

# Knowledge, Attitude and Beliefs toward HIV among General Population of Al- Madinah Al-Munawwarah, Saudi Arabia

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**Abstract:** Introduction: Understanding the public knowledge and attitudes about HIV/AIDS is one of the cornerstones of tackling the disease. The most common problem people living with HIV/AIDS (PLWHA) face is the general public's lack of knowledge or misconceptions about the disease; which in turn leads to or precipitates discrimination against them, which leads to or precipitates problems with disclosure, social isolation, access to antiretroviral therapy, and psychological support. As a result, the goal of this study was to assess the knowledge, attitude and beliefs of population towards HIV in Medina, Saudi Arabia.

**Methodology:** A cross-sectional community-based descriptive study. The study was conducted in Al-Madinah ALMunawwarah -in 2023. Convenience sampling was implemented. A sample (n= 2006) were enrolled in this study. Data was collected through self-administrated questionnaire. Data was initially entered and cleaned using Microsoft excel, then analyzed using Statistical Package for Social Sciences (SPSS) v.26, descriptive statistics were used and categorical data presented in form of frequencies (n) and percentages (%).

**Results:** 2006 residents were included in this study, out of which, 1065(53.1%) of them were females. Majority had a bachelor degree 977(48.7%). Regarding knowledge assessment, analysis showed that the majority (59.3%) have poor level of knowledge. Only few of the participants were knowledgeable about the mode of transmission, where (11.4%) agreed that HIV can be transmitted through infected person cough/sneeze, (16.3%) agreed that sexual relations with infected person transmit HIV, and (12.7%) believe that HIV can be transmitted through blood products. Regarding the attitude, the majority of the participants (96.1%) have a poor level of attitude towards HIV disease. (87%) of participants think that HIV patients should be isolated from the community.

**Conclusions:** Majority of the participants included were females, with almost half of them holding a bachelor degree. The study concluded that the majority of participants showed poor level of knowledge towards HIV, as well as a negative level of attitude towards HIV.

**Keywords:** Human Immunodeficiency virus, attitude and stigma towards HIV, Madinah Al-Munawwarah, Saudi Arabia.

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## 1. INTRODUCTION

### 1.1 Background:

Infection with the Human Immunodeficiency Virus (HIV) remains to be a major public health issue (1, 2). Even though the number of HIV cases in the Middle East and North Africa (MENA) region is relatively low compared to other regions, recent research has showed that HIV incidence is increasing, particularly among high-risk populations (3).

Due to social, cultural, and religious taboos, accurate data and reporting on HIV/ the prevalence and incidence of HIV/AIDS has been significantly slow in many Middle Eastern nations compared to other areas (4). Nevertheless, data in some countries is inadequate, and there is significant variation within the region. Thus, data on HIV prevalence and trends are poor, under-reporting is likely, and it is almost impossible to collect accurate figures or determine the specific causes of HIV levels and trends (5).

Understanding the public knowledge and attitudes about HIV/AIDS is one of the cornerstones of tackling the disease. The most common problem people living with HIV/AIDS (PLWHA) face is the general public's lack of knowledge or misconceptions about the disease (6); which in turn leads to or precipitates discrimination against them, which leads to or precipitates problems with disclosure, social isolation, access to antiretroviral therapy, and psychological support (7, 8).

Furthermore, several factors are related to HIV knowledge and play a critical role in influencing the amount of HIV stigma. These determinants are primarily education and HIV beliefs. Increased HIV education and awareness are two excellent techniques for reducing stigma, among many others. As a result, as one's level of education improves, so does one's understanding of HIV, unfavorable views about PLWHA fall, and HIV stigma declines (9, 10)

Several quasi-experimental studies that looked at the impact of educational and awareness interventions on HIV stigma back this up (11). For example, a previous study conducted in Canada reported that raising participants' HIV awareness helped them become community influencers in this scope, which reduced HIV stigma (11). Furthermore, a similar study conducted in Egypt found that the authors' educational and awareness interventions in a healthcare context reduced HIV stigma and prejudice (14). Additionally, majority of the US Centers for Disease Control and Prevention (CDC) activities are centered on programs that combine public education and social marketing campaigns (13).

### **1.2 Problem statement:**

Locally, in Saudi Arabia, the rate of HIV infection increased by 0.5–2.5 % between 1984 and 2009 (14). HIV infections are more commonly reported in Jeddah than in any other city in the Kingdom, which could be attributed, at least in part, to the fact that Jeddah is the country's principal seaport and airport, with higher population movement (15). While immigrants account for most HIV cases in Saudi Arabia, there has been a considerable increase in the proportion of cases among the Saudi population (16).

