

Evaluation of Knowledge, Attitude and Practice of Healthcare Workers Regarding Human Immunodeficiency Virus

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Abstract Human immunodeficiency virus (HIV) infection has been linked to more than 35 million deaths globally, and the levels of infection are increasing; thus understanding people's knowledge, attitudes, and practice (KAP) concerning HIV/AIDS is a critical component of the battle against the disease. Objectives: measuring healthcare workers' knowledge, attitude, and practice regarding HIV/AIDS, and people living with HIV (PLHIV). Methods: A quantitative cross-sectional study was conducted in the western area of the Kingdom of Saudi Arabia (KSA) from September 2022 to October 2022. Results: The study included 263 healthcare workers from eight hospitals. The level of knowledge was excellent among 46.4%, good among 17.1%, fair among 12.9%, and poor among 23.6%. Most respondents' overall attitude was positive, while the practice pattern was poor. Good KAP was significantly associated with physicians, nurses, and previous experience with HIV patients. Conclusion: The level of knowledge was high, the attitude was positive, and the practice was poor among most respondents regarding HIV/AIDS with a significant positive correlation with being a health care physician or nurse, and having previous experience with AIDS cases.

Keywords: knowledge, attitude, practice, HIV, AIDS, healthcare workers, Saudi Arabia

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1. Introduction

Human immunodeficiency virus (HIV) infection has been linked to more than 35 million deaths globally as of 2017. At the end of 2017, 36.9 million people were living with HIV [1]. Ending 2015, there were 22,952 instances of acquired immunodeficiency syndrome (AIDS) cases in Saudi Arabia's Kingdom of Saudi Arabia (KSA). Of these, about 67% were found among non-Saudi ethnicities, while 1191 were newly discovered [2]. More than 8000 persons aged 15, and older were living with HIV in 2016; 72.5 percent of these people were males, and 27.5% were females [3].

Understanding people's knowledge, attitudes, and practice (KAP) concerning human immunodeficiency virus with acquired immune deficiency syndrome (HIV/AIDS) is a critical component of the battle against the disease. Many persons living with HIV/AIDS face prejudice because of a lack of understanding or misinformation about HIV/AIDS in the broader public [4,5]. This precipitates issues with access to antiretroviral medication, psychological care, disclosure, and social isolation. People living with HIV also suffer regarding their health, well-being, and social support [6].

Furthermore, several variables are linked to one's level of HIV awareness, and have a significant effect on the degree of HIV stigma. Most of these characteristics may be attributed to people's knowledge of HIV, and their attitudes about it. There are several techniques for eliminating HIV stigma, two of the most successful of which include raising public education and understanding of the virus. Thus, as education levels rise, unfavorable views about PLWHIV diminish, and hence HIV stigma levels fall. Studies on the impact of educational, and awareness interventions on HIV stigma have been backed up by various quasi- studies [7,8].

Few research has focused on particular Saudi communities [9]. In addition, a low level of knowledge was found among physicians regarding the routes of transmission [10]. A lack of information about HIV transmission, prevention, and negative attitudes toward people living with HIV, were also found among the paramedical students [11]. This study aimed to measure health care workers' knowledge, attitude, and practice regarding HIV/AIDS, and PLHIV. We believe our findings will aid in establishing a basis for further research in this field and help other health care workers modify their approach toward HIV/AIDS accordingly.

2. Methods

2.1. Study Design and Settings

A quantitative cross-sectional study based on an online questionnaire sheet conducted in the western area of KSA, including Al Madinah Almuwrah, and Makkah from September 2022 to October 2022 as four random hospitals were selected from each city, and included in the study.

2.2. Study Population and Sample Size

The study included healthcare providers with various specialized services who were approved to take part in the survey after distributing the link for the questionnaire. The study sample included all healthcare workers in eight random hospitals.

To estimate the population prevalence with high precision, a suitable sample size is required. The sample size, and should be determined by the study setting, including the aims, and suggested analysis of the researcher. In this investigation, the needed sample size was calculated with the following formula:

$$n = \frac{Z^2 P(1-P)}{d^2} \quad (1)$$

If n is the sample size, Z is the confidence level statistic, P is the predicted prevalence, and d is the accuracy. The confidence level was 95%, and the sample size was 263 subjects.

2.3. Study Tools and Data Collection

An online questionnaire (Appendix) link was distributed among healthcare workers that included questions of different levels regarding HIV. A pilot study was done to evaluate the intelligibility, collect responses, and modifications needed for optimizing the questionnaire. The questionnaire was modified, and a part including the beliefs of the healthcare workers were added. The questionnaire has four parts about demographics, knowledge, attitude, and beliefs about HIV/AIDS.

