ASSESSMENT OF THE KNOWLEDGE OF SCHISTOSOMIASIS CAUSES, SIGNS AND SYMPTOMS AMONG HEALTH CARE WORKERS AT THE PRIMARY HEALTHCARE IN MAKKAH CITY AT SAUDI ARABIA 2022

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Abstract:

Background:

One of the most prevalent neglected tropical illnesses is schistosomiasis, which is particularly prevalent in impoverished nations in Africa South America, and Asia. Schistosomiasis cases in Saudi Arabia are among the highest in the world. In Saudi Arabia, schistosomiasis is common, especially in rural areas. This rural Saudi Arabian community-based organization; According to the World Health Organization, controlling schistosomiasis morbidity through integration into the current health care delivery systems is thought to be a potentially sustainable and cost-effective strategy. Endemic community members were aware of the disease's widened scope and connected some reproductive health-related signs and symptoms to S. haematobium infection. A number of studies were carried out in Saudi Arabia to evaluate clinical features and variables related to the incidence of communicable illnesses, which in turn underlined the need for greater public knowledge of disease control in the local population.

Aim of the study: To evaluate the level of knowledge among healthcare professionals working in Makkah City's primary care in Saudi Arabia in 2022 on the causes, signs, and symptoms of schistosomiasis.

Methods: Across sectional descriptive study was conducted about the Knowledge of schistosomiasis signs and symptoms among health care workers at the primary healthcare in Makkah City from September to November 2022. Our total number of participants was (200).

Results: Indicated that most of the participants approximately (48.0%) were aged from <30 years, sex, and educational level; this table reveals that approximately of participant (27.0%) were in university; regarding the Toilet facility, most of the participants Pit (ground dug) were(77.0%) while Pour flush system was (23.0%), regarding the drinking water the most of participants unsafe were (56.0%), Sources of knowledge about schistosomiasis signs and symptoms the majority of participant Health clinic/hospitals were (40%).

Conclusion: Schistosomiasis is still prevalent among the rural population in Saudi Arabia and participants' knowledge about the disease was poor. based health education regarding schistosomiasis is imperative among these communities to significantly reduce the transmission and morbidity of schistosomiasis community mobilization and health education regarding the cause, transmission and prevention of schistosomiasis and education about good personal and sanitary hygiene practices.

Keywords: Assessment, symptoms, health care, Malaria fever, Makkah, knowledge, causes, signs, primary

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Introduction

Intestinal schistosomiasis is a waterborne parasitic disease caused by Schistosoma mansoni fluke and disturbs a hundred million people worldwide (1). Schistosomiasis is a neglected tropical disease that exerts a substantial public health problem in 54 tropical and subtropical countries, mainly in Africa and the eastern Mediterranean region (2). Acute intestinal schistosomiasis, or Katayama syndrome, is one of the clinical manifestations of infection with S. mansoni (3).

Urogenital schistosomiasis, often known as a neglected tropical illness, is recognized as one of the thirteen types of chronic diseases that affect the world's poorest people the most frequently (4). Schistosomiasis affects around 207 million people in the globe, of whom approximately 93% are located in sub-Saharan Africa, with 15 million of those cases occurring in Ghana (5). The parasite Schistosoma haematobium, which is the cause of urogenital schistosomiasis, is responsible for the majority of these cases (around two-thirds). Since the disease's nomenclature has been expanded to include the genital form of the illness, it is imperative that endemic communities and health professionals are both aware of the disease's broader range of signs and symptoms in order to aid in the identification and treatment of the infection. (6)

One of the most common NTDs, schistosomiasis or bilharzias, is still regarded as a public health issue in many poor nations in the tropics and subtropics. (7) Around 700 million individuals worldwide are at risk of infection, with roughly 200 million affected (mainly in poor countries) (8). Sub-Saharan Africa accounts for more than 90% of cases of this illness (9). Among the helminth infections that significantly increase morbidity and death are these blood flukes (10). Schistosomiasis is most common and severe in school-age children, teenagers, and young adults (11). Therefore, poor educational outcomes and the incapacitating effects of untreated diseases discourage social and economic progress in endemic regions (11). Schistosomiasis is estimated to cost the world over 70 million DALYs (disability-adjusted life years) per year. (12)