Even though the introduction of highly active antiretroviral therapy has reduced mortality and improved quality of life, HIV remains a hectic issue and taboo in the MENA region (17). The region's data continues to reveal a low level of understanding, which is linked to a higher level of stigma (18, 19). A study of university students in the United Arab Emirates, for example, found significant knowledge gaps as well as high levels of stigma and intolerance toward PLWHA (20). Another study that surveyed medical students at Qassim University in Saudi Arabia showed a modest level of knowledge and negative attitudes toward PLHIV (21).

### **1.3 Justification:**

Based on the preceding, it is critical to have a comprehensive understanding of the degree of knowledge and attitudes about HIV/AIDS so that suitable and relevant awareness and prevention programs may be planned. As a result, the goal of this study was to assess the knowledge, attitude and beliefs of population toward HIV in Medina, Saudi Arabia.

### **Research question:**

- What is the level of knowledge, attitude and belief of General population about HIV?

### **Objectives:**

#### **General objectives:**

- To assess the knowledge, attitude and beliefs of population toward HIV in Medina, Saudi Arabia.

#### **Specific Objectives:**

- To explore the socio-demographic characteristics of participants.
- To assess the knowledge and awareness of population about HIV.
- To determine beliefs of population towards protection against HIV.

## 2. LITERATURE REVIEW

Human immunodeficiency (HIV) (AIDS) is a disease which results in decreased chemotactic activity, defective granuloma formation, impaired antigen processing and presentation, and generalized loss of CD4+ T cells. (22) .

HIV epidemic have become one of the most serious public health concerns in recent years. HIV/AIDS impacts all aspects of human life such as physical, social, psychological and spiritual. HIV can only be spread by unprotected oral, anal, vaginal sexual activities with an infected partner, contact with blood of an infected person for example by misusing a contaminated needle or through needle stick injuries, from mother to child during pregnancy, child birth or breastfeeding. (23)

First case of acquired immunodeficiency syndrome (AIDS) in the Kingdom of Saudi Arabia (KSA) was reported in 1984. By the end of 2013, around 1509 patients were reported as diagnosed cases of HIV/AIDS. HIV surveillance has improved in KSA with advances in medical care, counseling, family planning, diagnostic evaluation, and anti-retroviral therapy. Prevalence of HIV, total (% of population ages 15-49) in Saudi Arabia was reported at 0.1 % in 2020, according to the World Bank collection of development indicators. (24)

Youth are at an increased risk of HIV and account for about half of the new HIV infections in many nations. Being an important period for social development, the adolescent and young adulthood stages are critical for promoting healthy attitudes and behaviors to protect young people from HIV. Their elevated risk of HIV infection has been attributed to their lack of knowledge and engagement in risky sexual and injection behaviors; calling for targeted educational interventions in improving their HIV knowledge and decreasing their risky behaviors [6]. Increasing HIV knowledge has been suggested as an effective HIV preventive behavioral intervention across different contexts. (25)

The risk of occupational transmission of the virus from a patient to a health-care provider has been estimated at 0.3% after a single percutaneous exposure to HIV-infected blood (26).

Centers for Disease Control and Prevention recommended a new screening algorithm. First step is a screening test with HIV-1/2 antigen/antibody combination immunoassay. Second step is a differentiation assay that distinguishes HIV-1 from HIV-2 infection. Third step is a confirmatory HIV-1 nucleic acid amplification test (NAAT). The new screening algorithm is associated with increased specificity and sensitivity, especially for early infection as well as identification of HIV-2 infection. The HIV Western blot is no longer recommended as a confirmatory test (27)

With modern antiretroviral therapy HIV related mortality has been reduced significantly and quality of life of affected patients has dramatically improved. Highly active antiretroviral therapy (HAART) contributes to reduced risk of perinatal transmission, in addition it also reduces the general risk of transmission (28).

Despite these positive developments, primary preventive measures remain crucial to control and reduce incidence. Understanding knowledge levels and attitudes toward HIV/AIDS is an important component to design adequate and culturally appropriate awareness and prevention programs (29)

### Previous studies:

#### 1) Awareness and attitudes towards HIV/AIDS among residents of Kandy, Sri Lanka:

This study was conducted among 869 participants in Kandy, Sri Lanka. Majority 93.5% of the participants were familiar with HIV/AIDS but the knowledge on HIV/AIDS was particularly low with an average score of 51.7%. More than half 58.1% were aware that a condom and protection tools are effective in disease prevention. There were many false perceptions related to epidemiology of HIV/AIDS. The participants showed more favorable attitudes towards HIV/AIDS and people living with HIV/AIDS (PLHIV) (30).