2.4. Ethical Approval

The ethical committee of the faculty of medicine approved the study, and the questionnaire (IRB022-71). Online informed consent was provided by the participants included in the study.

2.5. Statistical Analysis

Data were analyzed using IBM SPSS software package version 24.0. The qualitative data were described using numbers, and percentages. Comparison between different groups regarding categorical variables was tested using the Chi-square test. Significance test results are quoted as two-tailed probabilities. The significance of the obtained results was judged at the 5% level.

3. Results

Table 1 shows the distribution of the studied group in their demographics. More than half of the participants (58.6%) have worked for more than ten years. The majority of the participants were physicians (38.4%) followed, by nurses (25.1%), and pharmacists (19.4%). Also, 74.9% of the respondents didn't have experience with HIV cases.

Table 1. Demographics, and work characteristics of included subjects

Age years	Number	Percent
25-34	83	31.6
35-44	94	35.7
45-55	86	32.7
Marital Status	Number	Percent
Single	41	15.6
Married	207	78.7
Divorced	15	5.7
years of experience	Number	Percent
<10 years	109	41.4
More than 10 years	154	58.6
Position	Number	Percent
Physician	101	38.4
Nurse	66	25.1
Pharmacist	51	19.4
Laboratory Specialist	26	9.9
Administrator	19	7.2
experience with HIV cases	Number	Percent
No	197	74.9
Yes	66	25.1
Total	263	100.0

Table 2. Distribution of the studied group regarding their knowledge

Questions regarding knowledge	No	%
What is the cause of acquired immunodeficiency syndrome (AIDS)?		
Wrong answer	69	26.2
Right answer	194	73.8
In case of needle stick injury with an AIDS patient, the risk of acquiring AIDS is?		
Wrong answer	195	74.1
Right answer	68	25.9
Confidentiality is important for patients with AIDS (i.e. is the other patients in the room have the right to know that another patient's is having AIDS)?		
Wrong answer	61	23.2
Right answer	202	76.8
The commonest method of transmission of AIDS currently is: (choose 1 answer)		
Wrong answer	59	22.4
Right answer	204	77.6
According to UNAIDS global report on 2012 the total number globally of AIDS		
Wrong answer	75	28.5
Right answer	188	71.5
Can AIDS be transmitted by shaking hands?		
Wrong answer	84	31.9
Right answer	179	68.1
AIDS can be transmitted through air?		
Wrong answer	89	33.8
Right answer	174	66.2
Total	263	100

Table 2 represents the knowledge of the healthcare workers regarding AIDS causes, mode of transmission, and confidentiality. The majority of respondents correctly answered the question of whether the cause of AIDS is viral, and not bacterial (73.8%). About 74.1% knew that the risk of acquiring AIDS from needle stick injury is

0.3%. As for the mode of transmission, 77.6% answered the question correctly about the most common method of transmission. Also, most knew that Aids couldn't be transmitted by shaking hands (68.1) or through the air (66.2%). Most participants (76.8%) admitted that confidentiality is essential with AIDS, and 71.5% identified the increased UNAIDS global report in 2012 as the total number globally of AIDS. The level of knowledge was excellent among 46.4%, good among 17.1%, fair among 12.9%, and poor among 23.6% (Table 3).

Table 3. Distribution of the studied group regarding Knowledge score

Knowledge score	Number	Percent
Excellent	122	46.4
Good	45	17.1
Fair	34	12.9
Poor	62	23.6
Total	263	100.0

The overall attitude was positive among the majority of the respondents (Table 4 & Table 5). The attitude was negative among 63.5% as they tend to admit AIDS patients in air-borne isolation. Also, 70% has positive wrong attitude that AIDS is curable. On the other hand, most of the respondents tend to have positive attitude toward using Antiretroviral therapy to control AIDS, (71.5%), compulsory treating an AIDS patient (74.5%), and 63.9% support premarital HIV testing.

Table 4. Distribution of the studied group regarding their attitude

Questions regarding attitude	No	%
All AIDS patients admitted are supposed to be in air-borne isolation?		
No	96	36.5
Yes	167	63.5
Can Antiretroviral therapy succeed in controlling the disease process in AIDS patients?		
No	75	28.5
Yes	188	71.5
Is AIDS curable?		
No	79	30.0
Yes	184	70.0
For a health care worker (HCW), treating an AIDS patient is compulsory?		
No	67	25.5
Yes	196	74.5
Do you think health care professionals are at high risk of HIV infection?		
No	87	33.1
Yes	176	66.9
Would you support premarital HIV testing?		
No	95	36.1
Yes	168	63.9
Total	263	100.0

Table 5. attitude score

Attitude score	Number	Percent
Positive	107	40.7
Neutral	63	24.0
Negative	93	35.4
Total	263	100.0

