables and fruits as an important measure for prevention. Moreover, 94% of study sample are convinced that swimming in canals is unfavorable. It is concluded that knowledge about Schistosomiasis in the area of study is mostly poor although there were multiple risks for potential Schistosomiasis infections in the area; the major cause seems to be the lack of proper and regular governmental health education. However, attitude of people when exposed or infected is acceptable.

Keywords: Schistosomiasis, assessment, knowledge, attitude.

I. INTRODUCTION

Schistosomiasis is an acute and chronic parasitic disease caused *Schistosoma*. After malaria and intestinal helminthiasis, schistosomiasis is the third most devastating tropical disease in the world, being a major source of morbidity and mortality for developing countries in Africa, South America, the Caribbean, the Middle East, and Asia [1]. Sometimes referred to as bilharzias, bilharziasis, or schistosomiasis was discovered by Theodore Bilharz, a German surgeon working in Cairo, who first identified the etiological agent *Schistosoma hematobium* in 1851 [2].

More than 207 million people, 85% of who live in Africa, are infected with schistosomiasis [1], and an estimated 700 million people are at risk of infection in 76 countries where the disease is considered endemic, as their agricultural work, domestic chores, and recreational activities expose them to infested water [1,3]. Globally, 200,000 deaths are attributed to schistosomiasis annually [4].

Individuals become infected with schistosomiasis through contact with water contaminated with schistosome parasites while bathing, swimming, or performing daily chores, such as washing laundry, fetching water, and herding animals. Thus, patterns of sanitation, water supply, and human water use are crucial elements in determining the risk of infection [1].

Prevalence and intensity of infection increase with age, peaking in the 5 to 14 year age group. Children also suffer the most side effects of the disease, especially poor growth and impaired cognitive development. The disease also contributes to malnutrition and disrupts school attendance. In older people, there is a drastic decline in intensity of infection but not in the prevalence of the disease [5].

It is well documented that *Schistosoma haematobium* was endemic in Ancient Egypt. Infection was diagnosed in mummies 3000, 4000 and 5000 years old. Scott was the first to describe the pattern of schistosomiasis infection in Egypt. *Schistosoma haematobium* was highly prevalent (60%) both in the Nile Delta and Nile Valley South of Cairo in districts of perennial irrigation while it was low (6%) in districts of basin irrigation. *Schistosoma mansoni* infected 60% of the population in the Northern and Eastern parts of the Nile Delta and only 6% in the Southern part. Neither *S. mansoni* cases nor its snail intermediate host were found in the Nile Valley South of Cairo [6]. In 1997, the National Schistosomiasis Control Program (NSCP) was launched in the Nile Delta. It adopted morbidity control strategy with Praziquantel mass treatment as the main component. In 1996, before the NSCP, 168 villages had *S. mansoni* prevalence >30%, 324 villages 20–30% and 654 villages 10–20%. By the end of 2010, in the whole country only 29 villages had prevalence >3% and none had more than 10% [6].

The economic and health effects of schistosomiasis are considerable. In children, schistosomiasis can cause anaemia, stunting and a reduced ability to learn, although the effects are usually reversible with treatment. Chronic schistosomiasis may affect people's ability to work and in some cases can result in death. In sub-Saharan Africa, it has been estimated that more than 200 000 deaths per year are due to schistosomiasis [1]. Chronic disease may appear many years later, developing usually in individuals with a heavy worm burden. In schistosomiasis japonica and mansoni, chronic disease is characterized by hepatomegaly, splenomegaly, portal hypertension, and bleeding esophageal varices. In schistosomiasis haematobia, inflammation and fibrosis of the bladder and ureters occur; obstruction of the ureters leads to hydronephrosis and eventually to uremia [7].

Early antiparasitic treatment, especially with acute schistosomiasis, may allow people to recover completely without developing chronic disease. People with chronic disease may improve with careful antiparasitic drug treatments and symptomatic treatment of the complications associated with schistosomiasis [8].

Carrying out this research project lies in the reduction of number of those who are infected by schistosoma. Programs to eradicate schistosomiasis are carried out as one of the important methods of control. However, these techniques are proving to be beyond the human and financial resources of most endemic countries and the objectives of such programs will only be achieved on the long-term [9]. It is critical to assess the knowledge of people about schistosomiasis including routes of infection, treatment, symptoms and complication; as this will help to improve control and prevention techniques.

Therefore, the aim of the present study was to assess the public knowledge about the prevalence and complications of schistosomiasis in Abu-Khalifa, Ismailia, Egypt as well as to identify prevalence of the disease among the studied population.