As the world's population becomes ever more closely connected and as the numbers of travelers continue to increase, Hepatitis, Tuberculosis, Dengue Fever, and schistosomiasis (13). Recently, the role of health care providers to care during the outbreak of communicable diseases has rejuvenated as an important and contentious topic (14). Unfortunately, many societies must accept that many communicable diseases like tuberculosis cannot be totally eradicated (15). TB awareness was found to be poor among the population of five cities in northern Libya (16)

In many endemic regions, urogenital schistosomiasis is not often seen as a disease with major health consequences and is sometimes viewed as a natural and necessary component of the development process of humans. This is a very unfortunate situation (17). Take, for instance, the work of Hastings et al. (2016). revealed that those who sought medical attention for blood in their urine or blood in their stool did not do so because of concern about schistosomiasis but rather for other possible health issues (18). In addition, Faust et al.(2020) found that in a small hamlet in Egypt, inhabitants of the community were aware of S. aureus, but this did not prevent them from becoming infected with the virus. pyogenes, S. Pyogenes was not found to be present. haematobium as a health issue, they were under the impression that it did not influence their reproductive health. They were also rarely aware of the potential influence that reproductive morbidity may have on the challenging everyday duties that women had to do. (19) During the campaigns, health education materials such as pamphlets and posters that provided information on the transmission cycle and prevention of schistosomiasis and other helminth illnesses were also given. This information was provided by the World Health Organization (WHO). (20) Schistosomiasis is still a serious issue for the public's health in Saudi Arabia and poses a risk of death. Schistosomiasis is still a life-threatening public health concern in Yemen, with an estimated 3 million cases. This ranks Yemen in the second position, after Egypt, which has the greatest frequency of schistosomiasis in the Middle East, with 7 million cases. Schistosomiasis is a public health issue that still poses a significant risk of death in Saudi Arabia (21, 22).

Literature Review

Numerous research has been carried out in Saudi Arabia to investigate clinical characteristics and variables linked with the risk of contracting communicable illnesses in addition to other health and disease situations (23). This research brought to light the need to increase public knowledge about disease control in society at large. According to studies conducted in Saudi Arabia, the prevalence of Hepatitis B surface antigen (HBsAg) varies from 7.4 to 17%, which indicates that the

country has a high level of endemicity (24). A recent survey of first-year medical students of Jazan University showed that half of the students (64.4%) had basic awareness of hepatitis B and C infection as well as about symptoms (25). In earlier studies on urogenital schistosomiasis, the researchers paid little attention to the genital form of the illness and instead paid substantial attention to the urine form of the disease, which is more popularly known as urinary schistosomiasis. In the year 2009, the World Health Organization renamed urinary schistosomiasis as urogenital schistosomiasis to account for the genital involvement of the infection. The World Health Organization also estimated that approximately 45 million women of childbearing age suffer from urogenital schistosomiasis. (26)

Yegorov et al. (2018) compared 1-week recollection with the industry norm (1-month recall) for the assessment of acute characteristics and found that 1-week recall produced high-quality results. A recall interval of two weeks revealed that 60% of Kenyan participants underreported taking self-medication for common diseases. We hypothesized that participants with moderate schistosomiasis-related signs and symptoms would underreport their symptoms given the one-month memory period for this research. (27) Numerous studies conducted in communities have emphasized the significance of urogenital schistosomiasis for sexual and reproductive health (28). Sacolo et al. (2018) (29) and Christinet et al. (2016) observed that the condition has the propensity to have detrimental effects on marriages (30)

According to recent research from Yemen, S. haematobium chronic infection in adults was the root cause of 59% of instances of squamous cell carcinoma (SCC). However, there are no statistics on the knowledge, attitudes, and behaviors (KAP) of people living in Yemeni endemic regions. One of the essential components for the success and longevity of any disease management program is community engagement and awareness. (31)

Numerous research has looked at how KAP affects people's decision to seek treatment for infectious illnesses. However, little research has been done on how knowledge and attitudes affect routine usage of medical services. Schistosomiasis KAP investigations (26) demonstrated prevalence rates and the diffusion of knowledge and behaviors, but they did not demonstrate the effects of specific measures performed. Few prior studies have shown variations in the degree of knowledge among Nigerians; in Delta State, Southeastern Nigeria (22), it ranged from 33.8% to 42.0%, while in Ogun and Niger states throughout the middle belt and southwest area, it was 64.4%. (27). In contrast to data from other nations, Malawi and Kenya showed low levels of awareness of schistosomiasis and its causes (28), whereas Zimbabwe reported a high degree of awareness (80%). (30).