Table 6. Distribution of the studied group regarding their practice

Questions regarding practice	No	%
Do you avoid physical contact when providing care or services to a person living with HIV/AIDS?		
No	120	45.6
Yes	143	54.4
How worried would you be if you touched the clothing of a person living with HIV?		
A little worried	86	32.7
Worried	79	30.0
Very worried	60	22.8
Not worried	38	14.4
How worried would you be if you had to dress the wound of a person living with HIV/AIDS?		
A little worried	83	31.6
Worried	83	31.6
Very worried	65	24.7
Not worried	32	12.2
How worried would you be if you had to draw blood from a person living with HIV/AIDS?		
A little worried	88	33.5
Worried	65	24.7
Very worried	77	29.3
Not worried	33	12.5
Do you fear contracting HIV if you come in contact with the saliva of a person living with HIV/AIDS?		
No	102	38.8
Yes	161	61.2
Total	263	100

The practice of healthcare workers toward AIDS patients showed that about half of the participants (54.4%) avoid physical contact when providing care or services to a person living with HIV/AIDS, and 61.2% fear contracting HIV if you come in contact with the saliva of a person living with HIV/AIDS. The practice pattern among most of them was a little worried followed by worried, very worried, and the least were not worried regarding touching the clothing, dressing the wound or drawing blood from a person living with HIV/AIDS. The practice level was worried among 49.8% of participants followed by a little worried among 31.9% of healthcare workers (Table 7).

Table 7. practice score

Practice score	Number	Percent
Not worried	48	18.3
A little worried	84	31.9
Worried	131	49.8
Total	263	100.0

As shown in Table 8, Table 9, and Table 10 the highest level of knowledge, good attitude, and practice among respondents were significantly associated with being a healthcare practitioner as physicians, and nurses, and previous experience with HIV cases.

Table 8. Relation between demographics data, and knowledge score

Variables	Knowledge category								X ² P value
	Excellent		Good		Faire		Poor		
	No	%	No	%	No	%	No	%	
Age years									
25-34	40	32.8	14	31.1	10	29.4	19	30.6	1.588 0.953 N.S.
35-44	44	36.1	16	35.6	10	29.4	24	38.7	
45-55	38	31.1	15	33.3	14	41.2	19	30.6	
Marital status									
Single	28	23.0	4	8.9	3	8.8	6	9.7	13.31 0.038*
Married	84	68.9	39	86.7	30	88.2	54	87.1	
Divorced	10	8.2	2	4.4	1	2.9	2	3.2	
Years of experience									
<10 years	58	47.5	16	35.6	13	38.2	22	35.5	3.564 0.313 N.S.
> 10 years	64	52.5	29	64.4	21	61.8	40	64.5	
Position									
Physician	82	67.2	15	33.3	4	11.8	0	0.0	124.1 0.001*
Nurse	32	26.2	9	20.0	8	23.5	17	27.4	
Pharmacist	2	1.6	13	28.9	9	26.5	27	43.5	
Laboratory specialist	4	3.3	4	8.9	7	20.6	11	17.7	
Administrator	2	1.6	4	8.9	6	17.6	7	11.3	
Experience with HIV cases									
No	62	50.8	44	97.8	33	97.1	58	93.5	70.516 0.001*
Yes	60	49.2	1	2.2	1	2.9	4	6.5	
Total	122	100.0	45	100.0	34	100.0	62	100.0	

X²= Chi square test, P was significant if < 0.05, N.S. = Not significant, * Significant.

Table 9. Relation between demographic data, and attitude score

Variables	Attitude score						X ² P value
	Positive		Neutral		Negative		
	No	%	No	%	No	%	
Age years							5.821 0.213 N.S.
25-34	28	26.2	25	39.7	30	32.3	
35-44	41	38.3	16	25.4	37	39.8	
45-55	38	35.5	22	34.9	26	28.0	
Marital status							6.096 0.192 N.S.
Single	22	20.6	11	17.5	8	8.6	
Married	78	72.9	49	77.8	80	86.0	
Divorced	7	6.5	3	4.8	5	5.4	
Years of experience							1.750 0.417 N.S.
<10 years	49	45.8	26	41.3	34	36.6	
> 10 years	58	54.2	37	58.7	59	63.4	
Position							2.698 0.05*
Physician	40	37.4	27	42.9	34	36.6	
Nurse	26	24.3	15	23.8	25	26.9	
Pharmacist	24	22.4	9	14.3	18	19.4	
Laboratory specialist	10	9.3	6	9.5	10	10.8	
Administrator	7	6.5	6	9.5	6	6.5	
experience with HIV cases							25.28 0.001*
No	63	58.9	52	82.5	82	88.2	
Yes	44	41.1	11	17.5	11	11.8	
Total	122	100.0	45	100.0	34	100.0	

X²= Chi square test, P was significant if < 0.05, N.S. = Not significant, * Significant.

