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Exploring the awareness, perceptions, and behaviors regarding HIV/AIDS among healthcare workers in Sindh, Pakistan: A cross-sectional study

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Abstract---Introduction: Pakistan is among the nations reporting the highest growth in HIV infections globally. Particularly in Sindh province, HIV has reached an alarming stage among vulnerable

groups of society and dialysis patients. The primary purpose of this study was to investigate female health professionals' HIV-related knowledge, attitudes, and behaviors in rural Pakistan. A general practitioner (GP) started seeing an unusually rise of cases in young children with HIV (AIDS) infection earlier this year. There is a fault in health care system because the women who hired as female health workers have insufficient knowledge, awareness, and handling of HIV. There poor attitudes, and inappropriate practices related to HIV, are the key variables affecting the proper control of HIV/AIDS spread. Methods: This current quantitative cross-sectional study conducted on Female health workers age range between 18 to 60 years after taking proper training and at least three months of field experience to assess their KAPs on HIV/AIDS. Total 316 LHWs were selected who were fit according to the inclusion criteria. Results: It was found half of the LHWs were Matric passed with 50.9% of them were aware of HIV/AIDS as a viral disease. Interestingly 84.8% of LHWs had knowledge that HIV could be transferred by unprotective sexual intercourse, 73.7% of LHWs were aware of that unchecked blood transfusion could result in HIV/AIDS. 57% of LHWs knew that needle stick injury might result in acquiring HIV/AIDS, while 37.3 % of LHWs had knowledge that it could be transmitted vertically from mother to baby. 69% of the LHWs had positive attitude for HIV/AIDS patients. Nearly half of the LHWs had an opinion of patients can work at their working place and other half have a opinion of isolation and hospitalized. Majority of the LHWs agreed that every hospitalized patient and pregnant lady should be screened for HIV/AIDS. Regarding practices of the LHWs for HIV/AIDS, 75.3% had poor practice. Conclusions: keeping in view of above finding it can be seen that these are the main hindrances in limiting the HIV/AIDS spread. Although LHWs had average knowledge and attitude related to HIV/AIDS patients it can also observe that LHW had poor practice toward HIV/AIDS patients. LHWs had some misconceptions regarding HIV/AIDS.

Keywords---HIV/AIDS, Lady Health worker, self-knowledge, attitudes, practices.

Introduction

During the last three decades, the HIV pandemic has entered our consciousness as an incomprehensible calamity. Pakistan is among the nations reporting the highest growth in HIV infections globally, with an average 18% rise in HIV infections in the past two decades and 45% since 2010.²⁻⁵ The HIV incidence increased from 0.08 to 0.12 per 1,000 persons from 2010 to 2019 in the general population. Among the transmittable disease, Human immunodeficiency Virus/ Acquired Immuno-Deficiency Syndrome (HIV/AIDS) is continuing to be the paramount global health problem and becoming a pandemic since the first reported case [1]. AIDS is caused by HIV and has affected more than 70 million population and resulted in the death of 35 million people [1]. In the year 2016,

about 36.7 million were living their lives with HIV with its 0.8% global prevalence [2, 3]. HIV also affects children although its prevalence is very low compared to adults but on a rising trend [4]. Third world countries not only carry 95% of the burden of disease but along with this 90% of HIV-related deaths also occur in these countries [5]. Despite our good understanding of the course of HIV/AIDS and its management and advancement in treatment strategy, still there is no definitive treatment plan for this disease. Anti-retroviral therapy is being used as a treatment of the disease although it does not eliminate the virus but helps to prevent the progression of the disease by inhibiting replication of the virus. In Pakistan, Economic and Labor-Survey Pakistan estimated population was to be 191,715,847. About 45.3 % of the total population is uneducated and more than 50% of the population lives in rural areas where education, as well as health facility, is unsatisfactory. According to the United Nations, AIDS- National AID control program of Pakistan, its prevalence was estimated to be less than 0.1%.5 In Pakistan, there is a massive imbalance between the health care system and health care force such as lack of hospitals, insufficient health care professionals (HCPs)(doctors, nurses, paramedics, and skilled birth attendants. Pakistan established the Lady Health Workers Program (LHW-P) for the aim, which has been in operation since 1994. This program is started for facilitating the people at their doorsteps and creates awareness in the community against life-threatening diseases. Currently, over 1, 30,000 Lady Health Workers (LHWs) are deployed across Pakistan, serving 60% of the country's rural population. LHWs are the first line of defense not only in Sindh but in entire Pakistan's rural communities, ensuring that families or every individual have access to important health services such as family planning, prenatal care, and other diseases. From 1994 till now the program is failing because of qualification criteria and check and balance system according to the Fourth External Evaluation of the National Program [6].