#### 2) Public knowledge, perceptions, and attitudes towards HIV/AIDS in Bahrain: A cross-sectional study:

1,038 Bahraini adults were included in this study. Analysis revealed that the average general awareness among participants was good (63%). However, some misconceptions and erroneous beliefs were prevalent, including knowledge of mode of transmission and high-risk groups. Participants' attitudes and beliefs towards HIV/AIDS patients were mostly negative; where more than half 60% of the participants agreed to isolating HIV/AIDS patients in workplaces and schools, and 52.4% of them believe that HIV is a divine punishment. The vast majority of the participants (84.4%) believed in the role of religious rituals in limiting the progression of the disease (31).

### **3) Awareness, attitudes, and beliefs of the general public towards HIV/AIDS in Hyderabad, a capital city from South India:**

This is a cross-sectional study conducted among 800 individuals living in Hyderabad for a period of 2 months. Majority 80.63% (645/800) of the study population were aware of HIV/AIDS, but had misperceptions about the mode of transmission or prevention. Despite the multiple outreach programs, which the government and other organizations had conducted in the city, many people had several inaccurate perceptions about HIV or about people living with HIV/AIDS (32).

### **4) Knowledge of HIV/AIDS transmission modes and attitudes toward HIV/AIDS infected people and the level of HIV/AIDS awareness among the general population in the kingdom of Saudi Arabia: A cross-sectional study:**

A total of 2,081 respondents were enrolled in this survey. The mean knowledge score of the participants was  $84.2 \pm 15.8\%$ . The mean attitude score of the participants was  $50.1 \pm 49.9\%$ . Multiple socio-demographic variables were significantly correlated with mean scores of knowledges of HIV/AIDS transmission modes, and mean scores of attitudes toward HIV/AIDS infected people ( $P\text{-value} \leq 0.05$ ) (33).

### **5) Knowledge and attitudes toward HIV/AIDS among the general population of Jeddah, Saudi Arabia:**

A survey was conducted including 3841 participants during a series of public HIV/AIDS awareness campaigns from 2013 to 2015 in Jeddah, Saudi Arabia. Analysis revealed the mean knowledge score was 5.2 out of 9 points. Participants in the age class 19-25, and those holding university degrees, and those who are familiar with people living with HIV/AIDS had higher knowledge scores. In contrast, negative attitudes were more prevalent among participants in older age groups, and those with a lower educational background, and participants who were unfamiliar with anyone living with HIV/AIDS. Regarding the attitude, it was mostly negative, where more than 40% recommended that HIV positive people should be isolated from public places. (5).

## **3. METHODOLOGY**

### **Study Design and duration:**

- This is descriptive institutional-based study cross-sectional study.

### **Study setting and Population:**

- The study was conducted among the general population of AlMadina in Saudi Arabia.

### **Inclusion criteria:**

### **Exclusion criteria:**

### **Sampling:**

Sampling technique: convenience sampling was implemented in this study.

Sample Size:

$n = \frac{N}{1 + N(D)^2} = 385$  (minimum sample size, however our study included 2006 participants).

Where:

n=sample size

N=population

D=0.05 (degree of precision)

Estimated total population=1,663,445

### **Data Collection Tools:**

- A structured questionnaire was designed by Google forms.

**Independent variables:** Age, nationalities, gender, educational level.

**Dependent variables:** Participants' knowledge and attitude towards HIV.

**Data analysis:**

Data was initially entered and cleaned using Microsoft excel, then analyzed using Statistical Package for Social Sciences (SPSS) v.26, descriptive statistics used and categorical data presented in form of frequencies (n) and percentages (%).

**Ethical Considerations:**

Ethical approval was obtained from the Institutional Review Board (IRB). The purpose of the study was verbally explained in details before administering questionnaires and only participants voluntarily willing to take part were included. The participants were assured of the confidentiality and anonymity of the information they provide. No financial benefit was offered to participants

**4. RESULTS**

**1. Sociodemographic characteristics of study participants:**

A total of 2006 of Madinah AL-Munawwarah residents participated in this study. 1065(53.1%) of them were females, while 941(46.9%) were males. The most common age group among participants was 20-30 years 1044(52%). Majority had a bachelor degree 977(48.7%). Regarding nationality, almost all of participants 1646(82.1%) were from Saudi Arabia.