Rationale:

Health care professionals in Makkah who are knowledgeable about the causes and symptoms of schistosomiasis may raise the alert and enhance the success of schistosomiasis control. Schistosomiasis mostly affects children, farmers, and women in Saudi Arabia whose daily water contact is necessary for household and employment tasks. The illness is particularly significant in underdeveloped rural regions where efforts to combat poverty simultaneously support modest to substantial water-related development initiatives that might boost transmission. The number of transmission cases annually has significantly decreased as a result of therapy.

Aim of the study:

To evaluate the level of knowledge among healthcare professionals working in Makkah City's primary care in Saudi Arabia in 2022 on the causes, signs, and symptoms of schistosomiasis.

Objectives:

To evaluate the level of knowledge among healthcare professionals working in Makkah City's primary care in Saudi Arabia in 2022 on the causes, signs, and symptoms of schistosomiasis.

Methodology:

Study design:

The design of research, known as a cross-sectional study, was used in the process of carrying out this investigation.

Study Area

The city of Makkah Al-Mokarramah served as the location for the research that was conducted. It is said that Makkah is the holiest place on all of Earth. It is the primary location for travelers to undertake the religious rites of Umrah and Hajj since it is the birthplace of the Prophet Muhammad. It is referred to as the Holy Capital and is situated in the western region of the Kingdom of Saudi Arabia. Approximately 1.578.5 million people call this place home. This research was carried out in primary health–care facilities in Makkah, Saudi Arabia. The findings represent a diverse demographic profile, with a sizeable proportion of the population having rural ancestry and others

having urban ancestry. Because of this variance, the people who live in Makkah have very different biological, social, and behavioral characteristics.

Study Population
The research on schistosomiasis was carried out on primary health care providers in Makkah. The sample consisted of primary health care medical practitioners with ages ranging from less than 30 years to more than 60 years, and there were a total of 200 of them.

Selection criteria:
Inclusion criteria
- Aged from <30years - More than 60 years

Exclusion criteria:
- No specific exclusion criteria.

The sample size
The sample size was determined by using the Raosoft sample size calculator and basing it on the following criteria: (The margin of error was set at 5%, the confidence level was set at 95%, and the response distribution was considered to be 20%); accordingly, the required sample size was multiplied by the sample size from medical practitioners; (200). (males and females) and increasing the sample size by 10 to reduce the margin of error. Following the addition of an oversampling factor of 5%, the smallest sample size that could be determined was 200. The participants in the research were selected using a method of simple random selection that was created by a computer. The researcher gathered the necessary information from September through November of 2022 in order to complete their study.

Sampling technique:
The method of systematic random sampling is used in this study. After that, the selection of the medical practitioners was carried out via a basic random sampling method, which was preceded by the use of a random number generator. In addition to this, the sampling of participants for the research will be done using the method of convenience sampling by using methods such as systematic sampling and randomization, such as dividing the total number of medical practitioners by the size of the desired sample (200).

Data collection tools of the study:
After doing a literature study, the researchers came up with the idea for the tool that would later be used to gather the required data.

Tool: Health care workers' knowledge about schistosomiasis causes, signs, and symptoms structured interview questionnaire:
Part one: Patient's socio demographic characteristics:
This section included information on the age, gender, degree of education, income, and sources of information of the participants.
Part two: Knowledge about signs and symptoms of schistosomiasis:
Include questions that test the patient's knowledge regarding the ways in which schistosomiasis may be transmitted and how it can be prevented.

Data collection technique:
After receiving permission from the Ministry of Health, the researcher started doing fieldwork at the primary healthcare setting of their choice. The researcher has secured permission to conduct their study from both the director of the primary health care facility and the subjects.
After everyone had arrived for the study, the researchers went through the objectives of the study with each and every participant that was there.

Data entry and analysis:
For both the entering of data and the analysis of it, the Statistical Package for the Social Sciences (SPSS) software, version 24.0, was used for the analysis of data. We used both descriptive statistics (such as number and percentage) and analytical statistics, namely Chi-Square tests ($\chi 2$), to test for the connection and the difference between two categorical variables. If the p-value is less than 0.05, the data may be regarded as statistically significant.

Pilot study
Due to the similarities between the primary health care patients and the target population, pilot research utilizing the same questionnaire to evaluate the methodology of the study had to be carried out. This study was carried out in the primary healthcare sector. As a form of feedback, the questionnaire will be straightforward, and there will be no errors found in the technique.