In a survey, it has been observed that the population who had been looked after by LHWs had better health indicators when compared to the controlled population [7]. As HIV prevalence is on a rising trend, to cope with this HIV pandemic, the approach should be evidence-based focusing on reducing deficiencies in knowledge, attitude, approach, and response against the HIV infected patients. Until now there is no definitive treatment for HIV/AIDS, but it can be successfully handled through specific knowledge, change in attitude, and following basic preventive steps thoroughly and consistently [8, 9]. HIV/AIDS has been a source of concern in public health for more than three decades, wreaking havoc on people's lives. As a result, it is critical to consider where its spread and transmission can be stopped at the community level. As a result, it is assumed that the role of LHWs is critical in raising HIV knowledge and prevention at the community level. There have been several KAP studies on HIV/AIDS conducted in urban settings, particularly on doctors and nurses in Pakistan, but there has not been a single study conducted on community front line health workers (LHWs) to determine their current level of knowledge, attitude toward infected patients, and ability to care for HIV patients and prevent HIV. Health professionals are the first-line defense in the health system, but unfortunately, they are the least educated and least groomed, resulting in a significant gap, particularly in rural areas. As a result, the purpose of this study was to examine LHWs' knowledge, attitude, and practices about HIV/AIDS patients, which would aid in identifying their weaknesses and increasing their awareness of the HIV/AIDS epidemic.

Methods

This was an analytical cross-sectional study conducted on the LHWs in the rural area of upper Sind of Pakistan. In this cross-section, the quantitative research method is primarily used for data collection and a sample of a total of 316 LHWs was selected who was fit for the study criteria. The research tool used for the study is a questionnaire-based survey. Since 2019, the chosen area was SINDH of Pakistan in which HIV/Aids seen as a pandemic. The reason for choosing this area for research is due to the largest HIV outbreak in this area in 2019. The study population consisted of females aged 18-60 years who had completed formal LHW training and had worked in their area for at least three months. To the best of our knowledge, there is scant data in Pakistan on perceptions and practices among LHWs who play a critical role in providing and managing HIV/Aids in communities. The questionnaire and form filling was explained to all of the LHWs. The purpose of the study was explained to the LHWs, and they were assured that their confidentiality would be respected. Participants were informed that their participation was entirely voluntary and that they could refuse any question if they felt uncomfortable. LHWs provided informed written consent.

Questionnaire

The main objective of the questionnaire was to obtain current information of the participants on KAP about HIV/AIDS. The researcher developed the questionnaire after discussing it with the relevant field experts. The developed questionnaire was divided into four parts. The first part was about the socioeconomic demographic variables of the LHWs including their age residence level of education. The second part contained 28. Knowledge-based questions are divided into sections relating to the type of disease, transmission, prevention, and control of HIV/AIDS. Both negatively and positively framed questions were included along with their misconceptions about HIV/AIDS. The third part of the questionnaire consisted of 10 Questions to assess the attitude of the LHWs towards HIV/AIDS patients containing both positively and negatively framed questions. The fourth part, the final one contained 10 questions based on the practices of LHWs for HIV/AIDS

Data Analysis

Data entered and analyzed by SPSS version 19.0. The outcome was taken as a binary variable, which was obtained through the knowledge, attitude, and practice questionnaire administered to the sample population. Participants were asked to mark their answers on the questionnaire as yes, no or don't know to every knowledge and attitude-related question. For each correct answer, there was one score while for incorrect answers the score was zero. Cross tabulations were done, and the significance of the distribution of covariates was checked according to the outcome score through Pearson's chi-square test. P-value of less than or equal to 0.05 was considered as significant.

