

Brief Original Article

Knowledge and awareness of Hepatitis B, Hepatitis C, and HIV among pregnant women in Pakistan

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Abstract

Introduction: Hepatitis B, Hepatitis C, and Human Immunodeficiency Virus (HIV) affect a significant proportion of the populace in developing countries. Pregnant women and deprived segments of the population are disproportionately affected. The aim of our study was to assess the awareness regarding the three blood-borne infections amongst pregnant Pakistani women belonging to low socioeconomic classes.

Methodology: A cross-sectional survey was conducted among 297 pregnant women at two antenatal healthcare facilities in Islamabad, Pakistan between September and November 2019. A pretested structured questionnaire was employed for data collection and knowledge levels were classified into three categories i.e. “Good”, “Average”, and “Poor” according to pre-set criteria. Data were analyzed using Microsoft Excel 2016 and SPSS Version 21.

Results: None of the study participants had “Good” knowledge regarding the three blood-borne infections. Around 52% of the women had “Poor” while 47% had “Average” knowledge. None of the study participants were aware that HIV can be transmitted during delivery. Women aged 30-35 years had significantly higher knowledge as compared to other age groups ($p < 0.001$). The difference in knowledge amongst women in association with education, income status, and previous pregnancies was not significant.

Conclusions: Awareness regarding Hepatitis B, Hepatitis C, and HIV amongst pregnant Pakistani women of low socioeconomic status is insufficient which can lead to an increased risk of acquiring these infections, especially during childbirth. It is vital to impart health education regarding these diseases and monitor hygiene standards in health care facilities.

Key words: Hepatitis B; hepatitis C; HIV; pregnant women; Pakistan.

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Introduction

Hepatitis B virus (HBV), Hepatitis C virus (HCV), and Human Immunodeficiency Virus (HIV) are blood-borne pathogens of global public health concern. Viral hepatitis is one of the leading causes of mortality worldwide leading to around 1.3 million deaths [1]. Globally, around 257 million population is infected with HBV, 71 million with chronic HCV infection [1], and 36 million with HIV [2]. Co-infection with HBV and HCV is common in HIV-infected individuals due to shared routes of transmission [3]. Pakistan and Egypt bear 80% of the disease burden of viral Hepatitis [4]. There are 150,000 new cases of Hepatitis B and C annually in Pakistan [4]. Pakistan has an estimated 1,83,705 people infected with HIV among which 21% are female and 3% are children. An estimated 3,701 women are in need of preventive services for mother-to-child transmission of HIV [5]. A recent study reported an unprecedented increase in pediatric HIV infection in Pakistan highlighting a 54% increase since 2013 [6].

Blood-borne infections are commonly transmitted through infected needles and instruments, transfusion of contaminated blood, and transmission from mother to child during pregnancy and childbirth [7,8]. In Pakistan, a large number of deliveries occur outside standard hospitals [9] resulting in an increased risk of transmission of infections due to unhygienic and substandard practices. The probability of becoming a chronic carrier of HBV, HCV, and HIV is considerably high if infected vertically, therefore prevention of transmission of these infections from mother to child is critical [10]. The aim of the current study was to determine the awareness levels among pregnant women belonging to the low socioeconomic class in Pakistan regarding Hepatitis B, Hepatitis C, and HIV.

Methodology

Study design and setting

A cross-sectional study was conducted at two antenatal healthcare facilities in Islamabad i.e., Shifa Foundation Clinic at Shifa International Hospital and

the community healthcare center at NurPur Shahan. Shifa Foundation Clinic provides tertiary antenatal care services to lower socio-economic classes in twin cities of Islamabad and Rawalpindi catering to a total population of around five million. NurPur Shahan community healthcare center is located in a deprived peri-urban area of Islamabad and delivers primary antenatal care services to around 200,000 women.

Data collection

A structured questionnaire was used to collect data from pregnant women between September 2019 and November 2019. The questionnaire was designed to measure socio-demographic parameters and awareness regarding Hepatitis B, C, and HIV amongst study participants. The questionnaire was finalized after pre-testing at both facilities a month before actual data collection. Knowledge and awareness levels were assessed by means of eleven questions. Knowledge was considered “Poor” if four or less than four questions were correctly answered, “Average” if eight or less than eight but greater than four questions were correctly answered, and “Good” if more than eight questions were answered accurately.

Sample Size and Sampling Technique

A sample size of 297 was calculated using the WHO sample size calculator keeping in view the combined Hepatitis B and C prevalence of 6% in Pakistan [11,12], the prevalence of HIV at 0.04% [13], and confidence interval as 95% with 5% margin of error. A non-probability consecutive sampling technique was used.

Trained research assistants collected data via face-to-face interviews with pregnant women.