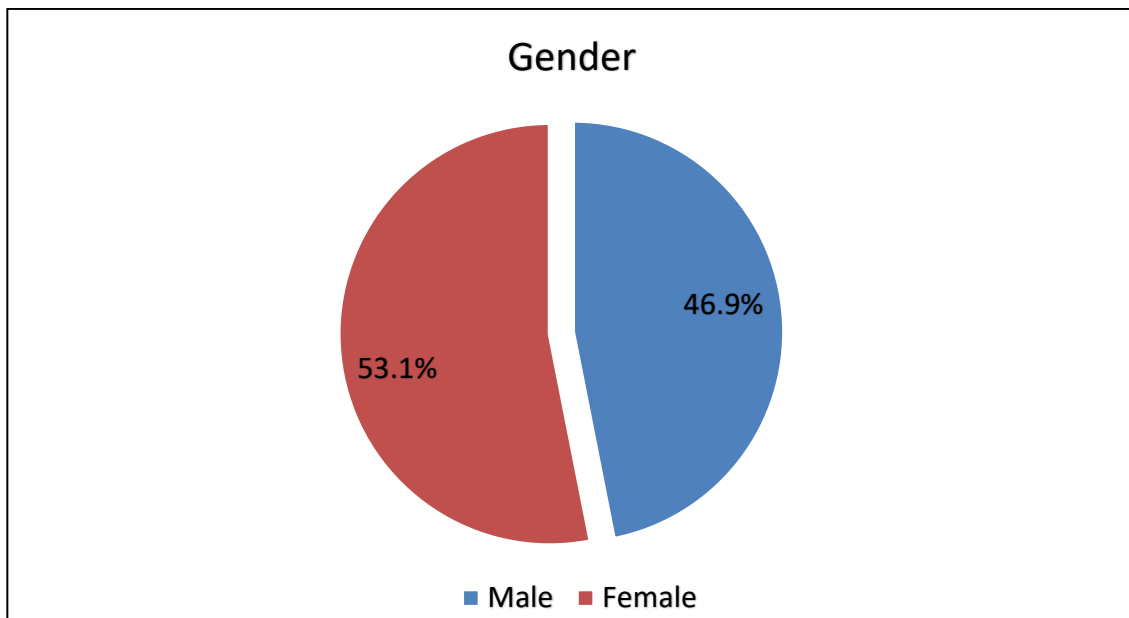


Figure (1): Shows gender of participants, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

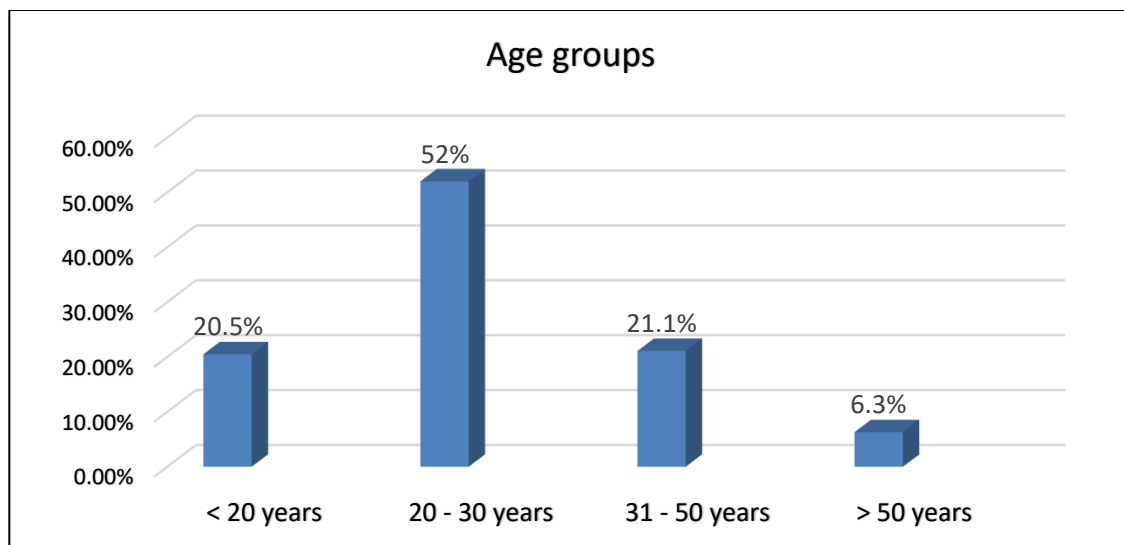


Figure (2): Shows age distribution of participants, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