II. SUBJECTS AND METHODS

Study Design:

A descriptive cross sectional study was carried out to assess knowledge, attitude and practice of people towards Schistosomiasis who attended to primary health care unit (PHCU) in Abu-Khalifa, Ismailia.

Sample Size and Sampling Technique:

Convenience sample method was used, in which all the people includes males and females above 18 years old (100 participants).

Data Collection methods and management:

Data was collected through a structured interview using the designed questionnaire that included: Personal socio-demographic characteristics and assessing the individual knowledge about schistosomiasis that include:

- Routes of infection
- Infective stage of schistosoma

- Habitat of schistosoma in human
- Most common symptoms of schistosomiasis and its complications
- Treatment of schistosomiasis
- Methods of prophylaxis and prevention

The obtained data was coded, entered and processed on a personal computer using Statistical Package of Social Science (SPSS 17). The appropriate statistical test was used to identify significant difference. Descriptive statistics was applied in the form of tables and graphs as appropriate.

Ethical Consideration:

The permission of the study setting was taken. They were informed that responding is voluntary and that they can refuse responding without stating any reason as well as information confidentiality was kept. A feedback about the results of the study was given to the place at the end of the result.

III. RESULTS

Socio-demographic Characteristics:

A total of 100 questionnaires were collected, with an overall response rate of 100%. As shown in Table I, there were a slightly higher number of females, with a significant difference between the genders. The females were making up (64%) while the males made up the remaining (36%). There were also significant differences in the categories of age, ethnicity, and education level. The age of participants ranged from 18 to 70 years (mean 32.78 ± 11 years). Primary-educated accounted for 13.0% and completed junior high school was 30%. However, illiterate or semilliterate (i.e. those who didn't attend or finish primary school or those who could not read or just knew a few words) were presented 40%.

Table.I Distribution of socio-demographic characteristics among the studied electronics participants (n = 100).

Variables	No. of participants (n=100)	Percentage
Gender		
Female	64	64
Male	36	36
Education		
Non- educated	29	29
Reading and write	11	11
Pry	13	13
Secondary	30	30
Tertiary	17	17
Age (in year)		
> 30	38	38
≤ 30	62	62
Range	18-70	
Mean ± SD	32.78 ± 11	

Assessment of knowledge regarding bilharziasis:

The respondents' knowledge of schistosomiasis is summarized in Table II. Calculating the knowledge scores revealed that the total knowledge rate (94.0%) about the disease (Unpublished data). Over 55% of the respondents in believed that schistosomiasis was a harmful disease endemic in Egypt and knew the correct route for transmit schistosomiasis. Respondents in Abu-Khalifa linked the cause of schistosomiasis with coming into contact with infested water. 43% of the respondents reported to have incomplete information about the nature of the disease weather it is infectious or not (Table II).

Regarding the infectious stage of bilharzia only 2% knew the correct and complete information. Average of 8% of respondents had knowledge about the habitat of *S. haematobium* and *S. mansoni* in the human body. Regarding the most common symptoms of Bilharziasis, 73% of the participants had incomplete information as they provided only 2 answers or less. Approximately half of examined subjects (49%) knew 2 or more correct ways of prevention from the disease.

Most of the respondents acquired their knowledge from doctors or television, followed by hearing from others. Since only 11% of participants attended seminars about bilharziasis and the majority (75%) their source information depends on television media (Unpublished data), so there is a relation between the above answers and these percentages (Table II).

Table.II Frequency distribution of knowledge of respondents about bilharziasis (n=100)

Items	Average score (n=100)		
	Correct n (%)	Incomplete n (%)	Don't know n (%)
Is bilharziasis an infectious disease?	33 (33%)	43 (43%)	24 (24%)
What are the routes of Bilharzial infection	55 (55%)	37 (37%)	8 (8%)
What is the infective stage of Bilharziasis	10 (10%)	38 (38%)	52 (52%)
What are the common types of Bilharziasis in Egypt?	2 (2%)	33 (33%)	65 (65%)
What is the habitat of <i>Schistosoma haematobium</i> in humans?	7 (7%)	51 (51%)	42 (42%)
What is the habitat of <i>Schistosoma mansoni</i> in humans?	9 (9%)	14 (14%)	77 (77%)
What are the most common symptoms of Bilharziasis?	9 (9%)	73 (73%)	18 (18%)
Have you heard about Bilharziasis treatment?	89 (89%)	5 (5%)	6 (6%)
Methods of prevention that should be taken	49 (49%)	45 (45%)	6 (6%)

Assessment of attitude regarding bilharziasis:

The attitude about bilharziasis among the respondents is presented in Table III. Further analysis found that majorities (82%) agreed about the high relevance of the disease and 97% ensured that the affected person should be treated. Regarding the measures of prevention of bilharziasis, 93% agreed to be applied. Moreover, 96% of the participants agreed about washing vegetables and fruits as an important measure for prevention. As well as 94% are convinced that swimming in canals is unfavorable. Swimming and playing contributed as important risk factors for schistosomiasis in respondents who were aged 15 years or below, especially in the plateau basin areas (unpublished data).

