Evaluation of oral care protocols practice by professionals towards HIV/AIDS individuals

CURRENT STATUS: ACCEPTED

Carina Maciel Silva-Boghossian  carinabogho@unigranrio.edu.br
Universidade do Grande Rio
Corresponding Author
ORCiD: 0000-0002-4500-4350

Brenda Azzariti Berrondo Boscardini
Universidade do Grande Rio

Claudia Maria Pereira
Universidade do Grande Rio

Edson Jorge Lima Moreira
Universidade do Grande Rio

DOI:
10.21203/rs.2.16825/v1

SUBJECT AREAS
Head & Neck Surgery

KEYWORDS
dental professional, dentist, oral health, HIV, AIDS
Abstract

Background The aim of this study was to evaluate the dentists’ knowledge and practice regarding HIV positive individuals’ oral care.

Methods Dentists from Rio de Janeiro State (n = 242) answered an electronic questionnaire on biosafety procedures, oral manifestations of AIDS, and knowledge of HIV infection. Data were analyzed using Chi-square and t tests.

Results From the 14 oral manifestations investigated, oral candidiasis, necrotizing ulcerative gingivitis, and hairy leucoplakia were more associated with HIV, with no differences between the responses from men and women. Above 85% of the participants would be concerned about becoming infected with HIV after a needle/sharp object injury and more than 80% them were willing to be tested for HIV. However, significantly more women (98.8%), compared to men (91.3%), said they knew that HIV/AIDS patients can contaminate dental care professionals, p = 0.007. There was a significant difference in the answers for the questions: “Are there special dental clinics for treatment of HIV/AIDS patients in Brazil?” (p = 0.044), and “Do the negative HIV tests surely indicate that the persons are free of viruses?” (p = 0.005). Significant differences between men and women were also observed regarding use of disposable mask (p = 0.01), and cap (p < 0.0001).

Conclusion Most dentists who participated in the study presented a good knowledge on the care of HIV/AIDS individuals, including biosafety protocols and in terms of the oral manifestations commonly associated to AIDS.

Background

After decades of its discovery, the human immunodeficiency virus (HIV) infection is still an alarming health public problem [1, 2]. Infected individuals may develop the acquired immune deficiency syndrome (AIDS) when the infection reaches advanced stages [2]. In
that condition, immunosuppression is measured through the evaluation of CD4+
lymphocytes as well as the counts of virus particles in carriers’ blood. Levels of CD4+
bellow 200 mg/ dL indicates deficient immune response, which is one important indicator
for highly active antiretroviral therapy (HAART) initiation [3]. Due to HAART, currently,
there are millions of people living with HIV in the world without AIDS symptoms [3–5].
However, non-symptomatic HIV+ individuals may still transmit the virus through sex
without preservatives, shared needles, needle stick accident, pregnant women and even
nursing mothers [5]. Therefore, routine screening tests for the identification of HIV
infection is still necessary in order to avoid spreading of contamination [2].
Additionally, HIV+ individuals may have oral pathognomonic manifestations of AIDS,
including oral candidiasis, hairy leucoplasia, Kaposi sarcoma, linear gingival erythema,
necrotizing ulcerative gingivitis, necrotizing ulcerative periodontitis, and non-Hodgkin
lymphoma [6–9]. Those oral lesions may work as an indicator of infection progression [6–
8]. Therefore, oral cavity clinical signs become extremely important for the primarily
presumption for HIV infection [10]. In fact, dental surgeons may be the first health
professionals to suspect of positivity [11].
Furthermore, during dental treatment, there is a considerable risk of cross-contamination
[12]. Cross-infection may occur by accident with cutting or puncture contaminated
material, for example, needle perforation [13]. Dental treatment sets are a perfect
candidate place to occur cross-contamination due to saliva and blood sprays produced
during treatment. However, it is worth to mention that the risk of HIV infection in that
environment is reported to be very low, around 0.3% [14, 15]. Nonetheless, dentists must
be well prepared to provide adequate attention to the increasing number of people living
with HIV. In this scenario, it includes accurate diagnosis and treatment plan conducted
under conditions that allow infection control [16]. Thus, the aim of this study was to
evaluate the dental surgeons’ knowledge and practice regarding patient care towards HIV positive individuals.

