Knowledge and Practices Regarding Hepatitis B and HIV-AIDS Among Beauty Salon Workers and Hairdressers in Karachi, Pakistan

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ABSTRACT

Hepatitis B (HBV) and human immunodeficiency virus (HIV) are common viruses in Pakistan and a serious public health issue. Beauty salon and hairdresser workers are a high-risk group for transmission of these viruses. This study assesses the knowledge and practices regarding HBV and HIV of these workers in Karachi, Pakistan. The study is cross-sectional with a consecutive sampling technique used to select 211 workers. A structured and validated questionnaire was filled out by participants, with questions on personal characteristics and knowledge and practices. Data was compiled and analyzed using SPSS and logistic regressions were used to determine the association of risk factors with knowledge and practice levels. A majority were found to have inappropriate knowledge (71%) and unsafe practices (82%). After adjustment of the covariate in multivariate analysis, the variables of female gender, illiterate, and work experience of 1-10 years, were significantly associated with inappropriate knowledge and unsafe practices towards HBV and HIV. Given beauty salon and hairdresser workers have poor knowledge and unsafe practices, it is likely they lack understanding about virus infection. Health promotion campaigns should be provided to this vulnerable population to control transmission of these viruses.

Keywords: Hepatitis, Hair, HIV, Nail, Salon, Workers.

INTRODUCTION

In many areas of the world, including Pakistan, personal hygiene services such as trimming and shaving hair, face and scalp massaging, pedicures and manicures, are performed in hair and beauty salons. Customers bleeding while having nail cuticles removed and during haircuts with unsterilized instruments is an important risk factor for hepatitis B (HBV) transmission globally (WHO, 2021). HBV is 50-100 times more infectious than the human immunodeficiency virus (HIV) and is transmitted through bodily fluids in the same way as HIV (Abubakar et al., 2017). The knowledge and awareness of hairdressers about topics related to HIV and HBV infection is of great importance as unsafe practices can lead to infections: for example, negligence when using razors is a major transmission risk factor (Waheed et al., 2010).

Over 350 million people are HBV positive and over 170 million are hepatitis C (HCV) positive (WHO, 2021). Overall, the prevalence of the HBV surface antigen (HbsAg) is 2.5 percent, which is reflected in the infection rate of 7.6 percent in the general population of Pakistan (Abbas et al., 2020; Qureshi et al., 2010). According to data from the Joint United Nations Program on HIV/AIDS, approximately 36.9 million people globally were living with HIV in 2017 and approximately 1.8 million people were newly infected that year in Pakistan (Ajayi et al., 2019). In Pakistan, HIV prevalence among the general population is estimated to be less than 0.1 percent (Ahmed et al., 2019; Ajayi et al., 2019). Common causes of the spread of viral hepatitis include unscreened blood transfusions between family members, unsterilized razors in barber shops, beauty salons, unsterilized surgical instruments and unprotected sexual intercourse with an affected partner (Mutocheluh & Kwarteng, 2015). For its part, HIV transmission risk factors include unscreened blood transfusions, intravenous drug use, perinatal transmission and unprotected sexual intercourse (Romano et al., 1988). A safe and effective vaccine against HBV has been available for 20 years and is effective in preventing infection and the serious consequences of hepatitis, including liver cancer and cirrhosis, but there is no vaccine available for HCV or HIV (Pennap et al., 2010).

An estimated 27,000 beauty salons and hairdressers in Pakistan employ approximately 70,000 workers (Aktuğ Demir et al., 2014; Ilyas et al., 2017). There are no official registrations or regulations in the industry and hygienic practices are not guaranteed. Many workers in salon and barber shops have low literacy and face poor working conditions. This, in combination with the inherent risks of bladed instruments and the likelihood of customers bleeding, leads to an increased risk in HBV and HIV transmission while providing services. This study aims to assist health educators and managers in Pakistan better understand these dynamics of disease transmission.

METHODS

This cross-sectional study was conducted from September to November 2021 in the city of Karachi, Pakistan. Karachi is the largest city in Pakistan. It is situated in south of country and has a population of approximately 20 million. The city is divided

into seven districts and this study was conducted in all of them.

SAMPLING TECHNIQUE AND SIZE

A consecutive sampling technique was utilized to recruit study participants and sample size was calculated through the Epi info sample size calculator. The following parameters were used to calculate the sample size: the prevalence of HBV, 40 percent (de Castro et al., 2018), a 95 percent confidence interval, and a 5 percent margin of error. The sample size for the study was 211.