Ethical considerations
It has been agreed upon with the Makkah joint program Family Medicine program that permission may be granted. With authorization from the Directorate of health, we were able to get verbal consents from all of the participants in the questionnaire. Every piece of information was kept

private, and a report of the findings was sent to the relevant department as feedback.

Budget: Self-funded

Result

Table 1. Distribution of participant demographic information about dengue fever symptoms and signs. (n=200)

	N	**%**
Age		
<30years	76	38
30-45 years	50	25
45-60 years	66	33
More than 60 years	8	4
Sex		
Female	118	59
Male	82	41
Educational level		
Illiterate	48	24
Primary	52	26
Secondary	46	23
University	54	27
Income		
Less than 5000 SR	84	42
More than 5000SR	62	31
>10000 SR	54	27
Toilet facility		
Pour flush system	46	23
Pit (ground dug)	154	77
Drinking water		
Safe (treated)	88	44
Unsafe	112	56
Sources of knowledge about schistosomiasis signs and symptoms		
Health center for schistosomiasis control	76	38
Health clinics/hospitals	80	40
Mass media	12	6
School	22	11
Do not remember	10	5

According to Table 1, the majority of participants (about 48.0%) were between the ages of 30 and 60, while 33.0% were between the ages of 45 and 60. In terms of gender, there were 59.0% more female participants than male (41.0%), and this table shows that around 27.0% of participants had a university degree. Regarding income, most of the participants less than 5000SR (42.0%) flowed by more than 5000 SR (31.0%) but had more than >10000 SR monthly (27.0%); regarding the Toilet facility, most of the participants used Pit (ground dug)(77.0%) while Pour flush system was (23.0%), regarding the drinking water the most of participants unsafe were (56.0%) while safe (treated) were (44.0%), while Sources of knowledge about schistosomiasis signs and symptoms the majority of participant Health clinic/hospitals were (40%) followed by Health center for schistosomiasis control were(38.0%)

Table 2. Distribution of the knowledge about signs and symptoms of schistosomiasis in the participants

Knowledge about Signs and symptoms	**Yes**		**No**	
	N	**%**	**N**	**%**
Blood in stool	156	78	44	22
Hematuria	138	69	62	31
Abdominal pain	90	45	110	55
Diarrhea	170	85	30	15
Fever	32	16	168	84
Burning urination	144	72	56	28

Vomiting	44	22	156	78
Itching	20	10	180	90
Pale face (anemia)	152	76	48	24
Fatigue	172	86	28	14
Loss of appetite	166	83	34	17
Cough	42	21	158	79
Swollen abdomen	40	20	160	80
Dysentery	38	19	162	81

This table 2 shows the Knowledge about Signs and symptoms of schistosomiasis; the majority of participants answered regarding blood in stool Yes were (78.0%) No (22.0%), while regarding Hematuria majority of participants answered Yes were(69.0%) while No were (31.0%). Regarding abdominal pain, most of the participants answered No (55.0%) but regarding Yes were (45.0%). Regarding Diarrhea most of participant answer Yes were (85.0%) but regarding No were (15.0%), regarding Fever most of participant answer No were (84.0%) but regarding Yes were (16.0%), regarding Burning urination most of participant answer Yes were (72.0%) but regarding No were (28.0%), regarding Vomiting most of participant answer No were (78.0%) but regarding Yes were (22.0%), regarding Itching most of participant answer No were (90.0%) but regarding Yes were (10.0%) regarding Pale face (anemia) most of participant answer Yes were (76.0%) but regarding No were (24.0%), regarding Fatigue most of participant answer Yes were (86.0%) but regarding No were (14.0%), regarding Loss of appetite most of participant answer Yes were (83.0%) but regarding No were (17.0%), regarding Cough most of participant answer No were (79.0%) but regarding Yes were (21.0%), regarding Swollen abdomen most of participant answer No were (80.0%) but regarding Yes were (20.0%), regarding Dysentery abdomen most of participant answer No were (81.0%) but regarding Yes were (19.0%).