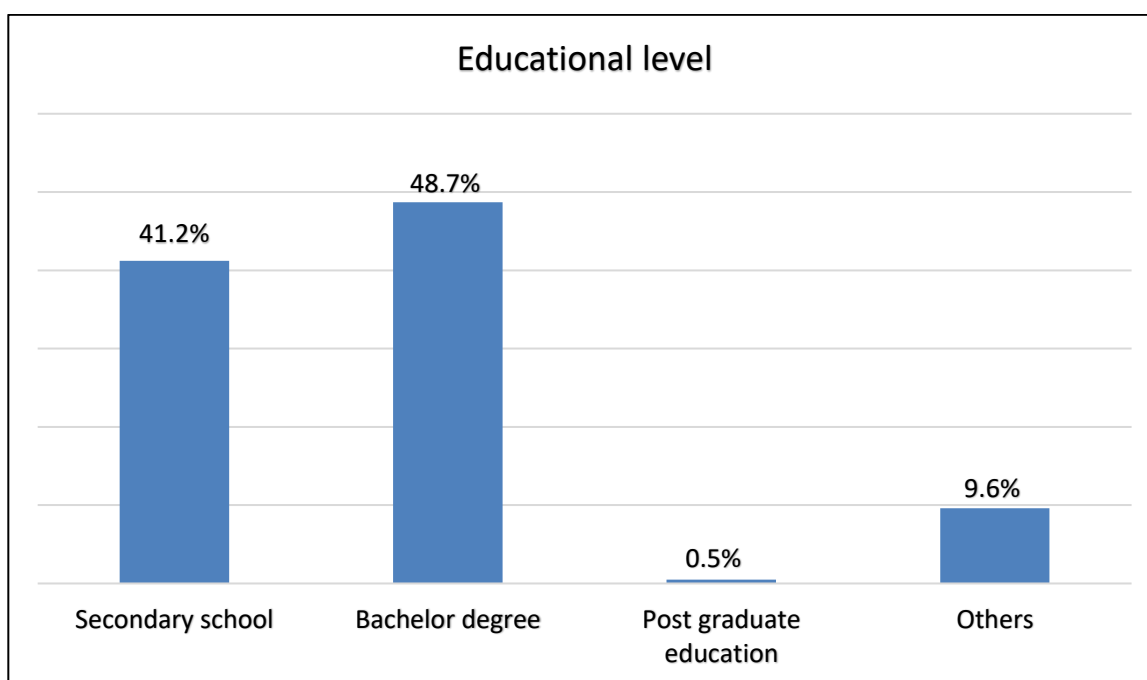


Figure (3): Shows educational level of participants, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

Table (1): Basic knowledge about HIV among population in Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

Statement	Answer	Frequency	Percentage
Does HIV transmit through infected person cough/sneeze?	Yes	228	11.4
	No	285	14.2
	I don't know	1493	74.4
Can a surgical mask prevent HIV transmission?	Yes	104	5.2
	No	331	16.5
	I don't know	1571	78.3
Does HIV transmit through sexual relations with infected person?	Yes	327	16.3
	No	68	3.4
	I don't know	1611	80.3
All pregnant women should be screened for HIV?	Yes	269	13.4
	No	1737	86.6
Does HIV transmit through sharing food utensils with an infected person?	Yes	93	4.6
	No	201	10.0
	I don't know	1712	85.3
HIV transmitted by blood products?	Yes	255	12.7
	No	53	2.6
	I don't know	1698	84.6
HIV can be transmitted by breastfeeding?	Yes	171	8.5
	No	78	3.9
	I don't know	1757	87.6
Is there any vaccine for HIV prevention?	Yes	73	3.7
	No	169	8.5
	I don't know	1751	87.9

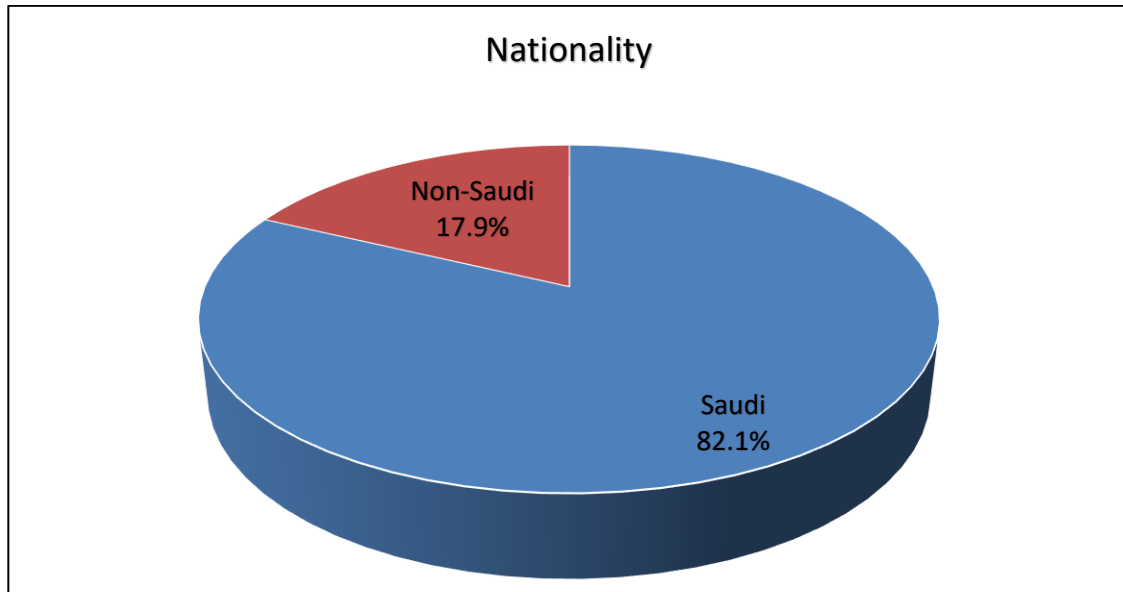


Figure (4): Shows nationality of participants, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

