

# Dental patients' knowledge, attitudes and experiences related to voluntary counselling and testing for HIV in the dental setting in eThekweni district, KwaZulu-Natal

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S Balwanth,<sup>1</sup> S Singh<sup>2</sup>

## ABSTRACT

### Introduction

Globally, the number of people unaware of their HIV status, and the rate of transmission of the disease, remains high. Scaling up of HIV testing opportunities and settings, particularly in the dental clinical setting, is needed to address this major public health concern.

### Aim and objectives

This study assessed dental patients' knowledge, attitudes and practices in voluntary counselling and rapid HIV testing (VCT) in the dental workplace in the eThekweni district, KwaZulu-Natal to determine their understanding and support for these services.

### Methods

This was a cross-sectional, descriptive study. A total of 250 questionnaires were distributed to dental patients located in private and public dental settings in the eThekweni district. Two hundred and fifty (n=250) completed questionnaires were retrieved, yielding a response rate of 100%.

### Results

More than half of the participants (n=134; 53.6%) indicated not to have heard of rapid HIV testing or were "unsure" of their knowledge regarding rapid HIV testing. The majority of participants (n=209; 83.6%) reported wanting the option to test for HIV at the dental workplace and 76.8% (n=192) indicated that rapid HIV testing should be routinely conducted by the oral healthcare worker. Participants (n=189; 75.6%) indicated to be less willing to partake in HIV testing should there be a cost implication. Some participants (n=104;

41.6%) indicated that they did not want the oral healthcare worker to perform the test due to perceived incompetency in rapid HIV counselling and testing. More participants from urban (n=214; 85.6%) and rural (n=217; 86.8%) areas of living were keen on the option to test for HIV at the dental workplace, with only 46.8% (n=117) of the informal dwellers sharing the same sentiment.

### Conclusion

Participants reported inadequate knowledge and practice of VCT at the dental workplace. Participants had positive attitudes towards VCT implementation in the dental setting, provided that the cost of conducting of the test was free.

### Keywords

HIV/AIDS, rapid HIV testing, dental workplace, oral healthcare workers

## INTRODUCTION

South Africa is synonymous with the Human Immunodeficiency virus, as the country continues to inhabit the single largest population of 7.5 million people living with HIV. Almost 27% of the affected population is located in KwaZulu-Natal.<sup>1-4</sup> Despite progress being made towards the UNAIDS-endorsed 90-90-90 targets, South Africa had attained below targets of 85-71-86, emphasising the dire need to get more individuals tested, for ARV treatment and virally suppressed.<sup>4-5</sup> Alarming, studies have shown that individuals presenting with an acute stage of HIV infection are more likely to transmit the virus than in advanced stages of infection.<sup>6-7</sup> Therefore, scaling up of HIV testing sites is pertinent in ensuring more individuals are aware of their HIV status and do not spread the disease unknowingly. Early intervention strategies such as VCT allow oral healthcare workers an opportunity to provide patients with a comprehensive package of care that includes: HIV oral manifestation recognition, prompt HIV detection, proper linkages to care, education and support.<sup>8</sup> The dental workplace, however, remains an untapped yet universal access point for HIV service delivery.

Multiple international studies have showed great support and optimism regarding implementation of VCT at the dental workplace.<sup>9-12</sup> Oral healthcare workers indicated a keenness to assist in the reduction of the disease transmission through

### Authors' information

1. S Balwanth, *BChD (UWD), PG Dip Int Ortho (UWC), MMedSc (UKZN)*, Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal, South Africa  
ORCID: 0000-0003-2991-399X
2. S Singh, *PhD, BOH, M.Sc (Dent), PhD (UWC), PG Dip Heal Res Ethics (Stellenbosch)*, PhD Clin and Res Ethics (Stellenbosch), Professor, Discipline of Dentistry, School of Health Sciences, University of KwaZulu-Natal, South Africa  
ORCID: 0000-0003-4842-602X