Table 3 . Distribution of the knowledge about Transmission and Prevention regarding schistosomiasis of the participants

	N	**%**
Knowledge about Transmission		
Playing with soil	170	85
Bathing or swimming in contaminated water	154	77
Dirty hands4	184	92
Eating contaminated	134	67
Drinking untreated water 2	176	88
Snail 3	194	97
Come into touch with a water body 3	174	87
Previous experience with infection 1	198	99
a history of hemoturia	156	78
Observed the presence of blood in the stool	172	86
Drinking water	174	87
Worms 4	172	86
Polluted water 1	178	89
Salty or sour food	172	86
Poor personal hygiene 2	196	98
Knowledge about Prevention		
Keep your hands off the dirt.	176	88
hand washing before eating	158	79
Avoid bathing or swimming in ponds or streams.	180	90
cleaning fruits and veggies before eating	172	86
using schistosomal medication	182	91
Do not consume untreated water.	172	86
Keep your garments out of ponds and streams 1	198	99

This table 3 shows the **Knowledge about Transmission** regarding schistosomiasis; the majority of participants answered Had a history of infection (99.0%), followed by Poor personal hygiene (98.0%), while Snail (97.0%) but Dirty hands (92.%) followed by (Polluted water were 89.0%, Salty or Drinking contaminating water

87.0%, Have contact with a water body 87.0%, sour food were 86.05).

Regarding Knowledge about the prevention of schistosomiasis, the majority of participants answered avoid washing clothes in ponds/streams (99.0%), followed by Taking anti-schistosomal drugs (91.0%) but Avoiding swimming/bathing in ponds/streams (90.%), while avoid playing with soil were (88.0%)

Table (4) Distribution of the Knowledge of schistosomiasis about signs, symptoms, transmission, and prevention among healthcare workers at the primary healthcare

	Weak		**Average**		**High**		**Chi-square**	
	N	**%**	**N**	**%**	**N**	**%**	**X^2**	**P-value**
Knowledge about Signs and symptoms	70	35	58	29	72	36	1.720	0.423
Knowledge about Transmission	58	29	90	45	52	26	12.520	0.002
Knowledge about Prevention	88	44	64	32	48	24	12.160	0.002
Total Knowledge	76	38	80	40	44	22	11.680	0.003
Score	5-31.							
	21.765+5.776							

According to Table 4's findings on participant knowledge of signs and symptoms, the majority of participants (36.0%) had strong knowledge, while the remaining (35.0%) had inadequate knowledge. Chi-square X2 1.720 and P-value = 0.423 indicate that there is no statistically significant correlation. Results on participant knowledge of transmission reveal that the majority of participants (45.0%) had moderate knowledge, while just (29.0%) had poor knowledge. Chi-square X2 12.520 and P-value = 0.002 indicate a statistically significant correlation. The majority of participants had poor information (44.0%), whereas the average participant's knowledge of prevention was (32.0%), according to the findings of the study. Chi-square X2 12.160 and P-value = 0.002 indicate a statistically significant correlation. The majority of participants had average knowledge (40.0%) of schistosomiasis, while 38.0% had poor knowledge, according to the findings of the study. The Score values varied from (5-21) by mean ±SD(21.765+5.776), with a P-value of 0.003, indicating a statistically significant relationship.

Figure (1) Distribution of the Knowledge of schistosomiasis about signs, symptoms, transmission, and prevention among healthcare workers at the primary healthcare