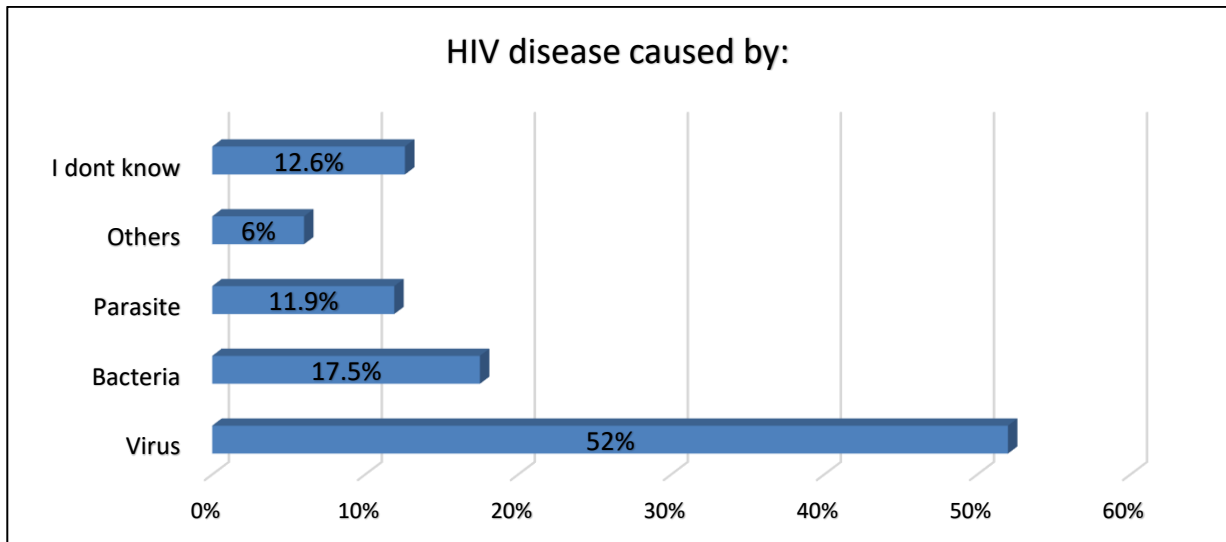


Figure (5): Causes of HIV disease, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

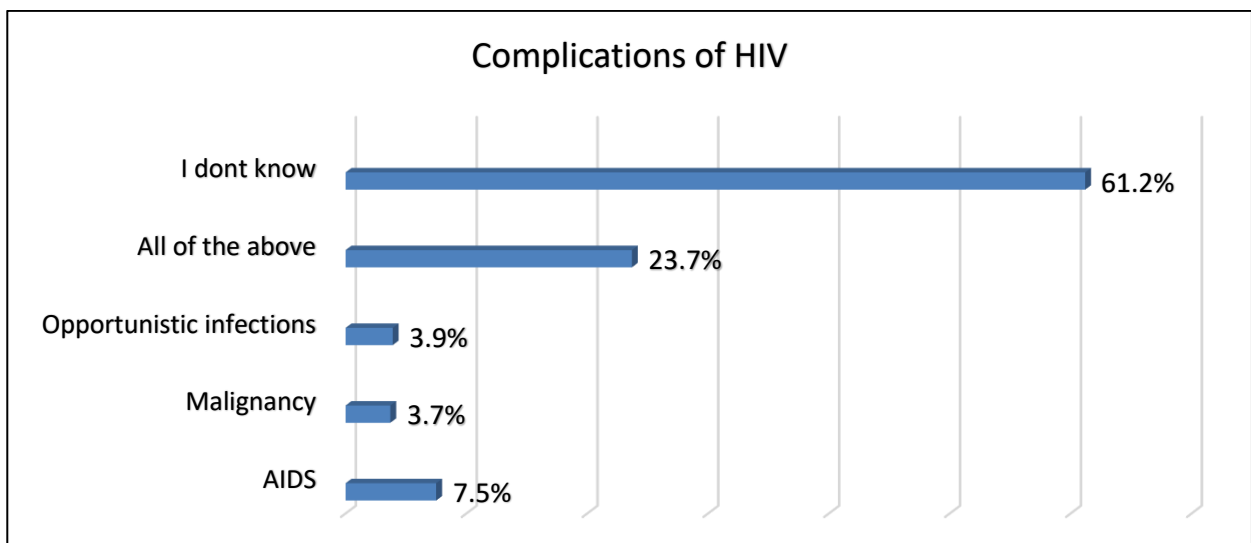


Figure (6): Shows complications of HIV, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).

