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Abstract

Background: Adherence to infection prevention and control (IPC) guidelines is mandatory in healthcare service provision.

Aims: We assessed the knowledge and adherence to IPC guidelines among dentists in the West Bank and Jerusalem.

Methods: A self-administered questionnaire was distributed to a convenience sample of dentists in the West Bank and Jerusalem between 12 March 2019 and 9 May 2019. The total sample comprised 395 dentists, categorized into good compliance and fair compliance according to a scale developed from 32 questions. The Chi-squared test was used to compare the 2 categories. Data were analysed using SPSS, version 25.

Results: Overall compliance with IPC guidelines was low; only 18.5% of respondents reported good compliance. Compliance with basic principles such as wearing gloves and changing them for each patient and using autoclaves to sterilize equipment was high. Good compliance was significantly associated with age, years of experience, and year of graduation, $P = 0.045$, $P = 0.036$ and $P = 0.007$, respectively. Providers in the north of West Bank and public sector workers were significantly associated with good compliance, $P = 0.018$ and $P \leq 0.0001$, respectively. Experiencing a needle stick injury and the number of needle stick injuries experienced were significantly inversely associated with good compliance, $P \leq 0.001$.

Conclusion: Based on our results, there is a need for substantial improvements in compliance with IPC guidelines by dentists in the West Bank and Jerusalem; mandatory education and training regulated by governing institutions would be very helpful.

Keywords: dentists, guidelines, infection prevention and control, compliance, knowledge, West Bank, Jerusalem

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Introduction

Infection prevention and control (IPC) is a basic component of dental practice to ensure a secure working environment and preserve the health of dental staff and patients (1,2). Transmission of infection is bidirectional, from patient to dental staff and vice versa. Infection may also be transmitted from patient to patient through contaminated instruments (1,3,4). Implementation of universal precautions, immunization against infectious diseases, use of personal protective equipment, disinfection, sterilization and proper handling and exposure management of sharp instruments are the main strategies recommended by the World Health Organization (WHO) to protect healthcare workers (5). The United States Centers for Disease Control and Prevention (US CDC) issued guidelines that provides detail information the infection control elements for dental staff (1). In 2017, the Palestinian Ministry of Health published a manual of policies and procedures for infection control in health institutions; which includes policies pertaining to the dental department and a checklist for the evaluation of dental clinics (6).

IPC principles are similar around the world, but adherence to the guidelines varies widely between countries, and even among dentists within a country (7,8). A significant variation was

found between developed and developing countries. Lack of knowledge and a shortage of resources are common reasons for noncompliance with IPC principles in developing countries (7). Compliance with the guidelines may be affected by the experience and education of the dentist and the presence of clear and comprehensive policies for application and monitoring of the procedures. It may also be related to the dentist's behaviours regarding IPC procedures. Sometimes compliance is influenced by the perception of ethical and legal responsibility of the dentist to their patients and the community (2,9).

Although the risk of cross-infection in the dental setting is low, transmission of infection is still a possibility and should not be neglected (10). With asymptomatic infection or long incubation period, symptoms may appear weeks or months after the actual transmission and may exacerbate the risk of transmission in the dental setting, thus making it difficult to conduct retrospective inquiry to assess the possibility of health-care-associated infection (2,3). Most exposures to contagious materials in dental practice are preventable and can be avoided by considering every patient as potentially infected and therefore observing IPC precautions strictly (8,10–12).

The objectives of this study were to identify dentists' knowledge and perceptions of the risk associated with transmission of infection in dental clinics in the West Bank and Jerusalem and to assess the dentists' compliance with IPC principles.

Methods

This cross-sectional survey was conducted using the convenience sampling method to identify dentists' routine practices regarding IPC precautions in the West Bank and Jerusalem between 12 March 2019 and 9 May 2019. A self-administered questionnaire was developed based on previous literature, US CDC guidelines and the Ministry of Health manual (1,6,13,14) as no validated questionnaires to measure IPC procedures were available. The questionnaire was posted on the official dentists' Facebook and WhatsApp groups, and sent by email to dentists whose emails were available. To increase the response rate, we distributed hard copies of the questionnaire at the dental scientific day held in Jericho on 5 April 2019, and in Jenin, Hebron and Ramallah. The dentists were informed that the questionnaire was distributed through the 3 channels to prevent duplicate response.

In the West Bank and Jerusalem 3373 dentists were licensed to practice dentistry according to the Palestinian Dental Association records for 2019. The eligibility criteria for our study were: dentists registered with the Palestinian Dental Association and working with a valid license in the West Bank and Jerusalem.

Using an online sample size calculator (http://www.raosoft.com/samplesize.html), the sample size was 345, assuming a 50% adherence to infection guidelines with a 5% margin of error and a confidence level of 95%. In total, 449 questionnaires were returned; 155 were returned from the 185 hard copies distributed. Dentists in training who graduated in 2018 were excluded. Another 23 respondents were excluded during data entry because they had missing data, so the final number of participants was 395. A test survey was conducted with 12 dentists selected randomly from the Palestinian Dental Association list to ensure the clarity, unambiguousness and relevance of the questions, and to estimate the time required to complete the questionnaire. The questions were modified based on their feedback. The average time to answer the questions was 10–15 minutes, and the test respondents were excluded from the main study. The final version of the questionnaire comprised 46 questions inquiring about the dentists' personal information, training and education, vaccination against hepatitis B virus, personal protection equipment, dental waste management and sterilization methods used.

Overall compliance with IPC principles was measured by amassing the correct answers from participants and building a scale from 32 questions with internal consistency (Cronbach's alpha) 0.76 (questionnaire available on request). For yes/no questions, "yes" was considered the correct answer, while "always" was considered the correct answer for frequency questions. Open questions were correctly answered as: single-handed recapping of needles, disposing of the sharps box in a special container, using only autoclave or autoclave with other sterilization methods, using biological indicators for monitoring the sterilization cycle with other indicators, and using only sodium hypochlorite (NaOCL) for surface disinfection. The answers were considered correct if they complied with the directives in the US CDC and local Ministry of Health manuals (1,6). The number of correct answers ranged between 7 and 30 from the total of 32, and compliance was ranked into 2 categories. Dentists who answered