Regarding the attitude towards schistosomiasis, nearly 100% were willing to be checked for it if doctors frequently. The rates of having the right attitude towards schistosomiasis differ significantly between participants; 94-96% said they would continue to wash vegetable before eating and stay away from canals (Table III).

Table.III Frequency distribution of the attitude of related to Bilharziasis (n=100)

Items	Frequency / (%)		
	Agree n (%)	disagree n (%)	No answer n (%)
Bilharziasis is prevalent in Egypt.	82 (82%)	8 (8%)	10 (10%)
It is important to take a medication against bilharziasis	97 (97%)	0 (0%)	3 (3%)
We should take preventive measures against bilharziasis	93 (93%)	0 (0%)	7 (7%)
We should wash the vegetables and fruits before eating	96 (96%)	2 (2%)	2 (2%)
We should not swim in canals	94 (94%)	4 (4%)	2 (2%)

Prevalence of bilharziasis among participants or their first degree relatives:

As shown in Fig. 1, percentages of those who suffer of bilharziasis among participants or their first degree relatives that presents 34% while 66% are free from disease. As illustrated in Fig. 2, percentages of participants or their first degree relatives who swim in canals and results prove that 36% actually swim in canals.

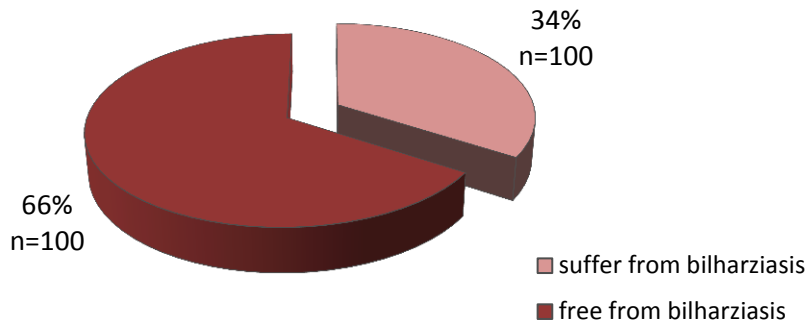


Fig.1 Frequency distribution of prevalence of bilharziasis among participants or their first degree relatives (n=100).

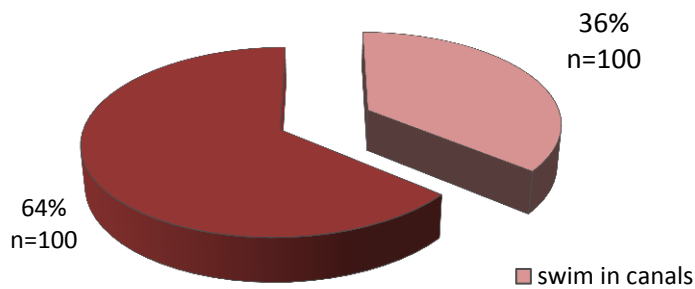


Fig.2 Frequency distribution of among participants or their first degree relatives who swim in canal.

IV. DISCUSSION

Schistosomiasis is the third most devastating tropical disease in the world, being a major source of morbidity and mortality for developing countries around the world. Therefore, the current study was conducted to assess knowledge, attitude and practice of people towards schistosomiasis to reduce prevalence and complications of disease. The study was carried out in Abu-Khalifa PHCU and the sample was a convenient with an overall response rate of 100%. There were a slightly higher number of females, with a significant difference between the genders. Females were making up (64%) while the males represented the remaining (36%). Primary-educated accounted for 13.0% and completed junior high school was 30%. However, illiterate or semiliterate (i.e. those who didn't attend or finish primary school or those who could not read or just knew a few words) were presented 40%.

The findings of the current study revealed that the total knowledge rate (94.0%) about the disease. In contrast, a survey showed only 3.8% of the inhabitants had knowledge scores higher than 6 points within the range 0–10. Educational level, occupation and income were significant predictors of knowledge score [10]. Over 55% of the respondents of the present study in believed that schistosomiasis was a harmful disease endemic in Egypt and knew the correct route for transmission of schistosomiasis. Respondents in Abu-Khalifa linked the cause of schistosomiasis with coming into contact with infested water. Besides 43% of the respondents reported to have incomplete information about the nature of the disease weather it is infectious or not.

