INTRODUCTION

Cross infection control is of immense importance in dentistry as it plays a huge role in the success and failure of dental procedures and in some cases may avoid potentially life-threatening situations. Cross infection is the transfer of harmful microorganisms including bacteria, viruses and fungi from a diseased to a healthy individual. Cross infection is a prevalent problem worldwide particularly in developing countries including Pakistan where it is a significant cause of morbidity and mortality associated with healthcare.

Dental clinics may provide an ideal environment for microbial transmission if not properly managed. The microbes may include life-threatening viruses such as Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV). Transmission of these pathogens pose a significant risk to both patient and the dentist. Evidence suggests that a dentist can act as a vector for the spread of various lethal infections. According to a research carried out by Al Faleh et al in Saudi Arabia the prevalence for HBV and HCV was found to be 3-6% and 0.4-1.1% respectively in patients. Similarly, another research by Butt AA et al in Pakistan showed that dental clinics were the leading cause of spread of HCV infection.

The center for disease control and prevention (CDC, 2005) has given some important guidelines related to infection control in health care setup. The CDC recommends “standard precautions” which are designed to protect health care professionals and patients from hospital acquired infections. Despite the steps taken by CDC against cross infection spread, many practitioners are still unaware of these guidelines and the risk of dental clinic acquired infections is still high. Lack of trained staff and inappropriate use of available resources are also responsible for spread of infections. Most dental clinics in Pakistan do not function according to the existing international standards. To the best of our knowledge, there is a lack of research based documented infection control guidelines for dental practice in Pakistan.

Therefore, the aim of this study was to assess the knowledge, attitude and practices of dental practitioners working in representative teaching hospitals in Peshawar.
A cross sectional study was carried out on dental practitioners of private dental colleges of Peshawar including Sardar Begam Dental College (SBDC), Peshawar Dental College (PDC) and Rehman College of Dentistry (RCD). A self-administered, standardized questionnaire consisting of mix closed-ended and open-ended questions. It also contained multiple choice questions and dichotomous questions which were designed to assess the dental practitioners’ knowledge of cross infection control. The aim of study was explained to every participant and verbal informed consents were obtained. 54 closed ended questions regarding knowledge, attitude and practices, immunizations, personal protective equipment, and sterilization were included in the questionnaire.

A total of 219 dentists were evaluated by convenience sampling method. Pure academicians and those working in private clinics were excluded. Questionnaires were mailed to the practitioners and their responses were recorded. To ensure compliance, the remaining data was collected by meeting the practitioners themselves and presenting them the questionnaire in Google Forms via electronic media (Tablets and iPads). The study was conducted in December 2019. The minimum required education was BDS or DDS. However, final year BDS students were also included. The data was analysed using Microsoft excel 2016.

### RESULTS

In this study, about 54.3% considered it important to have knowledge about transmissible infections [Table 1. Hand washing was considered important by 58.9% of the study participants. Masks, gloves and
eye wear was considered an important part of the practice by 61.6%, 58% and 54.3% of the dentists respectively. 42% of the partakers always wash hands before seeing a patient while 9.5% never wash hands. 47.5% of the dentists wear the same mask throughout the clinical session. Eye wear is used invariably by 41.1% of the participants while 2.7% never use eye wear.

Infection of dental unit after seeing each patient is done by 34.2%. Less than 50% i.e. 44.7% always flush handpieces and only 28.8% use isolation methods i.e.uber dams. 45.7% always disinfect impressions before taking it to the lab [Table 2]. When questioned about the vaccination, 57% were vaccinated against Hepatitis virus. 70% and 71.2% were vaccinated against tetanus and measles respectively.

The percentage of Hepatitis B vaccination was found to be 91.3% [Figure 1].

**DISCUSSION**

Spread of infectious diseases is a major problem in the developing world. Health professionals play an important role in the prevention of cross infection. Health professionals should be equipped with sound knowledge of cross infection control and receive rigorous training to follow strict cross infection control guidelines during clinical practice. However if health professionals develop the wrong reflexes about cross infection control during their training, they can expose themselves and their patients to serious and life threatening infections. Due to the nature of procedures they carry out, dentists in particular can play a major role in prevention of cross infection. Awareness about cross infection has significantly grown during the past decade although health professionals and health facilities continue to be sources of spread of infectious diseases.

Pakistan, particularly KPK has been a high-risk region when it comes to chronic Hepatitis B &C infections. Khan et al in his study stated that about 2.71% of the population in KPK was infected with Hepatitis B infection. Similarly, in 2019, WHO claimed that about 5-10%

In our study, 81% dentists practiced washing hands before and after seeing the patient. A study from Karachi, Pakistan, reported that 93.3% dentists wash hands before and after touching the patient. Another study 100% of dentists washed hands before and after seeing patients[6]. More than half (61%) of the participants in this study considered masks as a highly important component of the infection control which is in agreement with another study where they reported 74.2% dentists having similar views. Dentists are always prone to needle injuries and this may predispose to dentists contracting blood borne viruses like Hepatitis B &C. It is highly recommended for a dentist to be immunized against Hepatitis B. In the current study 91.3% of dentists were vaccinated against Hepatitis as compared to 91.3% and 71.7% reported elsewhere[18] Another study showed that only 36.6% of the dental surgeons were vaccinated against Hepatitis B in Peru[8]. Vaccination status of dentists in the current study showed that 98.8% of the dentists believe that vaccination is very important. Eyes can be a portal of entry for a number of viruses through aerosol generating procedures. Eye wear is an indispensable component of Personal Protective Equipment. Our results are consistent with a study from Lebanon where 43% of the dentists reported use protective eye wear[9]. Other studies have found different proportions of dentists using protective eye wear ranging from 14% to 80.8%. Moradi states that the use of eye wear is by only 7% of the Iranian dentists which is a significantly low value when compared to our study[10]. Sufia S. et al expressed that 77.2% and 70% of dentists used gloves, eye wear respectively while 72.2% were aware of the spread of BBVs.

The knowledge scores in the current study were somewhat lower compared to studies carried out in other countries which can be attributed to the lack of infection control guidelines at national level and deficiencies in the curriculum[10,11,12]. The results of our study, when juxtaposed with previous studies conducted in Pakistan, are encouraging which can be due to the improved knowledge and awareness levels of clinicians over time. The observed dissimilarity can also be ascribed to the difference in conduction times of various studies. Differences in study methodologies can also account for the differences seen among various studies. In this study only the private sector hospitals were included which limits the extrinsic factor to the population of our study. Moreover, male to female ratio was unequal with 83.5% males and 16.5% females. Further research is required regarding cross infection control in the region to address these issues. Also, the attitude and perception of patients as well as dental assistants play a vital role in this aspect which needs to be studied further.
CONCLUSION

We conclude that there are critical deficiencies in the knowledge and practices of dental clinicians of Peshawar region regarding cross infection control. This can expose dentists and their patients to potentially life-threatening infections. Therefore, there is an urgent need to develop and implement strict infection control guidelines on national level. In addition, knowledge and practice of infections control guidelines should be made an essential part of undergraduate dental curriculum and training and further reinforced by regular continuing dental education programs.

REFERENCES