Results

The analysis includes a Total of 316 LHWs in this study that was fit the inclusion criteria. The mean age of participants were 36.32 ± 6.61 years ranging from 20 to 56 years. More than half of the LHWs (58.5%) belonged to the age group between 31-40 years. Regarding their educational status, 50.3% of the survey participants were Matriculation passed while 35.4 % had done F.Sc, while only 11% had graduated while only 3.3% were postgraduate. This clearly shows that majority of the female health care workers are not much educated and skilled. As we all know that the personality made the person's influenceable but the majority of LHW's are old and Matriculation pass which is the main hurdle in the control of HIV/AIDS especially in rural areas.

Part A: Knowledge of lady health workers regarding HIV/AIDS

The pre-designed questionnaire is prepared for the assessment of the knowledge of HIV/AIDS. Responses of the LHWs regarding the knowledge of HIV/AIDS are given in table one. It was found most of the LHW have knowledge of HIV/AIDS. Some of them responded no and don't know.

Table 1 Responses of participants regarding knowledge of HIV/AIDS

Questions about knowledge	Yes		No		Don't know	
	n	%	n	%	n	%
Is it possible for a healthy-looking person to be infected with HIV/AIDS?	206	65.2	52	16.5	58	18.4
Can person be protected against getting HIV by limiting sexual relation with their spouse only?	214	67.7	47	14.9	55	17.4
If a person diagnosed by HIV can he/she be treated?	221	69.9	32	10.1	63	19.9
What do you think that complete treatment is available for HIV/AIDS?	141	44.6	86	27.2	89	28.2

Correct answers of the LHWS regarding the Disease Type of HIV/AIDS in table 02. We asked them all about the disease type of HIV/AIDS. There were 161(50.9%) responded correctly answered that the HIV/AIDS are viral diseases while others incorrectly answered as 132(41.8%) responded bacterial diseases, 154(48.7%) responded genetic diseases and 145(45.9%) responded HIV/AIDS as infectious diseases. The details of correct responses regarding type of diseases were showed in Table 2

Table 2:Correct responses of participants knowledge regarding type of diseases are HIV/AIDS

What type of diseases are HIV/AIDS?	Correct answer	n	%
Viral diseases	Yes	161	50.9
Bacterial diseases	No	132	41.8
Genetic diseases	No	154	48.7
Infectious diseases	No	145	45.9

Correct Responses of all LHWs about modes of transmission of HIV/AIDS in Table 3.

Table 3: Correct Responses of all LHWs about modes of transmission of HIV/AIDS

Mode of transmission of HIV/AIDS?	Correct answer	n	%
Unprotected sexual intercourse	Yes	268	84.8
Blood transfusion	Yes	233	73.7
Through tribal marks tattoos	No	82	25.9
Multiple sex partners	Yes	195	61.7
Needle Stick Injuries	Yes	180	57
Needle open wound	No	127	40.2
Through human saliva	No	121	38.3
Through sharing bed and clothes	No	140	44.3
Through air when person cough or sneeze	No	142	44.9
From mother to her baby through breast feeding	Yes	81	25.6
A pregnant woman of HIV to unborn baby	Yes	118	37.3
Sharing needles and other surgical instruments	Yes	137	43.4

In our survey, the participants responded about the prevention of STDs including HIV/AIDS as 272(86.1%) responded by using condom, 256(81%) by limited sexual partners, 235(74.4%) by avoid sharing needles, 160(50.6%) by having knowledge about partner medical and social history and 198(62.7%) by safe blood transfusion. The distribution of correct responses of participant's knowledge regarding the prevention is presented in Table 4.