These findings are supported by the study on assessment of knowledge and attitude among Khartoum population regarding Schistosomiasis which showed that the total knowledge rate about the disease was 92% [11]. Moreover, low percentage of knowledge about Schistosomiasis (49.1%), mostly among the female populations and people living in rural areas in Cameroon [12].

Although 64.3 % have excellent information about the correct route of transmission, over 43.8% know the causative agent of schistosomiasis. 42% of the respondents have incomplete information about the nature of the disease whether it is infectious or not. On the other hand, a study investigated urinary schistosomiasis infection in relation to knowledge, attitudes and practices of people in Buruku and Katsina-Ala Local Government Areas of Benue State, Nigeria showed that inhabitants of the area mostly linked the disease to other causes like drinking dirty water (29.63%), playing in water (17.93%), eating unripe fruits (10.98%) [13].

Regarding the infectious stage of bilharzia only 2% knew the correct and complete information. In contrast the other study showed that 45.7% knew the infective stage of bilharzia [11].

Talking about the most common symptoms of Bilharziasis, 73% of the participants had incomplete information as they provided only 2 answers or less. Approximately half of examined subjects (49%) knew 2 or more correct ways of prevention from the disease. In contrast to the other study in which 34.7% knew the symptoms of the urinary type while 42.6% knew those of the intestinal type. Regarding the ways of the prevention of the disease over 59.5% had proper information [11].

Most of the respondents acquired their knowledge from doctors or television, followed by hearing from others. Since only 11% of participants attended seminars about bilharziasis and the majority (75%) their source information depends on television media (Unpublished data), so there is a relation between the above answers and these percentages. This corresponds with the other study in which over 60% acquired their information from health workers or television [11]. Moreover, in a different study carried in china the majority of respondents in Eryuan acquired their schistosomiasis knowledge from doctors, followed by handouts and hearing from others [14].

Regarding the attitude, majorities (82%) agreed about the high prevalence of the disease, this finding is also supported by a study made on knowledge of, attitudes towards, and practice relating to schistosomiasis in two subtypes of a mountainous region in China where 90.9% of participants said that schistosomiasis is endemic in their region [14].

The result of the present study indicated that 97% of participants ensured that the affected person should be treated. Regarding the measures of prevention of bilharziasis, 93% agreed to be applied. These results correspond with the results of a study made in Khartoum regarding Schistosomiasis, about 95% of study participants believed that medical treatment of Schistosomiasis is effective and about 90% had the attitude to go directly to a doctor when infected [11]. The poor educational level of most of the interviewees (78%) and the low socio-economic status definitely affects the different aspects of knowledge and attitude towards disease and health in the community.

Moreover, 96% of the participants agreed about washing vegetables and fruits as an important measure for prevention. As well as 94% are convinced that swimming in canals is unfavorable. Swimming and playing contributed as important risk factors for schistosomiasis in respondents who were aged 15 years or below, especially in the plateau basin areas (unpublished data). In contrast, a study assessed the knowledge, attitudes and practices of grade three primary schoolchildren showed that 22.1% knew correct measures to control schistosomiasis [15]. Furthermore, a survey was taken to assess awareness and knowledge of schistosomiasis infection and prevention in the “Three Gorges Dam” reservoir areas that shows that among health professionals surveyed, only 26.7% had prior schistosomiasis control experience [10].

V. CONCLUSION AND RECOMMENDATION

It is concluded that knowledge about Schistosomiasis in the area of study is mostly poor although there were multiple risks for potential Schistosomiasis infections in the area; the major cause seems to be the lack of proper and regular governmental health education. However, attitude of people when exposed or infected is acceptable.

Thus, the study recommends:

1. Conduction of health education for locals at the primary health care to increase the awareness about bilharziasis and how to prevent the disease.

2. Encourage local government and communities to take part in the planning and development of control programs by using local resources in order to improve sanitation and/or taking other necessary measures.
3. To inform the locals that prevention is important and that they can do so by avoiding swimming in fresh water and making sure that they have access to clean drinking water.
4. To conduct control measures that can include mass drug treatment of entire communities and targeted treatment of school-age children.
5. Patients with schistosomiasis should be treated with praziquantel. Since praziquantel is not effective against the larval stages of schistosomes, treatment is most effective from four to six weeks after exposure onwards, when infection is well established and worms have fully matured.

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