**Table (2): Knowledge towards HIV, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006)**

Statement	Answer	Frequency	Percentage
Do you think that HIV patients should be isolated from the community?	Yes	1746	87.0
	No	260	13.0
Do you allow your family to visit HIV patients?	Yes	103	5.1
	No	1903	94.9
Do you accept that a relative get married from an HIV patient?	Yes	52	2.6
	No	1954	97.4
Do you accept to eat with HIV patients?	Yes	88	4.4
	No	1918	95.6
Patients with HIV/AIDS have the right to the same quality of care as any other patients?	Yes	142	7.1
	No	1864	92.9

(52%) of respondents identified viruses as the cause of HIV. (11.4%) agreed that HIV can be transmitted through infected person cough/sneeze. (5.2%) think that surgical mask can prevent HIV transmission. (16.3%) agreed that sexual relations with infected person transmit HIV. (13.4%) think that all pregnant women should be screened for HIV. (4.6%) agreed that sharing food utensils with an infected person can transmit HIV. (12.7%) agreed that HIV can be transmitted through blood products. (8.5%) think that it can be transmitted through breastfeeding. Only (3.7%) think that HIV has a vaccine (Table 1). In regard to complications of the disease (61.2%) didn't know them.

**Table (2): Attitude of participants towards HIV, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).**

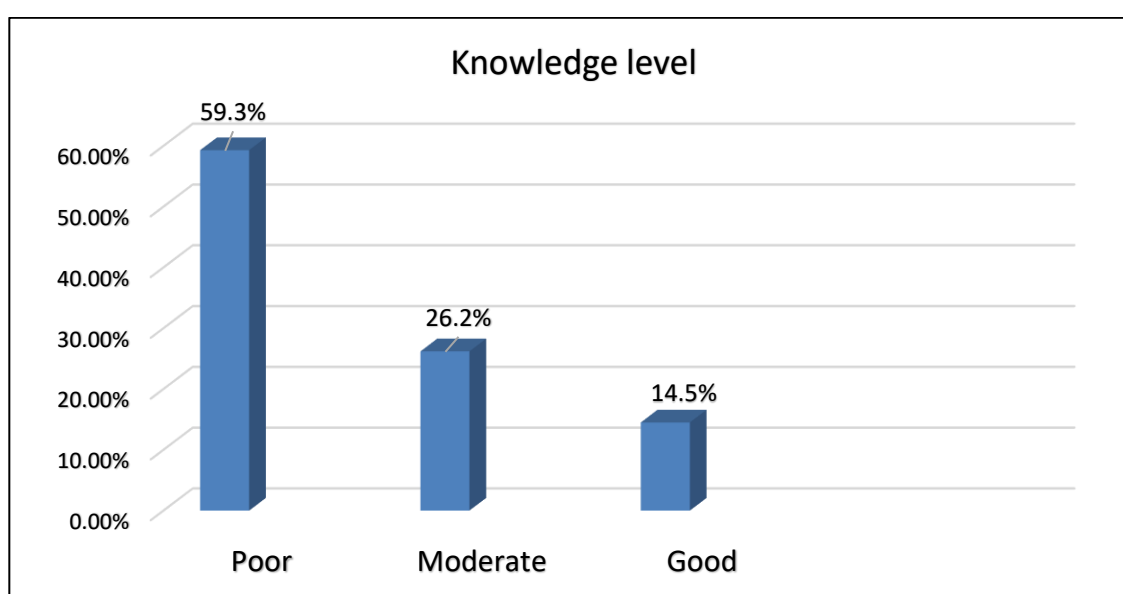
**3. Attitude towards HIV:**

(87%) of participants think that HIV patients should be isolated from the community. (5.1%) allow their family to visit HIV patients. (2.6%) accept marriage of their relatives from an infected person with HIV. (4.4%) accept to eat with HIV patients. (7.1%) think that patients with HIV/AIDS have the right to the same quality of care as any other patients (Table 2).

**4. Overall knowledge and attitude towards HIV:**

Results showed that (14.5%) of participants have a good knowledge regarding HIV, 26.2%) have a moderate level of knowledge, and (59.3%) have a poor knowledge.