DATA COLLECTION PROCEDURE AND TOOLS

The total number of beauty salon and hairdresser shops in Karachi is unknown as the occupation is unregulated. The survey team visited each district of the city and identified locations with a high density of salon and hairdresser shops. They were followed by the data collection team, who then visited the identified areas and collected the data until the sample size was achieved. All workers in each of the beauty salon and hairdresser shops surveyed were invited to participate in the study. The reason for the study was explained to participants. A private space was arranged for the interviews in order to maintain privacy and confidentiality.

A structured questionnaire for knowledge assessment and a checklist for observing practices at barber shops and beauty salons were utilized. The questionnaire was comprised of the sections: socio-demographic characteristics, knowledge regarding HBV and HIV and practice regarding HBV and HIV. Personal characteristics recorded included age, gender, marital status, education status, monthly income, workload and work experience. The questionnaire was translated into local language when required. A study protocol was approved from the ethical committee of Jinnah Sindh Medical University (JSMU/IRB/2021/-460). Informed written consent was taken from all research participants prior to filling in the questionnaire. The participants were assured confidentiality and given the option to quit the study without any further questions and implications.

KNOWLEDGE AND PRACTICE SCALE

The knowledge scale contained statements about disease presentation, transmission, precaution and prevention. Each item was scored as a 'yes', 'no' or 'don't know', with 2, 0 and 1 scores respectively. Responses were summarized on a 14-point rating scale and those with a score equal to 9 or more were considered to have 'appropriate HIV/AIDS knowledge', while those with scores below 9 were considered as having 'inappropriate knowledge'. The practice scale consisted of questions relating to universal precautions adherence, post-exposure prophylaxis requirements and behavior with regard to HBV and HIV. Items were scored as 'yes', 'no' or 'not applicable' with 2, 0 and 1 scores respectively. Correct responses were summarized on a 16-point rating scale, with those scoring over 11 considered 'more adhering to safe practice' and those below 11 as 'less adhering to safe practice'. The

observations checklist was filled out by watching the services provided to two clients at each shop. Data was compiled and analyzed using SPSS version 23.0. Descriptive statistics were used to calculate frequency and proportion. The frequency distribution of both dependent and independent variables were calculated. Logistic regression models were used to examine the possible association between independent and outcome variables. A *p*-value ≤ 0.05 was considered significant.

RESULTS

Out of 211 participants, 43.1 percent were males and 56.9 percent were females. The majority of participants were aged between 18-30; 68.7 percent. Among the participants, 48.3 percent were single, 14.2 percent were illiterate, 53.6 percent had a monthly income of 5-10,000 PKR, about 67.3 percent had been working for between 1-10 years, 54.5 percent served more than ten customers per day, and 78.7 percent received information related to HBV and HIV from social media. This is explained further in table 1.

Table 1. Socio-demographic characteristics of study participants (n=211).

Characteristics	Frequency (%)
Age (Years)(Mean ±SD)	31.48 ± 0.36
18-30	145 (68.7)
21-50	66 (31.3)
Gender	
Male	91 (43.1)
Female	120 (56.9)
Marital Status	
Single	102 (48.3)
Married	109 (51.7)
Education Status	
Illiterate	30 (14.2)
Literate	181 (85.8)
Monthly Income (PKR)	
5,000-15,000	113 (53.6)
>16,000	98 (46.4)
Working Experience	
1-10 years	142 (67.3)
>10 years	69 (32.7)
Sources of HBV and HIV Information	
Social Media	166 (78.7)
Electronic Media	45 (21.3)
Frequency of Customers per Day	
1-10	96 (45.5)
>10	115 (54.5)

A majority (51.2 percent) of the study participants believed that HBV was incurable, 28.4 percent believed that the disease could be prevented by avoiding contact with body fluids and blood, and 24.6 percent though it could be avoided by

not sharing needles. Regarding mode of transmission of HIV, 30.8 percent believed it was due to blood transfusions, 25.6 percent knew about transmission by sharing razors, 57.3 percent knew that vaccines were available, and 66.6 percent knew that treatments were available for HBV and HIV. Only 14.2 percent of participants used an autoclave for sterilization in the shop and 3.3 percent were vaccinated against hepatitis B. More details are in table 2.