Methods

This cross-sectional study was carried out from January to July 2018. Electronic questionnaire was developed in Google Forms, containing 47 questions, which included questions about dental care for HIV+ patients. The participants were dental surgeons regularly register in the Regional Council of Dentistry of Rio de Janeiro state (CRO-RJ). This study was submitted and approved by the Research Ethics Committee of Unigranrio (#2335672). Informed consent was obtained from all participants. The electronic questionnaire was sent to about 6000 professionals registered at CRO-RJ to their email addresses. Details of the four parts of the questionnaire can be found in a previous work [17].

Data Analysis

All statistical tests used in the present study were performed with a statistical program (SPSS Statistics 20, IBM Brazil, São Paulo, Brazil). The distribution of specific responses on HIV+ patients were analyzed by grouping by gender. The tests used to evaluate significant differences between groups were t-test for independent samples and Chi-square. The level of significance established for all analyzes was 5%.

Results

Table 1 presents demographic characteristics of the participants (n = 242). The majority of participants were female (n = 162; 67%). Women (37.9 ± 10.7 years) were significantly younger than men (42.9 ± 12.1; p = 0.001, T test). Professionals with a previous
biomedical education other than Dentistry were 6.8% of women and 5% of mean. A significant difference in years of graduation from university was found between women 14.5 (± 11.3) and men 18.4 (± 11.1), p = 0.012. Several participants had more than one dental specialization among the 21 areas cited. This accounted for 16% of women and 21.3% of men (p = 0.024; Chi-square test). Most of the participants, 67.1% of women and 61.3% of men, worked in only one dental clinic.

Most participants answered ‘yes’ to the question ‘Can HIV/AIDS individuals be diagnosed with oral lesions?’, accounting for 82.7% of women and 75% of men (Table 2). Table 2 is also presenting participants’ responses when they were asked if a list of oral manifestations were associated to HIV. Most part of answers were positive ('yes') for Kaposi’s sarcoma (89.5% of women and 90% of men), oral candidiasis (85.2% of women and 82.5% of men), hairy leukoplakia (63% of women and 60%) and necrotizing ulcerative gingivitis (71% of women and 62.5% of men). On the other hand, positive answers were below 50% for the remaining oral manifestations investigated. There was no significant difference in the distribution of answers between women and men.

Table 3 shows the distribution of answers related to professionals’ knowledge on biosafety and the care of HIV+ individuals. A significant number of professionals were worried about acquiring the virus after an accident with a contaminated sharp object (87.7% of women and 85% of men). Most professionals would be willing to be tested for HIV after the accident (82.7% of women and 80% of men) and said that dental professionals can intermediate the transmission of HIV (83.3% of women and 88.8% of men). Additionally, the majority said that medical care professionals are more prone to cross-infection related to HIV (98.8% of women and 91.3% of men). Only 19.1% of women and 27.5% of men said that the HIV tests present a 100% specificity.

Table 4 presents the frequency of use of physical barriers according to gender. Although
both groups do use mask with all patients (98.8% of women; 92.5% of men), this was significantly different between them \((p = 0.01)\). Most of the women (92%) wear a cap during work, which was significantly higher than men (48.8%; \(p < 0.0001\)). In terms of other means of physical protection (protection goggles; 1 pair of gloves that is changed between patients; 2 pairs of gloves that are changed between patients; autoclaved handpiece; disposable gown; and plastic wrap), no statistical difference was detected between genders.

Most respondents answered “no” to question, 75% of women and 69.8% of men, to the question “Now, is AIDS the most important health problem in the world?” (Figure 1).

**Discussion**

AIDS still figures among the ten major and most important world health problems, despite all progress in the studies focusing on the virus and transmission prevention. Therefore, it is imperative that dental professionals have all possible knowledge towards HIV+ patients’ care, mainly when it comes to cross contamination and pathogen dissemination. Having that in mind, the aim of the current investigation was to evaluate the level of dental care professionals’ knowledge and practice in relation to HIV/AIDS individuals in the State of Rio de Janeiro, Brazil.