### Corresponding author

Name: Prof S Singh  
Email: singhshen@ukzn.ac.za

awareness campaigns as well as offering services such as VCT and supportive care.<sup>11-12</sup> Locally, oral healthcare workers in eThekweni demonstrated positive attitudes towards VCT implementation in the dental setting, provided that adequate training and support was available from the KwaZulu-Natal Department of Health.<sup>13</sup>

The public and private dental sectors in eThekweni offer a range of basic and specialised dental services to the vast public who visit the dental workplace to attend to their oral needs and ailments. Despite the high prevalence of oral disease and manifestations related to HIV/AIDS, there is limited evidence to suggest that HIV testing forms part of routine oral healthcare. The oral cavity serves as a gateway to ensuring overall health and therefore the incorporation of VCT into the spectrum of dental services could prove beneficial to the wellbeing of the public and provide a safe healthcare environment for conduction of VCT. Rapid HIV testing has not yet been implemented to the dental workplace in KwaZulu-Natal, thereby creating a significant prospect to be investigated further. To our knowledge, this is the first study conducted in KwaZulu-Natal to determine dental patients' knowledge, attitudes and practices regarding VCT at the dental workplace and their readiness or disposition in partaking in this valuable service.

## METHODS

This was a cross-sectional, descriptive study that assessed dental patients' knowledge, attitudes and practices regarding VCT services as part of HIV management in the dental setting. The study sample was drawn from the private and public sectors in eThekweni district. The study sites included private dental practices (n=60) and public health institutions (n=8) in eThekweni district. Purposive sampling technique was used to select dental patients. A total of 250 questionnaires were distributed to the identified study sites.

The research instrument comprised a self-administered questionnaire which was validated by means of a pilot study which included (n=5) dental patients from eThekweni to clarify any ambiguity in the questions posed. The questionnaire included 22 items. The first part of the questionnaire focused on information such as gender, age group, level of education, employment status, monthly income and place of living. The second part included questions pertaining to practices such as frequency of dental visits, type of dental treatment undergone, referral for HIV testing, HIV testing undergone in lifetime, location of HIV testing and reason for preferred choice, HIV testing and counselling satisfaction, cost factor regarding HIV testing at the dental workplace and knowledge of rapid HIV testing. The third part of the questionnaire included questions related to dental patients' attitudes and perceptions regarding extension of routine rapid HIV testing at the dental workplace. A Likert 5-scale format of responses was used: strongly agree (=1), agree (=2), not sure (=3), disagree (=4) and strongly disagree (=5) to elicit respondents' attitudes related to fear and stigmatisation, costing, skills and training of oral health care workers conducting the HIV testing, convenience factor, seeking prompt medical assistance and confidentiality of results. The questionnaire consisted of closed-ended questions.

Ethical clearance was obtained from the [information redacted to maintain the integrity of the review process]. Participation was voluntary and written informed consent was obtained from all participants. The questionnaire was administered in English and isiZulu. Confidentiality and anonymity were maintained. For data collection, the researcher first contacted the research sites and gatekeeper permission was obtained. A meeting was then set up with interested people and the informed consent document and the questionnaire were handed out to those who expressed interest in participating in the study.

Table 1. Relationship between biographical data and option to test for HIV at the dentist

Biographical data		Number of participants (n)	Would you like to have the option to test for HIV at the dentist?		P-value
			Yes	No	
Gender	Male	117	96 (82.1%)	21 (17.9%)	0.535
	Female	133	113 (85.0%)	20 (15.0%)	
Age group	18-28 years	87	73 (83.9%)	14 (16.1%)	0.745
	29-34 years	49	39 (79.6%)	10 (20.4%)	
	35-40 years	58	48 (82.8%)	10 (17.2%)	
	41 > years	56	49 (87.5%)	7 (12.5%)	
Level of education	Below grade 9	24	21 (87.5%)	3 (12.5%)	0.922
	Grade 9	38	32 (84.2%)	6 (15.8%)	
	Matric	94	79 (84.0%)	15 (16.0%)	
	Tertiary qualification	94	77 (81.9%)	17 (18.1%)	
Employment status	Employed	150	122 (81.3%)	28 (18.7%)	0.038*
	Unemployed	68	57 (83.8%)	11 (16.2%)	
	Student	20	19 (95.0%)	1 (5.0%)	
	Pensioner	12	11 (91.7%)	1 (8.3%)	
Area of residence	Urban	190	163 (85.8%)	27 (14.2%)	0.000*
	Rural	45	39 (86.7%)	6 (14.6%)	
	Informal dwelling	15	7 (46.7%)	8 (53.3%)	