Table 4: Correct responses of LHWs regarding the knowledge of prevention of HIV/AIDS

STDs including HIV/AIDS could be prevented by?	Correct answer	n	%
Use condom	Yes	272	86.1
Limited sexual partners	Yes	256	81
Avoid sharing needles	Yes	235	74.4
knowledge about partner medical and social history	Yes	160	50.6
Safe blood transfusion	Yes	198	62.7

Correct answers of LHWs regarding the treatment of HIV/AIDS in table 05.

Table 5: Correct answers of LHWs regarding the treatment of HIV/AIDS

In your opinion which of following best Treatment of STDs including HIV/AIDS?	Correct answer	n	%
Drugs	Yes	228	72.2
Drinking Milk	No	160	50.6
Faith Healing	No	159	50.3
Traditional treatment	No	154	48.7
Surgical operation	No	160	50.6

The frequency distribution of the knowledge level of LHWs regarding HIV/AIDS in figure 1.

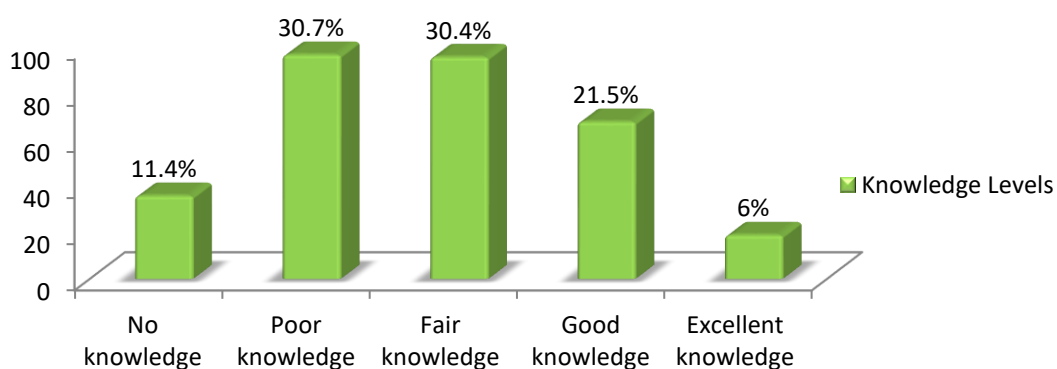


Figure 1: Distribution of knowledge levels of lady health workers

Part B: Attitude of lady health workers regarding sexually transmitted diseases, including HIV/AIDS

The pre-designed questionnaire is prepared for the assessment of the attitude of HIV/AIDS. Responses of the LHWs regarding the attitude toward HIV/AIDS in table 06.

Table 6: LHWs response regarding the attitude toward HIV/AIDS

Questions about Attitude	Yes		No		Don't know	
	n	%	N	%	n	%
HIV/AIDS patients should be isolated in hospital?	163	51.6	96	30.4	57	18
Would you sit next to someone who is HIV/AIDS infected?	170	53.8	87	27.5	59	18.7
If a person got infected with HIV, should he or she be allowed to stay in his/her work place?	161	50.9	96	30.3	59	18.7
If a person diagnosed with HIV/AIDS should keep it secret?	118	37.3	155	49.1	43	13.6
Do you prefer to look after any person in your family who is HIV/AIDS +ve?	223	70.6	38	12	55	17.4
Every Hospitalized Patient should be tested for HIV?	248	78.5	23	7.3	45	14.2
Every pregnant lady should be tested for HIV/AIDS?	226	71.5	37	11.7	53	16.8
It is fair that a Health care provider can refuse to care HIV +ve patient?	112	35.4	143	45.3	61	19.3

Table 07 showing the frequency distribution of the attitude level of LHWs regarding HIV/AIDS.