Ethical considerations

Ethical approval was obtained from the Institutional Review Board and Ethical Committee (IRB & EC) of Shifa Tameer-e-Millat University, Islamabad (IRB No. 912-187-2017). Institutional approval was also obtained from the management of the two healthcare facilities. Written informed consent was sought from each respondent. Participants were assured of confidentiality at all times and were free to refuse participation or withdraw from the study at any time. Completed questionnaires were safely kept under lock and key and were accessible to the study investigators only. All healthy pregnant women presenting at the two clinics and consenting to participate in the study were included. Pregnant women who had received treatment for Hepatitis B, Hepatitis C, or HIV were excluded from the study, because they were more likely to have knowledge about the infections as compared to the general population.

Data management and analysis

Data were entered into a secure personal computer and analyzed using Microsoft Excel 2016 and SPSS Version 21. Descriptive statistics for demographic and knowledge-related data was determined and chi-square test was used to test for associations between study variables. A *p* value of ≤ 0.05 was considered statistically significant.

Results

Demographic characteristics of study participants

A total of 297 pregnant women were interviewed, out of which 227 (76%) were of Punjabi origin. Around 176 (60%) women were within the age range of 30-40 years. Almost one-third (32%) of pregnant women did not have any formal education. Nineteen percent were educated to primary school level while 18% had achieved secondary school education. A majority (75%) of the study participants had a monthly income greater than 30,000 Pakistan Rupees, equivalent to USD 187 (Table 1).

Personal history of study participants

A majority (92%) of pregnant women had delivered a child before and 73% of them had at least one delivery in a public sector hospital. Most of the participants (69%) preferred home birth over hospital birth as it was cheaper (Table 2).

Table 1. Socio-demographic characteristics of participants.

Characteristics	n (%)
Age group (years)	
25-30	50 (16.8)
30-35	85 (28.6)
35-40	91 (30.6)
> 40	71 (23.9)
Ethnicity	
Pathan	34 (11.4)
Punjabi	227 (76.4)
Afghani	2 (0.7)
Other	34 (11.4)
Education	
No Formal Education	95 (32.0)
Primary	56 (18.9)
Secondary	53 (17.8)
Above Secondary	93 (31.3)
Monthly income (PKR)	
< 10k	2 (0.7)
10-20k	2 (0.7)
20-30k	69 (23.2)
> 30k	224 (75.4)

Knowledge and Awareness about Hepatitis B, Hepatitis C, and HIV

A substantial number (96%) of pregnant women had visited a hospital at least once for antenatal care and a significant proportion (87%) had been tested for Hepatitis B and C as part of their antenatal care. None of them knew if they had been tested for HIV. None of the participants were able to correctly answer all questions designed to assess the knowledge of pregnant women regarding Hepatitis and HIV. Almost half of them (52%) had “Poor” knowledge while 47% had “Average” knowledge. None of the study participants (0%) were aware that HIV can be transmitted during birth (Table 3).

Awareness about sterile and hygienic conditions

Around 42% stated that other women shared their labor room during their previous delivery. The majority of women (93%) reported they had a dedicated attendant during labor and 98% declared that healthcare staff frequently switched between patients and rooms. About 69% recalled asking staff if they were using clean instruments. A small number of women (5%) had noticed bed sheets smeared with other patient’s blood. Ninety-five percent of respondents voiced that their attendant (relative: 46%, nurse: 42%) left the room during labour and 85% stated that their attendants wore face masks. The vast majority expressed that their health care attendants had washed their hands (100%), worn gloves (84%), clean clothes (100%), and face masks (90%) (Figure 1).

Association between knowledge and socio-demographic parameters

Our data showed that women in 30-35 years age group had significantly higher knowledge as compared to other age groups ($p < 0.001$). Differences in knowledge in association with education, income status, and previous pregnancies were not significant.

Table 2. Personal history of study participants.

History	n (%)
Have you had any previous pregnancies?	
No	25 (8.4)
Yes, one	107 (36.0)
Yes, more than one	165 (55.6)
Where did you have previous deliveries?	
Home	32 (10.8)
Midwife residence	4 (1.3)
Government Hospital	217 (73.1)
Private Hospital	44 (14.8)
If you were to choose home delivery over hospital, what could be the reason?	
It costs less	204 (68.7)
Distance to the health facility	43 (14.5)
Lack of privacy & presence of male staff	24 (8.1)
Wish to follow traditional birth practices	8 (2.7)
Other	18 (6.1)

Discussion

Hepatitis B, Hepatitis C, and HIV pose substantial health risks to the populace in developing countries [14]. The Sustainable Development Goals (SGDs) aim to improve health care delivery in developing countries and to eliminate Hepatitis and AIDS by 2030 [15]. Therefore, empowering service users with vital knowledge to question services providers regarding the standard of provided care is crucial. In our study, we found that pregnant Pakistani women had limited knowledge of Hepatitis B, Hepatitis C, and HIV.

Figure 1. Knowledge about sterile conditions during delivery.

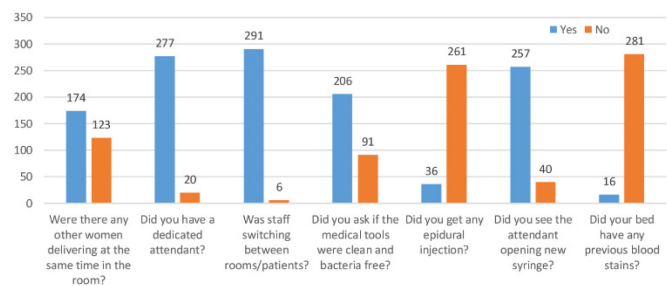


Table 3. Awareness regarding Hepatitis B, Hepatitis C, and HIV.