\*statistically significant  $p < 0.05$

The researcher also left the informed consent document and questionnaire with the practice manager (in the case of private dental practices) or with the dental manager (in the public dental clinics) to hand over to interested patients presenting for dental management. The researcher reiterated the voluntary nature of the study to these identified people. The researcher then made arrangements to collect the completed questionnaires. A follow-up visit was conducted after one month to retrieve any outstanding completed questionnaires.

Data was analysed using SPSS version 24.0 (IBM Corp, USA). Univariate descriptive statistics such as frequency and mean distribution were conducted for all variables. The responses to the open-ended questions were grouped and emergent themes were examined and compared for possible associations. Inferential techniques included Pearsons chi-squared test to assess a possible relationship between the independent variables (gender, age) and the dependent variables (perspectives on rapid HIV testing services in the dental workplace). A p-value <0.05 was considered to be statistically significant.

### Results

Two hundred and fifty (n=250) completed questionnaires were retrieved from dental patients, yielding a response rate of 100%. Dental patients' biographical data and the option to test for HIV in the dental workplace are tabulated in Table 1. Overall, the majority of the participants (n=87; 34.8%) were within the age group 18-28 years old with the lowest age representative within the age distribution of 29-34 years old (n=49; 19.6%). An equal number of participants (n=94; 37.6%) indicated to have obtained matric and tertiary education qualifications. Thirty eight (15.2%) participants reported to have grade 9 level of education, while the minority of participants (n=24; 9.6%) indicated to have below grade 9 education qualification.

Statistical significance was observed with respect to participants' employment status (p<0.05). More than half of the participants indicated to be employed (n=150; 60%), while 27.2% (n= 68) reported to be unemployed. It was found that 8% (n=20) of the participants were students while 4.8% (n=12) were pensioners. The majority of the

participants (n=80; 32%) earn less than R2000 a month, while (n=36; 14.4%) of the participants declined disclosing their monthly income. Among the group of participants who declined to disclose their monthly income, more than half (n=146; 58.4%) were unemployed, 11.2% (n=28) pensioners and 30.8% (n=77) students. The majority of the participants live in urban areas (n=190; 76%), 18% (n=45) live in rural areas, while very few of the participants (n=15; 6%) live in informal dwelling areas.

### Relationship between biographical data and option to test for HIV at the dentist

There were no statistical significant differences with respect to gender, age group and level of education of the participants and the option to test for HIV at the dental workplace (p>0.05). Statistical significance was noted with regard to employment status and the area of residence of the participants (p<0.001). More participants from urban (n=165; 85.6%) and rural (n=39; 86.7%) areas were keen on the option to test for HIV at the dental workplace; however, only (n=7; 46.7%) of the informal dwellers shared the same sentiment.

### Knowledge of rapid HIV testing

More than half of the participants (n=134; 53.6%) indicated to not have heard of rapid HIV testing and the majority were "unsure" of their knowledge regarding rapid HIV testing (Table 2).

### Previous HIV test done

The majority of participants (n=180; 72%) reported to have previously tested for HIV and participants (n=157; 62.8%) have indicated to have received counselling and support from healthcare workers. Of these participants, the majority (n=220; 88%) were satisfied with the counselling they had received.