Table 7: Attitude level of LHWs regarding HIV/AIDS

Attitude Levels	n	%
No attitude (<5 score)	48	15.2
Poor attitude (5-8 score)	50	15.8
Fair attitude (9-12 score)	135	42.7
Good attitude (13-15 score)	58	18.4
Excellent attitude (>15 score)	25	7.9

Part C: Practices of lady health workers regarding sexually transmitted diseases, including HIV/AIDS

The pre-designed questionnaire is prepared for the assessment of the practices of HIV/AIDS. Table 08 showing the results of questions regarding the practices for HIV/AIDS.

Table 8: questions regarding the practices for HIV/AIDS

Questions about practices	Yes		No		Don't know	
	n	%	n	%	n	%
Have you ever been screened for HIV before?	20	6.3	275	87	21	6.7
Can you take HIV/AIDS patient to traditional healers for cure?	59	18.7	222	70.3	35	11.1
HIV/AIDS can be prevented by limiting sexual relation to spouse only?	172	54.4	98	31	46	14.6
Have you ever been discussed by a doctor or health professional about HIV/AIDS?	116	36.7	155	49.1	45	14.2
Have you ever been told by a doctor or health professional that you or your relative have HIV/AIDS?	67	21.2	207	65.5	42	13.3
Do Health care provider should refuse to care HIV+ patient?	51	16.1	227	71.8	38	12

The frequency distribution of the practice level of LHWs regarding HIV/AIDS in figure 2.

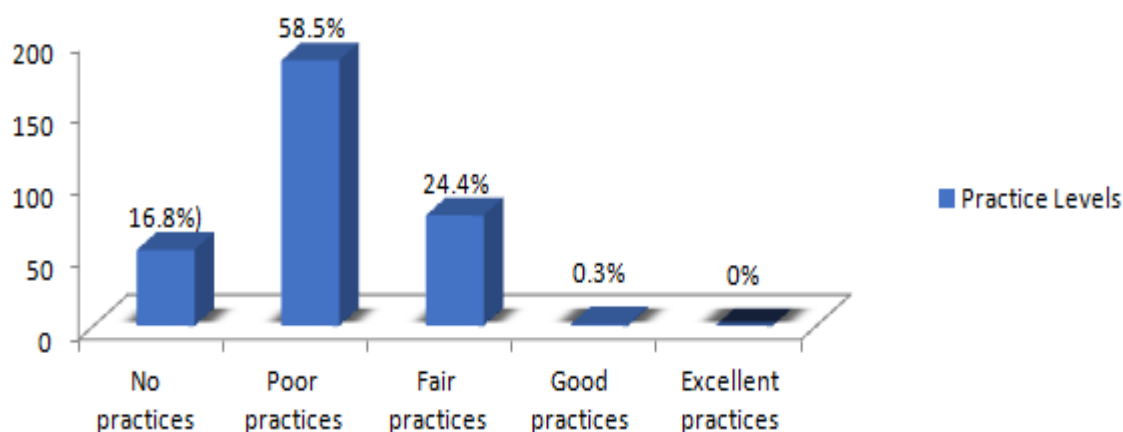


Figure 2: Distribution of attitude levels of lady health workers

The association of knowledge, practice, and attitude of HIV/AIDS, is assessed with educational status

Table 9 showing the educational status is insignificantly associated with knowledge ($p=0.751$).