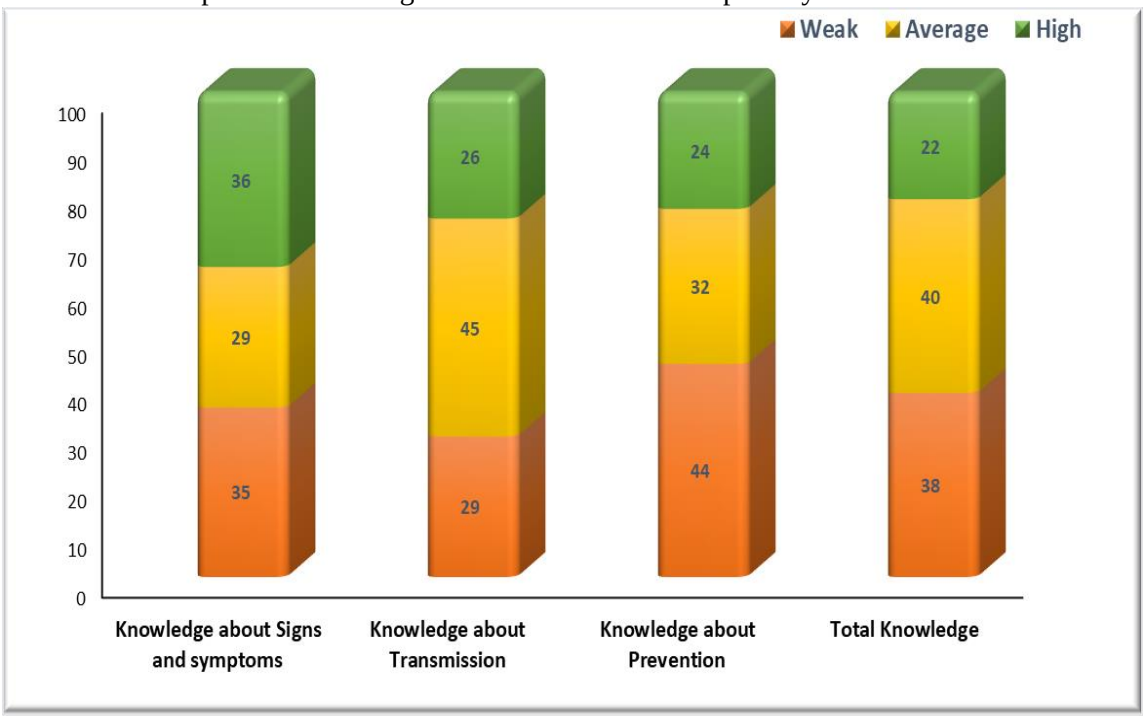

Figure (2) Distribution of the Knowledge of schistosomiasis about signs, symptoms, transmission, and prevention among healthcare workers at the primary healthcare

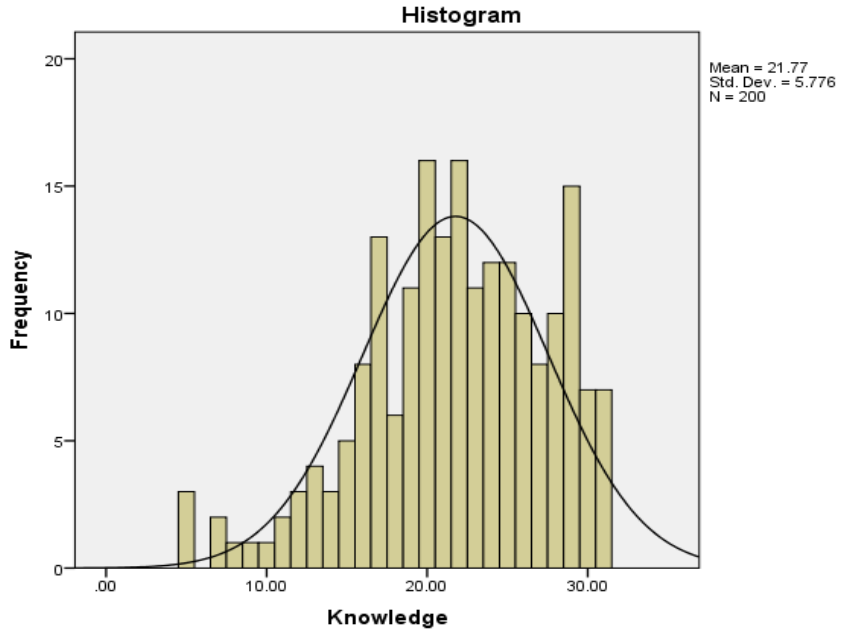

Table (5) Distribution relation of the knowledge regarding schistosomiasis and demographic data(age, gender, level of education, income level)

		N	Knowledge	F or T	ANOVA or T-test	
			Mean ± SD		Test value	P-value
Age	**<30years**	76	17.237 ± 4.797	**F**	57.654	<0.001*
	30-45 years	50	22.160 ± 4.335			
	45-60 years	66	25.697 ± 3.663			
	More than 60 years	8	29.875 ± 1.126			
Sex	**Female**	118	22.034 ± 6.038	**T**	0.789	0.431
	Male	82	21.378 ± 5.390			
Educational level	**Illiterate**	48	14.813 ± 4.475	**F**	161.998	<0.001*
	Primary	52	19.442 ± 2.218			
	Secondary	46	25.435 ± 2.903			
	University	54	27.056 ± 2.521			
Income	**Less than 5000 SR**	84	18.107 ± 4.989	**F**	46.384	<0.001*
	More than 5000SR	62	23.226 ± 5.152			
	>10000 SR	54	25.778 ± 3.956			