### HIV testing location

The general hospital (n=95; 38%) was reported to be the highest frequented testing location, followed by public dental department in hospital (n=68; 27.2%), public dental department in clinic (n=40; 16%) and general medical practitioner (n=26; 10.4%) (Figure 1). Private dental

Table 2. Knowledge of rapid HIV testing

Questions	Total number of participants (n)	Knowledge (n/%)			P-value
		Yes	No	Unsure	
Cheaper than the conventional testing?	250	84/33.6	20/8	146/58.4	0.000*
Quicker than the conventional testing?	250	107/42.8	17/6.8	126/50.4	0.000*
Less invasive?	250	46/18.4	18/7.2	186/74.4	0.000*
Useful in areas with minimal infrastructure?	250	45/18	19/7.6	186/74.4	0.000*
As accurate as ELISA and Western blot?	250	22/8.8	21/8.4	207/82.8	0.000*

\*statistically significant p<0.05

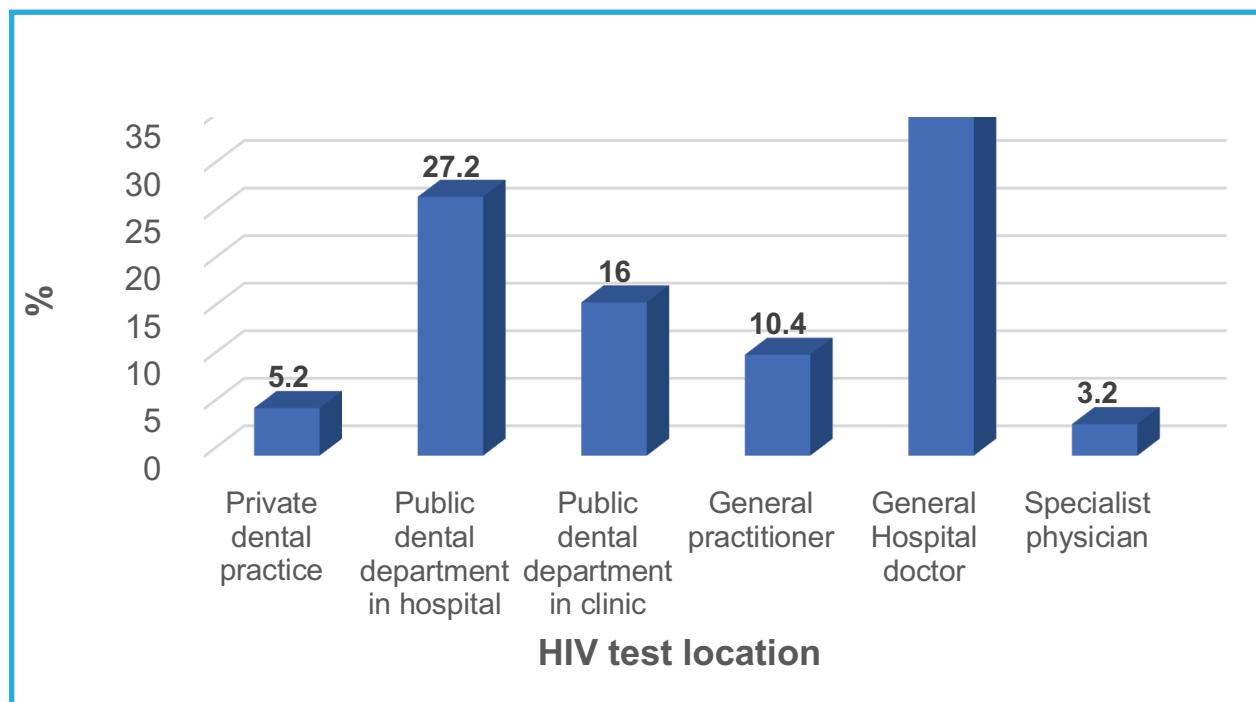


Figure 1. HIV testing locations

practices (n=13; 5.2%) as well as specialist physician (n=8; 3.2%) recorded the lowest frequented HIV testing centres.

#### Reasons for preferred HIV testing location

The majority of participants (n=126; 50.4%) indicated that the choice of HIV testing location was primarily influenced by proximity to their place of living (Table 3). Reasons for participants' preferred choice of HIV testing location included: accuracy of conduction of HIV test (n=70; 28%), trust staff to conduct the test effectively and efficiently (n=66; 26.4%), negligible cost of HIV test (n=60; 24%) and familiar HIV testing location (n=58; 23.2%).

#### Option to test at the dental workplace

The majority of participants (n=209; 83.6%) indicated to want the option to test for HIV at the dental workplace. Furthermore, the majority of participants (n=204; 81.6%) reported that extending HIV testing to the dental workplace is a good idea.