(96.1%) have a poor attitude towards HIV disease, while only (3.95) have a good attitude (Table 3).



**Figure (7): Knowledge level of participants regarding HIV disease, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).**



**Table (3): Attitude towards HIV, Madinah AL-Munawwarah, Saudi Arabia, 2023, (N= 2006).**

Attitude	Frequency	Percentage
Negative	1928	96.1
Positive	78	3.9

## 5. DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Understanding HIV, its nature and mode of transmission, and the necessary precautions to prevent the disease, is crucial among young and adult populations, particularly with the rising incidence of HIV. The aim of this study is to assess the level of knowledge and attitude towards HIV among the general population in Madinah AL-Munawwarah in Saudi Arabia. 2006 residents were included in this study, out of which, 1065(53.1%) of them were females. Majority had a bachelor degree 977(48.7%).

Regarding knowledge assessment, analysis showed that the majority (59.3%) have poor level of knowledge. Only few of the participants were knowledgeable about the mode of transmission, where (11.4%) agreed that HIV can be transmitted through infected person cough/sneeze, (16.3%) agreed that sexual relations with infected person transmit HIV, and (12.7%) believe that HIV can be transmitted through blood products. This is in contrast to a similar study, where more than half of the participants (63%) had a good level of awareness, but with some misconceptions and erroneous beliefs regarding the mode of transmission and high-risk groups (31). This could be attributed to the lack of disclosure and stigma towards discussing such topic, which in turn would affect the delivery of adequate knowledge through campaigns and public leaflets.

Regarding the attitude, the majority of the participants (96.1%) have a poor level of attitude towards HIV disease. (87%) of participants think that HIV patients should be isolated from the community. This is compatible with a previous study where participants' attitudes towards HIV/AIDS patients were negative, and 60% of respondents believe that isolating HIV/AIDS patients in workplaces and schools is necessary, while 52.4% of them believe that HIV is a divine punishment or a sort of spiritual curse (31). Similarly, this negative attitude could be justified and related to the lack of knowledge towards HIV, as well as the consideration of acquiring HIV as a social taboo that would definitely hinder the public awareness towards the disease.

Lack of knowledge about the modes of HIV transmission, impacts people's attitudes and perceptions towards people living with HIV/AIDS. Thus, negative attitudes from the public are triggered towards them, which in turn deepens the burden of social stigma that those patients suffer from. This actually demands the need for educational campaigns in order to raise the public awareness about HIV and learning to accept and embrace people living with HIV AIDS (PLWHA).

Several studies has shown that stigma towards people affected with the disease impacts the quality of life among this population. Moreover, it creates a portion of a hidden population that is hard to reach, which would impact the reporting of cases and thus may create a novel pore for disease transmission. These groups, as a result of stigma, find it hard to disclose their burden and seek medical care [35]. It is therefore imperative to have interventions and strategies implemented towards tackling this stigma. One of the fundamental strategies to achieving this is through working on the public level by increasing acceptance towards PLWHA. This is achieved by providing the public with authentic and scientific information about the disease. On the other hand, social support is very critical in improving the lives of PLWHA. Positive behavioral change and positive psychological status was reported among those who disclosed their HIV status to their near ones, family and friends, who in return provided them with the highly needed emotional support and embracement (34). Additionally, improving the attitudes of healthcare workers to be non-judgmental, eases healthcare seeking behavior among PLWHA and motivates them to disclose and be compliant to treatment. An additional way to reduce stigma could also be by having PLWHA talk about their experiences in small clubs or gatherings and self-advocate to educate other people who are infected with the disease (35).

### Strength of the study:

Limited number of Saudi studies were published in this scope; hence this study is considered a valuable base for evidence. Another strength of this study is that it included participants from variable demographical background and socio-economic status, which would aid the authorities and university administration in dealing with the issue from all aspects.

### Limitations of the study:

The study was not without limitations. The fact that it was done in a narrow area may have determined a highly selected group of respondents, particularly considering the religious background of the study area. It may therefore be difficult to generalize the findings to the total community of Saudi population.

## CONCLUSION

- Majority of the participants included were females, with almost half of them holding a bachelor degree.
- Majority of participants showed poor level of knowledge towards HIV.
- Majority of participants showed negative level of attitude towards HIV.

## RECOMMENDATIONS

Based on this study findings and conclusions, we recommend that:

- **For ministry of health:**

Serial and frequent studies on the issue should be conducted and funded to generate more evidence and data regarding this topic.

- **For ministry of education and health:** educational campaigns, medical missions and conferences should be held to increase the community awareness towards dealing with such issue.

- **For ministry of media:** Media platforms and broadcast should be recruited to offer regular educatory doses regarding HIV, its transmission, and safety precautions.

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