At the beginning of this study, it was possible to reach about 5,000 dentists through their e-mails registered at the state dental council of Rio de Janeiro. However, only 242 of those professionals accepted to participate in the study, representing a low response rate (4.8%). Nonetheless, it is still a comparable sample size to other studies [13, 18, 19]. In the study of Maia et al. [13], 170 dentists from Northeast Brazil were included; in Senna et al. [18], 140 dentists answered a questionnaire in another state capital. In the current investigation, most participants were women (66.9%). A predominance of female participants (64.3%) was also reported in other studies [18, 19].
More than 75% of participants know that HIV/ AIDS individuals can be diagnosed with oral manifestations. Moreover, most participants said that Kaposi’s sarcoma (89.5% of women and 90% of men) and oral candidiasis (85.2% of women and 82.5% of men) are oral signs of HIV/ AIDS. Those diseases seem to be the most known by dentists as related to HIV/ AIDS, as it was demonstrate by other studies [12, 20, 21]. In Oliveira et al. [20], 92.5% e 90.3% of participants said that Kaposi’s sarcoma and oral candidiasis, respectively, are oral manifestations of HIV/ AIDS. Similarly, Oberoi et al. [21] presented a percentage of “yes” of 95% for oral candidiasis, 86% for Kaposi’s sarcoma, 88% for necrotizing ulcerative gingivitis, 85% for hairy leukoplakia, 81% for Herpes zoster and major aphthous and 75% for salivary gland infection. In Sadeghi and Hakimi [12] work, several lesions were pointed out as associated to HIV/ AIDS, such as oral candidiasis (98%), Kaposi’s sarcoma (94%), necrotizing ulcerative gingivitis (91%), severe periodontitis (88%), cytomegalovirus (87.6%), gingivitis (83%), xerostomia (83%), hairy leukoplakia (82%), salivary gland infection (81%), herpes zoster (79%), herpes simplex (77%) and lichen planus (54%). Interestingly, despite oral herpes simplex being an oral pathognomonic marker of HIV, current results showed a low rate of positive answers relating these lesions to HIV+.

Regarding accident with sharp objects, above 85% of the participants answered that HIV is transmitted via needle stick injury, which is in accordance with previous reports with dental students [10, 12, 17, 22, 23]. Nevertheless, this notion is not universal, as demonstrated by Aggarwal and Panat [24]. In the study of Rostamzadeh et al. [19] only 84% of the dentists affirmed that HIV/ AIDS prophylaxis is recommended after a needlestick injury.

Additionally, current data demonstrated that nearly 100% of individuals were worried of acquiring HIV after sharp object accident and would be taking a test afterwards. Those
findings are a reflection of a great awareness on the existing risk in the injury with contaminated sharp objects [21, 25]. However, in another study [20], only 48% of participants said that they would be tested for HIV after a sharp object accident. Despite that low rate of concern with accidents, in Maia et al. [13] dentists presented major concerns in terms of work conditions in the care of HIV/AIDS individuals. In that study, it was demonstrated that dentists who had continuous education towards HIV/AIDS individuals’ care might feel more confident to provide better care. Interestingly, a Canadian study showed that people living with HIV/AIDS would prefer to be treated by dentists who are knowledgeable on the condition and with previous experience in treating carriers [26]. In fact, participants of that study believed that an increase in the knowledge and in the clinical experience may create an improved relationship between the patient and the professional.

In the current study, it was shown that disposable masks are used by almost every participant. The use of cap was significantly different between men and women. This could be explained by the fact that women are more worried with their hair contamination when there is a contaminated spray produced during handpiece use. In terms of using protection goggles, the current data is much higher to the ones reported by Oliveira et al. [20], in which 8% of women and 21% of men used it with all patients. Overall, current findings showed that the use of individual protection equipment were more frequent when compared to another study [19].

In general, current participants consider AIDS, nowadays, as not the most important health problem in the world. It is in accordance with other studies, in which 68% [12] and 65% [24] of participants had similar answers. It is a fact that worldwide efforts on implementation of HAART have guaranteed longevity and quality of life to the ones living with HIV/AIDS. Therefore, currently, it is not the most important health problem in the
world. Nonetheless, it still is among the 10 major health problems in the world [5].

Not only is preventive approach a must in daily dental clinics, but it is also essential that dentists may be able to provide incipient diagnoses through the evaluation of oral cavity manifestations of HIV/AIDS. Ultimately, a good oral health will contribute for a good quality of life.