#### Potential dental HIV testing location

The majority of participants (n=205; 82%) indicated to be willing to undergo a rapid HIV test at the dental workplace.

The minority of participants (n=45; 18.0%) were not keen to be tested at the dental workplace and indicated that the general hospital (n=133; 53.2%) was their preferred HIV testing location.

#### Cost factor

It was reported that the majority of participants (n=205; 82%) were willing to undergo a rapid HIV test at the dental workplace, provided HIV testing was fully subsidised by the government or medical aid schemes.

Participant response regarding rapid HIV testing in the dental workplace

The majority of participants (n=192; 76.8%) indicated that routine testing for HIV should be conducted by the dentist, as the dental workplace is a convenient location. The majority of the participants (n=206; 82.4%) reported to support the idea of HIV testing at the dental workplace, as a means of seeking medical treatment sooner, if necessary. The majority of participants (n=152; 60.8%) indicated that the fear and perceived rejection by the dentist following a positive HIV test result would not discourage them from testing at the dental workplace. Furthermore, 62.4%

Table 3. Reasons for preferred HIV testing location

Reason for having HIV test done at chosen location	Total number of participants (n)	Value (n/%)	
		Agree	Disagree
It is close to my house so I do not have to travel far	250	126/50.4%	124/24.6%
I do not mind where I get tested, as long as it is done accurately	250	70/28%	180/72%
I trust the staff to carry out the test effectively and efficiently	250	66/26.4%	184/73.6%
It is free or inexpensive to do the test at this place	250	60/24%	190/76%
I have always tested at this place	250	58/23.2%	192/76.8%

(n=156) of participants reported to not feel ashamed or stigmatised against following a positive HIV test result at the dental workplace. More than half of the participants (n=142; 56.8%), indicated to trust the oral healthcare worker to keep the results of the HIV test confidential.

Conversely, many participants (n=189; 75.6%) were not willing to participate in HIV testing at the dental workplace should they be financially liable. Nearly half of the participants (n= 104; 41.6%) reported to feel that oral healthcare workers are not trained to test and counsel and therefore would not partake in HIV testing at the dental workplace.

### Frequency of visits to the dental workplace

More than half of the participants (n=130; 52%) had visited the dental workplace less than 2 times within the past year, while n=99 participants (39.6%) visited between 2 to 5 times and few participants (n=21; 8.4%) visited more than 5 times. Overall, less than half of the participants (n=120; 48%) have visited the dental workplace more than twice within the past year.

### Type of dental treatment undergone

The majority of participants (n=169; 67.6%) reported having an extraction within the past year (Table 4).

#### Referral for HIV test

The majority of the participants (n=212; 84.8%) indicated that they have never been referred for an HIV test by an oral healthcare worker.

## DISCUSSION

The study findings indicated that half of the study population (n=136; 54.4%) were within the age group 18-34 years. Only a third of the study population (n=94; 37.6%) reported having matric and tertiary education qualifications while 60% (n=150) of respondents were employed. The relationship between employment status and area of residence was seen as being statistically significant in terms of testing for HIV at the dental workplace. The study findings also indicated that about 54% (n=134) of the study population were unaware of rapid HIV testing, while more than two-thirds of the study population reported having being tested previously for HIV (n=180; 72%). This finding is consistent with a previous study which reported a relationship between participants' monthly income and HIV/AIDS knowledge scores.<sup>14</sup> The authors reported that a higher monthly income was associated with higher HIV/AIDS knowledge and that this collectively resulted in higher testing rates.<sup>14</sup> Similarly, Lopez-Quintero et al. reported that patients' HIV knowledge was linked to previous exposure to HIV testing.<sup>15</sup> This reiterates the importance of HIV/AIDS-related dental education especially in areas of high infection rates. The

study findings are consistent with Joshi et al. who reported no difference between study participants' educational status and "their willingness to undergo HIV test as a part of [the] dental visit".<sup>16</sup>

The majority of study participants (n=126; 50.4%) reported using the public health facility and that this selection of HIV testing location was mainly due to easy access. Given the dependency on public health services in eThekweni district, as with the rest of the country, it is not surprising that participants also opted to access health services that are closest to them. This finding is consistent with other studies that highlight the need to increase access to improve uptake of HIV testing.<sup>17-18</sup> Such strategies could include increased availability of HIV self-testing (HIVST) and community HIV testing (home-based testing).<sup>17</sup> This further reiterates the importance of ensuring not only the availability and access of HIV testing services, but also ensuring the optimal utilisation of such services.