According to Table 5, there is a strong correlation between knowledge and demographic information about age (with More than 60 Years followed by 45-60 Years), with F=57.654 and P-value=0.001 by mean + SD (29.8751 ±126, 25.6973 ± 663). Regarding gender, the majority of participants in our research were female, with a mean and ±SD (22.034 ± 6.038). There was no significant correlation between gender and overall knowledge, with a T-value of 0.789 and a P-value of 0.431. Regarding Education Level, data from mean +SD (27.0562 ± 521) reveal a significant relationship between Knowledge and Education Level (increase in University) with F=161.998 and P-value=0.001. Additionally, data on income level demonstrate a statistically significant relationship between knowledge and income level (increase in the high income >10000 SR) with F=46.484 and P-value=0.001 by mean+ SD (25.778 ± 3.956).

Discussion

According to the current research, there is no discernible difference in the prevalence of urogenital (8.3%) and intestinal (8.9%) schistosomiasis, which affects around 6.5% of the population. In the research region, Saudi Arabia is situated between the Nile River and the Tigris and Euphrates basins, two of the world's biggest endemic schistosomiasis sites. In the nation, there are four species of snail vectors. The Sarawat

Mountains, which have a number of natural water sources, seem to be the vector snails' primary natural home. This frequency is consistent with other research reports of prevalence rates in Nigerian states, including 11.5% in Adamawa State(32), 15.3% in Ebonyi State, 17.4% in Oyo State, and 18.7% in Plateau and Nasarawa. In the same state, Kano, greater prevalence rates were, however, previously recorded. There are also foci of schistosomiasis in surrounding countries, namely Iraq, Lebanon, Syria, Occupied Palestine, Yemen, Ethiopia, Somalia, and Sudan. (33) Over time, the disease has crossed the borders of the Arabian peninsula by means of population movements, pilgrimage, and trade. The Sarawat highlands, which have a variety of natural water sources, including streams, ponds, and springs, seem to be the vector snails' primary natural home. The snails disseminate along the major flood routes from the natural water sources in the Sarawat Mountains and fill the wadi beds in the plains. Water often overflows into man-made wells and cisterns and introduces snails to man-made habitats. Our results revealed that the respondents were familiar with schistosomiasis; in fact, about three-quarters (36.0%) of the respondents had previous knowledge of schistosomiasis. This was in relation to the respondent's knowledge of the signs and symptoms of schistosomiasis. (See table2, 3,4) This might be related to the fact that schistosomiasis is an endemic disease in Saudi Arabia. The fact that a large proportion of the participants' self-reported history of infection lends credence to the notion that infection is widespread in these areas. Comparable In Nigerian concordance, few earlier surveys elsewhere demonstrated diversity in the degree of awareness throughout the Nigerian people; 33.8%-42.0% in Delta State, Southeastern Nigeria, and 64.4% in Ogun and Niger states along the middle belt and in the southwestern part of Nigeria (34). In contrast to the results from other nations, researchers in Malawi and Kenya (28) reported a low degree of awareness of schistosomiasis and the factors that contribute to its spread, while researchers in Zimbabwe (80) reported a high level of awareness (30).

He reported a high prevalence of the disease in Al-Kharj, Dariya, Taif, WadiFatma, Tabuk, and Tayma. His conclusion was that bilharziasis in Saudi Arabia is easy to control since the foci of infection are well defined and therefore lend themselves to focal control and even eradication within a relatively short period(32)

Numerous research has been conducted to study the impact that KAP has on people's decisions to seek medical treatment for infectious illnesses. Despite this, there hasn't been a lot of research done on how knowledge and attitudes influence how often people utilize healthcare services. The KAP research on schistosomiasis established prevalence data as well as the distribution of knowledge and behaviors; however, the investigations did not illustrate the impact of certain acts done.

Conclusion:

According to the findings of this study, the rural population in Saudi Arabia possessed insufficient knowledge regarding the cause, transmission, symptoms, and prevention of schistosomiasis. This lack of knowledge may represent a challenging obstacle that prevents schistosomiasis from being eradicated in these communities. In addition to the present mass medicine administration, it is necessary that schools and community-based health education about schistosomiasis be implemented within these areas in order to drastically minimize the spread of schistosomiasis as well as the morbidity associated with it.

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