Conclusion

Most dentists who participated in the study presented a good knowledge on the care of HIV/AIDS individuals, including biosafety protocols and in terms of the most common oral manifestations associated to AIDS.

Declarations

Abbreviations

AIDS: Acquired Immune Deficiency Syndrome; HAART: highly active antiretroviral therapy; HIV: human immunodeficiency virus.

Ethics approval and consent to participate

This study was submitted and approved by the Research Ethics Committee of Unigranrio (# 2335672). Informed consent was obtained from all participants.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

Authors declare no conflict of interest.

Funding
Author B.A.B.B. was supported with a student scholarship provided by National Foundation for the Development of Private Higher Education.

Authors' contributions

B.A.B.B. designed the project, collected, analyzed and interpreted obtained data and wrote draft. C.M.P. analyzed and interpreted obtained data and wrote draft. E.J.L.M. collected data. C.M.S.B. designed the project, collected, analyzed and interpreted obtained data, and wrote draft. All authors read and approved the final manuscript.

Acknowledgements

This work was presented as undergraduate course conclusion paper, and it was supported in part by National Foundation for the Development of Private Higher Education, Funadesp, Brasilia, Brazil.

References

1. World Health Organization. HIV/AIDS. Key facts. 2019. https://www.who.int/news-room/fact-sheets/detail/hiv-aids. Accessed 7 Oct 2019.

2. UNAIDS. Joint United Nations Programme on HIV/AIDS. Ending AIDS Progress towards the 90-90-90 targets. GLOBAL AIDS UPDATE 2017. http://www.unaids.org/sites/default/files/media_asset/Global_AIDS_update_2017_en.pdf. Accessed 7 Oct 2019.

3. Ministério da Saúde. [Protocolo Clínico e Diretrizes Terapêuticas HIV/AIDS]. 2018. http://www.aids.gov.br/pt-br/profissionais-de-saude/hiv/protocolos-clinicos-e-manuais. Accessed 7 Oct 2019.

4. UNAIDS. AIDSinfo Factsheets 2016. http://aidsinfo.unaids.org/. Accessed 7 Oct 2019.

5. UNAIDS. Joint United Nations Programme on HIV/AIDS. How to get to zero: Faster. Smarter. Better. World AIDS Day Report 2011. http://www.unaids.org/sites/default/files/media_asset/JC2216_WorldAIDSday_report_2011_e
6. [No authors listed]. Classification and diagnostic criteria for oral lesions in HIV infection. EC-Clearinghouse on Oral Problems Related to HIV Infection and WHO Collaborating Centre on Oral Manifestations of the Immunodeficiency Virus. J Oral Pathol Med. 1993;22(7):289–91.

7. Feigal DW, Katz MH, Greenspan D, Westenhouse J, Winkelstein W, Jr., Lang W, et al. The prevalence of oral lesions in HIV-infected homosexual and bisexual men: three San Francisco epidemiological cohorts. AIDS. 1991;5(5):519–25.

8. Greenspan JS. Sentinels and signposts: the epidemiology and significance of the oral manifestations of HIV disease. Oral Dis. 1997;3 Suppl 1:S13–7.

9. Tappuni AR, Fleming GJ. The effect of antiretroviral therapy on the prevalence of oral manifestations in HIV-infected patients: a UK study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2001;92(6):623–8.

10. Singh VP, Osman IS, Rahmat NA, Bakar NAA, Razak N, Nettem S. Knowledge and Attitude of Dental Students towards HIV/AIDS Patients in Melaka, Malaysia. Malays J Med Sci. 2017;24(3):73–82.

11. McLean AT, Wheeler EK, Cameron S, Baker D. HIV and dentistry in Australia: clinical and legal issues impacting on dental care. Aust Dent J. 2012;57(3):256–70.

12. Sadeghi M, Hakimi H. Iranian dental students’ knowledge of and attitudes towards HIV/AIDS patients. J Dent Educ. 2009;73(6):740–5.

13. Maia LA, Vieira-Meyer APGF, Nuto SAS, Morais APP, Menezes EAV. Atenção à saúde bucal das Pessoas que Vivem com HIV/AIDS na perspectiva dos cirurgiões-dentistas. Saúde Debate. 2015;39(106):730–47.