The majority of participants in this study (n=209; 83.6%) indicated that HIV testing should be made available in the dental setting. This finding is supported by other studies which also reported a high patient acceptance of HIV testing in the dental environment.<sup>19-21</sup> Parish et al. further reported that patients who accessed other medical screenings in the dental environment were more likely to accept HIV testing in these settings.<sup>19</sup> Similarly, Rosso et. al. reported that patient acceptability of HIV testing in the dental setting was influenced by a "positive patient-provider relationship".<sup>22</sup> This suggests that the trust that exists between the practitioner and patient is an important consideration for HIV testing services. This highlights the need for a paradigm shift in oral healthcare, where dental practitioners become more involved in the provision of other health screenings in addition to oral health services. This, however, will require a review of the undergraduate curriculum and to ensure that interprofessional education is adequately covered so that the dental graduate is better prepared to work in interdisciplinary and multidisciplinary health settings.

It is equally important to explore dental practitioners' attitudes and beliefs regarding HIV testing services as part of dental clinical management. It is noteworthy that [information redacted to maintain the integrity of the review process] reported in an earlier study that oral health practitioners in their study had inadequate knowledge related to VCT but that they had positive attitudes towards the implementation of such services provided that there was adequate support and training available.<sup>13</sup> Some participants in this study also expressed concern with the financial burden of such tests as well as the dentists' competence to conduct the tests. A point worth highlighting is that nearly half (43.3%) of the participants who had previously tested for HIV, were

Table 4. Type of treatment undergone at dental workplace

Type of treatment	Total number of participants (n)	Value (n/%)	
		Yes (n)	%
Extraction of tooth	250	169	67.6
Check up and clean	250	80	32
Fillings	250	53	21.2
Other	250	19	7.6

tested in a public dental department (clinic and hospital). This suggested that the costs of HIV testing in private dental settings could be a barrier if patients are expected to bear such a financial burden.

The cost of HIV testing in the dental settings is an important consideration and more research is needed in this area to ascertain the responsible parties to bear the associated financial costs. This also requires ongoing advocacy and collaborative partnerships between the Department of Health, medical aid schemes, patients and oral health practitioners (in the public and private health sectors) to ensure that the offering of such services are not thwarted by a lack of clear roles and responsibilities of each player or stakeholder. It is thus important that memoranda of agreements are set up to clearly define the roles and responsibilities of each player as well as the responsible persons for bearing the financial costs of such services.

#### Strengths and limitations of the study

The study provided valuable insights into patients' knowledge, attitudes and experiences related to HIV testing. However, several limitations were noted. The study was only conducted in one district in KwaZulu-Natal, hence its generalisability is limited to the eThekweni district. The majority of study participants were located in the urban areas. Given the inconsistent availability of oral health services in the rural areas of KwaZulu-Natal, it is possible that participants from such areas could have a different perspective with regard to HIV testing in the dental setting.

#### CONCLUSION

The study findings indicated that study participants had inadequate knowledge but positive attitudes towards VCT implementation in the dental setting, provided that the cost of conducting of the test was free. More research needs to be conducted in other parts of the province and in South Africa to ascertain public opinion on HIV testing and VCT implementation in the dental settings. Such information could add value to policy review related to increasing access to HIV testing services in the country.

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## CPD questionnaire on page 120

The Continuing Professional Development (CPD) section provides for twenty general questions and five ethics questions. The section provides members with a valuable source of CPD points whilst also achieving the objective of CPD, to assure continuing education. The importance of continuing professional development should not be underestimated, it is a career-long obligation for practicing professionals.