Question	n (%)	
	Yes	No
Have you heard of Hepatitis and HIV?	49 (16.5)	248 (83.5)
Do you know the types of Hepatitis?	262 (88.2)	35 (11.8)
Do you know what type of diseases Hepatitis B, Hepatitis C and HIV/AIDS are?	293 (98.7)	4 (1.3)
Do you know what effect Hepatitis B and C have on body?	296 (99.7)	1 (0.3)
Do you know what effect HIV has on body?	297 (100.0)	0 (0.0)
Do you know how HIV and Hepatitis B and C are transmitted?	268 (90.2)	29 (9.8)
Do you know you are exposed to infections during delivery?	152 (51.2)	145 (48.8)
Do you think your baby can get Hepatitis B, Hepatitis C and HIV during delivery?	276 (92.9)	21 (7.1)
Do you think you can get Hepatitis B, Hepatitis C and HIV during delivery?	253 (85.2)	44 (14.8)
Do you think Hepatitis B and C and HIV are preventable?	182 (61.3)	115 (38.7)
Do you know about hygienic measures health care attendants should observe?	221 (74.4)	76 (25.6)

Generally, they had heard about them but did not have any information regarding their mode of transmission. This is largely in line with results from other studies in developing countries. Studies conducted in Ethiopia and Ghana reported inadequately low levels of knowledge amongst pregnant women regarding HBV [16,17]. Cross-sectional studies conducted in China and Cameroon showed that less than 25% of pregnant women had accurate knowledge regarding Hepatitis B [18,19]. A study conducted in Egypt revealed deficiencies in knowledge regarding Hepatitis B and C amongst pregnant women with only one-third of participants being aware of their modes of transmission [20]. In our study, knowledge regarding HIV was comparable to that in developing parts of the world. Two Ethiopian studies demonstrated low levels of knowledge of mother-to-child transmission of HIV amongst pregnant women [21,22]. Similarly, a study conducted in Karachi, Pakistan found poor knowledge of HIV in pregnant women with only 14% exhibiting complete knowledge regarding its transmission and mere 6% regarding its prevention [23].

Most of our study population was of Punjabi origin. Punjab has the highest percentage of educated population as compared to other provinces of Pakistan [24]. Unfortunately, our study results revealed that knowledge regarding these infections was inadequate in Punjabi women, therefore it is also likely to be low amongst women from other provinces. We assumed that women's knowledge about these infections would be related to their educational level and previous pregnancy status but surprisingly our results demonstrated no significant association. This finding is in contrast to other studies where past pregnancy status [17] and educational levels [16-19, 22-23] were associated with higher levels of awareness. We also analyzed the correlation of age with knowledge regarding blood-borne infections. Our results exhibited that women in 30-35 years age group had greater awareness as compared to the other age groups. This may be due to the cumulative effects of general information through contacts and media rather than information delivered by health care providers. Healthcare in Pakistan is provided by both the public and private sectors but no independent and effective monitoring body exists to ensure the standardization of these facilities. A recent study illustrated the dismal situation of infection prevention and control (IPC) in healthcare facilities in Pakistan [25]. World Health Organization (WHO) advocates the use of sterile instruments, clean linen, gloves, hand hygiene, and dedicated staff during delivery [26]. A few study

participants declared blood-stained bed sheets and minimal use of personal protective equipment by healthcare staff during delivery, but the majority stated the use of clean instruments and dedicated attendants wearing gloves and face masks. This was a satisfying finding but on deeper questioning, we realized that participants were not aware of whether the instruments were sterile or only clean and dedicated attendant was an untrained relative in a majority of the cases.

Antenatal care guidelines advocate counseling regarding infection risks as an essential part of the consultation. Testing for Hepatitis B, Hepatitis C, and HIV is an integral component of antenatal care. However, a large proportion of women were not aware of their disease status in our study. This suggests that health care providers are not guiding and informing women as per standard care principles. It also highlights missed opportunities for counseling women who attend health clinics during antenatal, natal, and post-natal period.

Conclusions

Our study reveals critical deficiencies in knowledge regarding blood-borne infections amongst pregnant Pakistani women. Empowering women with an adequate understanding of these diseases and their risks via health education is essential. The national government has a critical role to play in imparting education regarding these infections on a significant scale. Our results also highlight the need for monitoring healthcare facilities to ascertain the safety of delivered health care services.

Authors Contributions

Farah Gul contributed to study conceptualization, design, execution, data collection and manuscript writing. Saba Savul conducted data analysis and assisted in drafting of manuscript. Rahila Aamir, Tehzeeb Zehra and Hasan Mujtaba reviewed the study and gave intellectual input for refining it. Fouzia Sadiq supervised the project, contributing to the conceptualization, design and manuscript writing.

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