14. Blignaut E. The role of the dental profession in the AIDS epidemic. J Dent Assoc S Afr. 1994;49(3):133–5.
15. [No authors listed]. HIV epidemic—a global update. Excerpts from the UN World AIDS Day report. Health Millions. 1998;24(1):3-5.

16. UNAIDS. Report on the Global AIDS Epidemic 2010-2010 [Sept-26-2019].
https://www.unaids.org/en/resources/documents/2010/20101123_globalreport. Accessed 7 Oct 2019.

17. Lorosa AH, Pereira CM, Hussne RP, Silva-Boghossian CM. Evaluation of dental students’ knowledge and patient care towards HIV/AIDS individuals. Eur J Dent Educ. 2019;23(2):212-9.

18. Senna MI, Guimaraes MD, Pordeus IA. [Factors associated with dentists’ willingness to treat HIV/AIDS patients in the National Health System in Belo Horizonte, Minas Gerais, Brazil]. Cad Saude Publica. 2005;21(1):217-25.

19. Rostamzadeh M, Afkhamzadeh A, Afrooz S, Mohamadi K, Rasouli MA. Dentists’ knowledge, attitudes and practices regarding Hepatitis B and C and HIV/AIDS in Sanandaj, Iran. BMC Oral Health. 2018;18(1):220.

20. Oliveira ER, Narendran S, Falcao A. Brazilian dental students’ knowledge and attitudes towards HIV infection. AIDS Care. 2002;14(4):569-76.

21. Oberoi SS, Sharma N, Mohanty V, Marya C, Rekhi A, Oberoi A. Knowledge and Attitude of Faculty Members Working in Dental Institutions towards the Dental Treatment of Patients with HIV/AIDS. Int Sch Res Notices. 2014;2014:429692.

22. Ellepola AN, Joseph BK, Sundaram DB, Sharma PN. Knowledge and attitudes towards HIV/AIDS amongst Kuwait University dental students. Eur J Dent Educ. 2011;15(3):165-71.

23. Hamid Albujeer AN, Shamshiri AR, Taher A. HIV/AIDS awareness among Iraqi medical and dental students. J Int Soc Prev Community Dent. 2015;5(5):372-6.

24. Aggarwal A, Panat SR. Knowledge, attitude, and behavior in managing patients with HIV/AIDS among a group of Indian dental students. J Dent Educ. 2013;77(9):1209-17.
25. Oberoi SS, Marya CM, Sharma N, Mohanty V, Marwah M, Oberoi A. Knowledge and attitude of Indian clinical dental students towards the dental treatment of patients with human immunodeficiency virus (HIV)/acquired immune-deficiency syndrome (AIDS). Int Dent J. 2014;64(6):324–32.

26. Brondani MA, Phillips JC, Kerston RP, Moniri NR. Stigma around Hiv in Dental Care: Patients’ Experiences. J Can Dent Assoc. 2016;82:g1.

Tables

**Table 1.** Demographic characteristics of the study participants according to gender.
### Variables

|                     | Female (n = 162) | Male (n = 80) | P value |
|---------------------|------------------|---------------|---------|
| Mean age in years (± standard-deviation) | 37.9 (10.7)      | 42.9 (12.1)   | 0.001†  |
| Degree in another biomedical profession (%yes) | 6.8              | 5             | >0.05   |
| Years of graduation from university (±standard-deviation) | 14.5 (11.3)      | 18.4 (11.1)   | 0.012†  |

### Participants’ specialty

| Specialty                  | Female | Male | P value |
|----------------------------|--------|------|---------|
| CBMF                       | 0.6    | 10   | 0.024*  |
| Restorative dentistry      | 1.9    | 2.5  |         |
| DTM                        | 0.6    | 0    |         |
| Endodontics                | 11.7   | 7.5  |         |
| Estomatology               | 1.2    | 1.3  |         |
| Dental service management  | 0      | 1.3  |         |
| Implant dentistry          | 4.9    | 3.8  |         |
| Geriatric dentistry        | 0.6    | 0    |         |
| Work dentistry             | 0      | 1.3  |         |
| Hospital dentistry         | 0.6    | 1.3  |         |
| Legal dentistry            | 0.6    | 1.3  |         |
| Pediatrics dentistry       | 14.2   | 3.8  |         |
| Orthodontics               | 10.5   | 5    |         |
| Oral pathology             | 0      | 1.3  |         |
| Periodontics               | 9.3    | 8.8  |         |
| PNE                        | 0.6    | 0    |         |
| Dental prosthesis          | 3.7    | 11.3 |         |
| Oral radiology             | 0.6    | 1.3  |         |
| Family health              | 3.1    | 1.3  |         |
| Public health              | 0.6    | 1.3  |         |
| Semiology                  | 0.6    | 0    |         |
| More than one specialty    | 16     | 21.3 |         |
| No specialty               | 17.9   | 15   |         |