Table 9: Educational status with reference to knowledge

Knowledge	Marital status				P-value
	Single	Married	Divorced	Widow	
No knowledge	1(2.8)	34(94.4)	0(0)	1(2.8)	0.359**
Poor knowledge	11(11.3)	77(79.4)	1(1)	11(11.3)	
Fair knowledge	4(4.2)	80(83.3)	2(2.1)	4(4.2)	
Good knowledge	4(5.9)	61(89.7)	0(0)	4(5.9)	
Excellent knowledge	3(15.8)	15(78.9)	0(0)	3(15.8)	

Chi-square is applied

Table 10 showing the relationship of educational status with attitude with insignificant $p=0.675$

Table 10: Educational status with attitude

Attitude	Educational status				P-value
	Matric	Graduate	Post Graduate	F.Sc	
No attitude	31(64.6)	4(8.3)	0(0)	13(27.1)	0.675**
Poor attitude	28(56)	4(8)	3(6)	15(30)	
Fair attitude	70(51.9)	12(8.9)	2(1.5)	51(37.8)	
Good attitude	26(44.8)	5(8.6)	2(3.4)	25(43.1)	
Excellent attitude	14(56.0)	2(8)	1(4)	8(32)	

Chi-square is applied

Table 11 showing the relationship of educational status with practices with insignificantly ($p=0.249$).

Table 11: Educational status with practices

Practices	Educational status				P-value
	Matric	Graduate	Post Graduate	F.Sc	
No practices	29(54.7)	9(17)	0(0)	15(28.3)	0.249**
Poor practices	102(55.1)	11(5.9)	6(3.2)	66(35.7)	
Fair practices	37(48.1)	7(9.1)	2(2.6)	31(40.3)	
Good practices	1(100)	0(0)	0(0)	0(0)	
Excellent practices	0(0)	0(0)	0(0)	0(0)	

Discussion

HIV/AIDS is a rising major global health issue worldwide. It's affecting more developing nations than developed nations. As Pakistan is known as the most populated developing country, where health facilities are not equal across the country. According to Pakistan Economic Survey 2019-20, for 963 persons only one doctor was available while for 1608 people, only one bed was available and one nurse for about 1800 patients. LHWs were presumed to fill this gap, although their number is not enough still their role is considered very important in delivering awareness regarding the basic health issues at the community level especially in underdeveloped areas.

Appropriate knowledge of HCP is key to looking after HIV/AIDS patients who portray their extent of education and counseling in providing to these patients. To improve the outcome of treatment and prevention with people living with HIV, HCP's attitude should be very much positive. In the health care system, physicians are key health care professionals who can shorten the widened gap between the educated and uneducated population in their better understanding of disease [10]. As it is well-known fact, in rural areas of Sind like the rest of Pakistan, people don't have access to a registered doctor, who could help them in giving quality care and awareness regarding communicable diseases like HIV/AIDS. People living in these areas are not educated/ less-educated, lacked religious values, and also have a perspective on society as a whole. This is the reason; it is perceived naturally that spread of disease is thought to be sent from heaven rather than due to the doing of man [11]. In the above situation, it is most important to assess the KAP of LHWs regarding HIV/AIDs, who are in close contact with their community all the time.

to the results of Ali et al [5] which is due to a decrease in the level of education. Regarding HIV/AIDS transmission through the sexual route, 84.8% of LHWs were known about it which is almost similar to the I.P Meena et al [11] and TB Yen et al [13] results and higher than S. Jankovic et al. results [14]. 67.7% of LHWs were agreed that limit sexual relationships with the spouse only. In our study, 50.9% of the LHWs had correct knowledge that HIV is caused by a virus which is much lower when compared to TB Yen et al results [13]. Regarding the transmission of HIV/AIDS, the majority of the LHWs knew that it could be transmitted by

unprotected sexual intercourse, unchecked blood transfusion, and multiple sexual partners and our results are a bit lower than the results of I.P Meena et al.[12] while 57% of the LHWs knew that that needlestick injury could result in HIV exposure and infection, which was higher in I.P Meena et al [12] and almost consistent with S. Jankovic et al. [14] results. Regarding knowledge about the prevention from HIV/AIDS, 86.1% of LHWs said using a condom could prevent HIV, 74.4% LHWs by avoiding sharing needles while 62.3% of the LHWs were aware of safe blood transfusion that could prevent HIV/AIDS spread which is consistent with Kumar et al.[15] Regarding the vertical transmission of the disease from mother to the baby 37.3 % of the LHWs were known about it which is much lower than the results of Aziz et al[16] and TB Yen et al [13] results.