Table 2. Knowledge and preventive practices regarding HBV and HIV among study participants.

Questions	Correct response	Frequency (n)	Proportion (%)
Hepatitis and HIV are curable diseases.	True	103	48.8
Hepatitis and HIV can be prevented through avoiding sharing needles.	True	52	24.6
Hepatitis and HIV transmit through blood contact.	True	65	30.8
Hepatitis and HIV transmit through razor sharing.	True	54	25.6
Hepatitis and HIV transmit through unprotected sexual contact.	True	42	19.9
A hepatitis vaccine is available.	True	151	71.6
Hepatitis and HIV can be treated.	True	140	66.4
Practices			
Used sterilized tool for shaving and nail cutting.	Yes	199	94.3
Washed hands between shaves/ nail or hair cut.	Yes	49	23.2
Discarded used blades.	Yes	31	14.7
Autoclave used for sterilization.	Yes	30	14.2
Preferred way of waste disposal.	yes	49	23.2
Vaccinated against Hepatitis B.	Yes	7	3.3
Common reason for being unvaccinated is lack of awareness.	Yes	119	56.6

After adjustment of covariate in multivariate analysis, the variables of female gender, illiterate, and working experience 1-10 years were significantly associated [OR2.53,95%CI 1.90-4.50, (p- value 0.039), OR 2.12, 95% CI 1.27-528, (p-value 0.020)], [OR4.5495%CI 2.81-7.98, (p-value 0.030), OR 3.26,95%CI 2.91-8.05, p-value 0.023)], [OR 1.74, 95% CI 1.15-3.28, (p-value 0.046), OR 1.29, 95% CI 1.10-3.58, p-value-(0.024)] with inappropriate knowledge and unsafe practice towards HBV and HIV respectively. More details in table 3.

Table 3. Association of knowledge and practice regarding HBV B and HIV with socio-demographic characteristics of study participants (n=211).

Characteristics	Inappropriate knowledge Adjusted odd ratio AOR [95% confidence interval CI] (*p*-value)	Unsafe practice Adjusted odd ratio AOR [95% confidence interval CI]
Age Category (years)		
18-30	1	1
21-50	1.09[0.98-1.1](0.754)	1.30[0.86-2.41](0.758)
Gender		
Male	1	1
Female	2.53[1.90-4.50](0.039)	2.12[1.27-528](0.020)
Marital Status		
Married	1	1
Single	1.26[0.89-2.91](0.076)	1.53[0.89-2.74](0.685)
Education Status		
Literate	1	1
Illiterate	4.54[2.81-7.98](0.030)	3.26[2.91-8.05](0.023)
Working Experience		
>10 years	1	1
1-10 years	1.74[1.15-3.28](0.046)	1.29[1.10-3.58](0.024)
Monthly Income (PKR)		
>16,000	1	1
5,000-15,000	0.80[0.25-2.85](0.752)	0.99[0.47-2.89](0.924)
Frequency of Customer		
1-10	1	1
>10	3.02[1.89-5.27)[0.040)	2.89[1.13-6.93](0.030)

Only 29 percent of study participants were found to have appropriate knowledge regarding HBV and HIV.

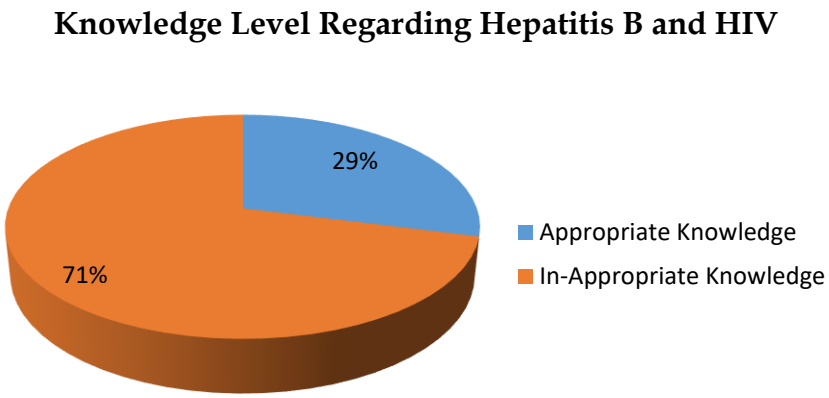

Figure 1. Knowledge level regarding HBV and HIV.