### Work location (public or private service)

| Location                  | Female | Male | P value |
|---------------------------|--------|------|---------|
| Only one                  | 67.1   | 61.3 | >0.05   |
| More than one             | 31.1   | 37.5 |         |
| Do not work in clinical settings‡ | 1.9    | 1.3  |         |

*Chi-square test; † T test for independent samples; ‡ work in education, for example; CBMF: oral and maxillofacial surgery; DTM: temporomandibular joint dysfunction; NS: non-significant; PNE: special needs patients.

**Table 2.** Distribution of answers on the professionals’ knowledge regarding oral manifestations in HIV/ AIDS individuals.
Table 4. Responses to measures of infection control of HIV transmission according to gender.

| Oral manifestations | % answer | P value |
|---------------------|----------|---------|
|                     | Women (n = 162) | Men (n = 80) |   |
|                     | Yes | No | Do not know | Yes | No | Do not know |   |
| Can HIV/AIDS individuals be diagnosed with oral lesions? Are those manifestations related to HIV/AIDS? | 82.7 | 15.4 | 1.9 | 75 | 22.5 | 2.5 | >0.05 |
| · Kaposi’s sarcoma | 89.5 | 6.2 | 4.3 | 90 | 8.8 | 1.3 | >0.05 |
| · Oral candidiasis | 85.2 | 14.2 | 0.6 | 82.5 | 12.5 | 5 | >0.05 |
| · Hairy leukoplakia | 63 | 20.4 | 16.7 | 60 | 26.3 | 13.8 | >0.05 |
| · Periodontitis | 43.2 | 49.4 | 7.4 | 40 | 55 | 5 | >0.05 |
| · Necrotizing ulcerative gingivitis | 71 | 21.6 | 7.4 | 62.5 | 28.8 | 8.8 | >0.05 |
| · Herpes simplex | 48.8 | 45.1 | 6.2 | 48.8 | 47.5 | 3.8 | >0.05 |
| · Major aphthous | 41.4 | 47.5 | 11.1 | 28.8 | 60 | 11.3 | >0.05 |
| · Gingivitis | 36.4 | 54.3 | 9.3 | 33.8 | 63.8 | 2.5 | >0.05 |
| · Cytomegalovirus | 44.4 | 25.3 | 30.2 | 51.3 | 31.3 | 17.5 | >0.05 |
| · Herpes Zoster | 46.3 | 42 | 11.7 | 48.8 | 46.3 | 5 | >0.05 |
| · Salivary gland infection | 25.9 | 53.1 | 21 | 25 | 61.3 | 13.8 | >0.05 |
| · Lichen planus | 33.3 | 48.8 | 17.9 | 30 | 58.8 | 11.3 | >0.05 |
| · Condiloma | 38.9 | 38.9 | 22.2 | 37.5 | 45 | 17.5 | >0.05 |
| · Xerostomia | 29.6 | 56.8 | 13.6 | 21.3 | 70 | 8.8 | >0.05 |