Regarding the attitude of the LHWs towards HIV/AIDS patient's majority of them had a fair attitude. 50.9% of the LHWs were agreed with the opinion that HIV/AIDS patients should be allowed to stay in the workplace while 37.3% LHWs were agreed that HIV/AIDS patients can keep it secret. 56.7% of the LHWs said that health care professionals could refuse to look after HIV/AIDS patients while according to 47.2% of LHWs, health care professionals should take additional precautions in attending to HIV patients. Nearly more than half of the LHWs thought that HIV/AIDS patients should be treated in isolated hospitals which are a little bit higher than the results of I. Meena et al. [12] and lower than the S. Jankovic et al. results [14].

According to 78.9% of the LHWs, every hospitalized patient should be screened for HIV which is higher than that of S.Jankovic et al. [14] results. In the present study, 31.0% LHWs had a negative attitude. The majority of them were in favor of disclosing the HIV/AIDS patients, isolating them, and with regular testing of each patient but it will not reduce the exposure of the HCP [17] and the same attitude was seen in other studies also [18,19]. This negative attitude may be due to the social taboos and practices in our society. Stigma related to HIV is real in our society [20, 21] which increases the risks of getting an infection and reduces the empathy for HIV/AIDS patients resulting in a biased attitude and this is unprofessional for health care professionals [22,23].

Regarding the practice of LHWs, most of them had poor practice. Most of the LHWs had no discussion with the doctor to whom they were reporting and a very small number of LHWs had briefed about the HIV/AIDS to the community that they were attending with very low awareness activity. Few LHWs had attended the workshops on HIV/AIDS-related issues. These may be the reasons that LHWs had poor practice regarding HIV/AIDS patients.

It is seen that by improving the education system knowledge of the health care professional can be increased in better understanding of the disease, which is evident from the literature also [24]. Health care professionals must reduce their shortfalls in KAP regarding HIV/AIDS patients to solve these problems. In developed nations, dedicated and highly educated programs have been carried out to improve the level of knowledge and a good positive attitude regarding HIV in HCPs [25, 26]. Lectures purely based on HIV/AIDS for the LHWs will be very helpful that will improve their knowledge and professional attitude towards HIV/AIDS patients. So, the curriculum of the LHWs must be revised and

upgraded based on evidence and the latest guidelines. There should be regular seminars, and interactive workshops should be conducted that focus on HIV/AIDS. It will help us to face this alarming pandemic. Although the government has been doing public campaigns through electronic and print media for awareness of HIV/AIDS there is still a need for this entire on regular basis and at a large scale to achieve global goals of HIV 2030 for eradication of HIV.

Conclusions

After doing analysis it can be seen that following are the main hindrances in limiting the HIV/AIDS spread. Although LHWs had average knowledge and fair attitude level related to HIV/AIDS patients but it can also observe that LHW had poor practice towards HIV/AIDS patients. LHWs also had some misconception regarding the HIV/AIDS. LHW self-knowledge and good attitude regarding the disease is good enough as they can aware the community with the possible outcome of HIV but their poor practice to deal with HIV make the situation worse.

Recommendation

Curriculum for the training of LHWs should be revised. There should be regular workshops and scientific session for LHWs on the presentation, treatment and prevention of HIV/AIDS to improve their KAP, which will ultimately help them in achieving the prevention of HIV/AIDS at community level.

Acronyms

AIDs	Acquired Immune Deficiency Syndrome
GBD	Global Burden of Disease
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
LHW	Lady Health Worker
PDHS	Pakistan Demographic and Health Survey
SDGs	Sustainable Development Goals
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
UN	United Nations
UNICEF	United Nations Children's Emergency Fund
WHO	World Health Organization

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