Only 18 percent of study participants were found to have safe practice regarding HBV and HIV.

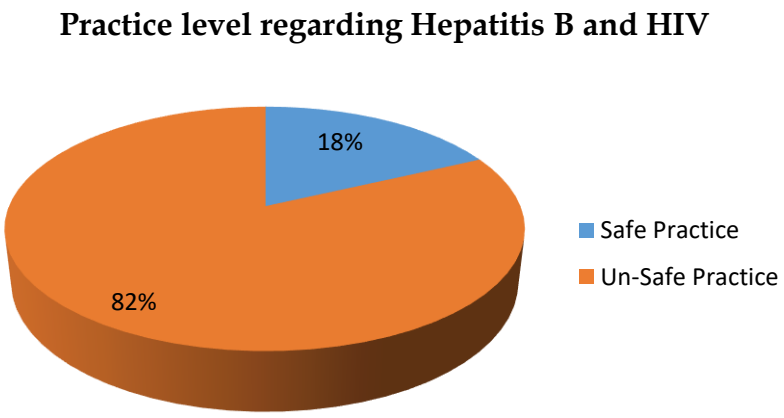

Figure 2. Practice level regarding HBV and HIV.

DISCUSSION

This study found that significant proportion of beauty salon and hairdresser workers have inappropriate knowledge and unsafe practices regarding HBV and HIV and recognized the deficiencies in knowledge and practices in certain key areas, such as basic knowledge about the disease, transmission and prevention. This study's results accord with other studies (Kuo et al., 2006; Talpur et al., 2007), signaling that knowledge among salon and hairdresser workers is very low, which may perhaps be due to the poor working conditions. Low knowledge among salon and hairdresser workers of the transmission routes and consequences of HBV and HIV reflects other studies in the literature. Janjua et al. (2004) & Ozcebe et al. (2002) reported low levels of knowledge and misconceptions about the dispersion of HBV and HIV via coughing, sneezing and eating food leftovers. In addition to this, the lack of knowledge about the disease spreading via sex is common among salon and hairdresser workers (Krishanani et al., 2014; Villar et al., 2014).

Most workers in beauty salons and hairdresser shops throw used blades in the municipal waste which is a major risk factor for spreading infections in the community and is particularly dire for sweepers and garbage handlers who then handle the blades. In poor countries, many people search through refuse sites to recycle and sell metals, another risk factor (Amodio et al., 2010). This is in contrast to the results of research showing 96.73 percent of the population uses hand washing and 5.04 percent of the population had disposable gloves, while no one used gloves after a cut (Oliveira & Foccacia, 2010). An autoclave sterilizer was in only a very few shops and most instruments are not sterilized properly, a risk factor for transmission. The results of our study are consistent with Khandiat et al. (1999) who found a majority of the population did not know the transmission routes of HBV. Similarly, another study found that 81 percent of barbers lacked knowledge about HIV transmission, particularly transmission via razor shavers (Waheed et al., 2010).

Only three percent of workers are vaccinated for HBV and a common reason for not being vaccinated is due to lack of awareness. These results are consistent with

Al Rabeei et al. (2012) and Khan et al. (2012), who found illiteracy and a lack of awareness, and the cost of vaccine, to be the major barriers for vaccination among nail salon and hairdresser workers. Our results on vaccination are also consistent with another study (Ahmed et al., 2013) which found a low level of awareness of safe disposal of waste practices. This study contrasts with Khandait et al. (1999) and Shalaby et al. (2010), in that handwashing after each customer was a rare practice and most workers had low compliance, even though handwashing is a major factor for prevention of transmission of HBV between customers and from customers to workers.

CONCLUSION

This study found that overall; there is a low level of knowledge and safe practice regarding HBV and HIV among beauty salon and hairdresser workers. Common predictors for this low level of knowledge are female gender, low income, and serving a high number of customers per day. Therefore, programs and media campaigns are essential for raising awareness and the education of such people throughout society.

CONFLICT OF INTEREST

There is no conflict of interest declared by the authors.

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This project received no funds declared by the authors.

AUTHORS' CONTRIBUTIONS

Concept and study design by authors, using initials: TZ, SM, FA, NZ and WN. Data collection by SM & FA. Data analysis and interpretation by MZ. Manuscript drafting by TZ. Manuscript revision by TZ and WN. All authors approved the final version of this article. The guarantor of the study is TZ.

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