Table 10. Relation between demographic data, and practice score

Variables	Practice score						X ² P value
	Not worried		A little worried		Worried		
	No	%	No	%	No	%	
Age years							5.670 0.225 N.S.
25-34	17	35.4	26	31.0	40	30.5	
35-44	20	41.7	34	40.5	40	30.5	
45-55	11	22.9	24	28.6	51	38.9	
Marital status							16.254 0.003*
Single	0	0.0	10	11.9	31	23.7	
Married	45	93.8	69	82.1	93	71.0	
Divorced	3	6.3	5	6.0	7	5.3	
Years of experience							5.960 0.051 N.S.
<10 years	17	35.4	28	33.3	64	48.9	
More than 10 years	31	64.6	56	66.7	67	51.1	
Position							8.59 0.037*
Physician	13	27.1	31	36.9	57	43.5	
Nurse	18	37.5	23	27.4	25	19.1	
Pharmacist	9	18.8	15	17.9	27	20.6	
Laboratory specialist	4	8.3	10	11.9	12	9.2	
Administrator	4	8.3	5	6.0	10	7.6	
experience with HIV cases							48.95 0.001*
No	48	100.0	75	89.3	74	56.5	
Yes	0	0.0	9	10.7	57	43.5	
Total	48	100.0	84	100.0	131	100.0	

4. Discussion

Care providers were surveyed to determine their level of HIV-related KAP. A high degree of HIV-related information, a good attitude, and generally poor practices were all identified among HCWs towards PLHIV, except there were notable disparities amongst occupations.

In the exact accordance, a study conducted at Governmental Healthcare Facilities in Malaysia among healthcare workers observed that 68.8% of HCWs, despite their extensive education, still held the false belief that the HIV virus is resistant to disinfectants [12].

It's consistent with the results of other studies that found a sizable percentage of HCWs worried about contracting HIV from their job [13,14].

Although this study found that most HCW overestimated their risk of HIV contacting HIV patients on the job, it does show that many people are willing to overestimate risks in order to avoid unpleasant consequences [12]. It is crucial to inform HCW that there is little evidence of HIV infection acquired on the job, especially compared to the spread of illnesses like hepatitis B [15].

In contrast to this study, health care workers in Abha, and Khamis Mushait, Saudi Arabia, were found to have an overall low level of expertise, negative attitudes, and unprofessional behavior [16]. Twenty-five years ago, similar findings were revealed [17]. Also, HCWs had insufficient information regarding how the illness spread [16]. Medical, and dental professionals in four major Saudi Arabian cities (Jeddah, Riyadh, Dammam, and Jizan) showed similar levels of ignorance [10,18]. Furthermore, the observed lack of knowledge, and misunderstanding had nothing to do with the gender, age, specialty, or length of employment of HCWs. Similar results have been found in previous research conducted in Saudi Arabia [10,18].

This shows that the HCWs may be affected less by their level of education than by the cultural preconception that HIV is typically the result of immoral sexual relationships such as those that occur outside of marriage, and homosexuality [10,18,19,20].

Poor attitudes, and stigma against HIV-positive patients were reported as a result of the examined HCWs' inadequate knowledge, and misunderstandings (PLWHA). One study conducted in Saudi Arabia found that doctors have a disproportionately high stigmatizing attitude toward HIV patients, which the researchers ascribed to their lack of understanding of the virus's transmission [10,18]. Other research cited the psychological dread of HIV infection due to a lack of awareness [21-24].

The high KAP level was associated with being a doctor, nurse, or have previous experience with HIV cases; the same results were found in Oman as the highest level of knowledge was associated with physicians, and nurses more than pharmacists, and lab workers as well as the level of experience [24].

This study was directed at the western part of KSA with a representative sample size that provides an expected result of the KAP of Saudi subjects. It includes health workers, and others to study the effect of occupation on KAP. However, the study was based on an online questionnaire thus results in the analysis may have been affected by response bias. Also, the study only evaluated

the KAP level of HCWs at governmental hospitals, and didn't include private hospitals which are numerous in KSA thus the results can't be generalized all over KSA.

5. Conclusion

The level of knowledge was high, the attitude was positive, and the practice was poor among most of the respondents regarding HIV/AIDS with a positive significant correlation with being a health care physician or nurse and having previous experience with AIDS cases. However, the majority showed a high knowledge level, and the level of practice was poor among most of them, which recommends launching educational programs, and new health policies regarding the training of healthcare workers with HIV patients to enhance their commitment to provide medical help for HIV/AIDS patients with adhering to firm infection guiding principles to avert the spread of all infections.

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Conflict of Interest

No conflict of interest.

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