*Chi-square test; NS: non-significant.
| Gender | Physical barrier       | Frequency of use (%) |        |        |        |        |
|--------|-----------------------|----------------------|--------|--------|--------|--------|
|        |                       | Use with all patients| Use with some patients| Use just for some procedures| Do not use| Others |
| Women  | Mask *                | 98.8                 | 1.2    | 0      | 0      |        |
| (n = 182) | Protection goggles | 69.8                 | 6.2    | 13     | 7.4    | 3.7†   |
|        | Cap **                | 92                   | 3.1    | 3.7    | 1.2    |        |
|        | 1 pair of gloves - change between patients | 99.4 | 0.6 | 0 | 0 | - |
|        | 2 pairs of gloves - change between patients | 21.3 | 10.6 | 11.9 | 56.3 | - |
|        | Autoclaved handpiece | 44.4                 | 6.8    | 29.6   | 19.1   |        |
|        | Disposable gown       | 40.1                 | 4.9    | 30.9   | 24.5   |        |
|        | Plastic wrap          | 84                   | 3.1    | 4.9    | 8      | -      |
| Men    | Mask *                | 92.5                 | 0      | 2.5    | 3.8    | -      |
| (n = 80) | Protection goggles | 60                   | 8.8    | 23.8   | 7.5    | 0      |
|        | Cap **                | 48.8                 | 5      | 21.3   | 25     | -      |
|        | 1 pair of gloves - change between patients | 98.8 | 0 | 1.3 | 0 |        |
|        | 2 pairs of gloves - change between patients | 29.5 | 7.7 | 7.7 | 55.1 | - |
|        | Autoclaved handpiece | 52.5                 | 10     | 22.5   | 15     |        |
|        | Disposable gown       | 43.8                 | 8.8    | 33.8   | 13.8   | -      |
|        | Plastic wrap          | 78.8                 | 7.5    | 8.8    | 5      | -      |

*p = 0.01, and ** p < 0.0001, Chi-Square test between genders. † Wear prescription glasses.

### Table 3. Distribution of professionals’ answers on biosafety and dental care of HIV+ patients.

| Questions | Distribution of answers (%) |         | P value* |
|-----------|-----------------------------|---------|----------|
|          | Women (n = 162)             | Men (n = 80) |        |
| Y | N | Do not | Yes | No | Do not |
| e | o | know/ |     |    | know/ |
| s | Maybe | May |    |    | Maybe |
| After accident with a sharp object: | | | | | | | |
| - Would you be worried to be infected? | 8 | 2 | 9.7 | 85 | 1.3 | 13.8 | >0.05 |
| - Would you be tested for HIV? | 8 | 3 | 14.2 | 80 | 2.5 | 14.6 | >0.05 |
| Question                                                                 | Yes | No | P-value |
|-------------------------------------------------------------------------|-----|----|---------|
| Can dental professionals act as an intermediary for transmission of HIV?| 0   | 1  | 0.05    |
| Can patients with HIV/AIDS contaminate dental professionals?            | 0   | 1  | 0.07    |
| Can needle stick injury transmit HIV?                                   | 0   | 1  | 0.05    |
| Are medical professionals more prone to cross-contamination?           | 0   | 1  | 0.05    |
| Can saliva be a vehicle for the transmission of AIDS?                  | 0   | 1  | 0.05    |
| Is there a lot of HIV particles in the saliva of HIV/AIDS patients?     | 0   | 1  | 0.05    |
| Is hepatitis B more communicable than HIV/AIDS?                        | 0   | 1  | 0.05    |
| Can CPR in patients with AIDS transmit HIV infection?                  | 0   | 1  | 0.05    |
| Do infection control methods for hepatitis B provide adequate protection against the transmission of HIV? | 0   | 1  | 0.05    |
| Are there special dental clinics for treatment of HIV/AIDS patients in Brazil? | 0   | 1  | 0.044   |
| Do all sterilization methods have cidal effects against HIV? | 5 | 3 | 4.9 | 70 | 23.8 | 6.3 | >0.05 |
|---|---|---|---|---|---|---|---|
| Can HIV be transmitted through aerosols by handpieces? | 1 | 6 | 19.1 | 21.3 | 62.5 | 16.3 | >0.05 |
| Do the negative HIV tests surely indicate that the persons are free of viruses? | 4 | 9 | 3.1 | 16.3 | 83.8 | 0 | 0.005 |
| Is Western blot a definite test for HIV/AIDS diagnosis? | 2 | 2 | 45.1 | 40 | 21.3 | 38.8 | >0.05 |
| Is ELISA a screening test for HIV infection? | 8 | 3 | 13 | 76.3 | 6.3 | 17.5 | >0.05 |
| Is the specificity of the HIV tests 100%? | 1 | 6 | 19.8 | 27.5 | 52.5 | 20 | >0.05 |

Chi-square test. CPR: cardiopulmonary resuscitation.

Figures
Answers to "Is AIDS now the most important health problem in the world?"