

## PERCEPTION AND UTILIZATION OF ORAL HISTOPATHOLOGY SERVICES BY GENERAL PRACTICE DENTIST IN SOUTHWEST NIGERIA

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### ABSTRACT

**Background:** Oral histopathology services are oral diagnostic procedures. General Dental Practitioners (GDPs) are routinely exposed to oral lesions that require biopsies. Hence, the study's objective of assessing the perception and the utilization of oral histopathology services by GDPs.

**Methods:** This was a cross-sectional study conducted at dental clinics distributed across Southwest Nigeria. A self-administered questionnaire consisting of sections addressing the socio-demographic/professional aspects; the beliefs of GDPs and their utilization of oral histopathology services was used to collect data. A modified 5-point Likert rating scale was used to indicate the extent of agreement or disagreement with statement constructs. Analysis was done using SPSS for windows version 20.0. Significance was assessed at 5%.

**Results:** There were 56.1% males and 43.9% females. The peak age range was 30-39 years (35.4%), while 58.5% had  $\leq 10$  years of practice and 79.3% work in government dental centres. Many of the respondents (61.0%) thought suspicious lesions should be biopsied, 47.6% thought that specialists' skills were not required for biopsy. Furthermore, 53.7% had poor perception scores while 81.1% of those who had seen oral lesions that required biopsies, had poor utilization scores.

**Conclusion:** The GDPs had a poor perception and utilization of oral histopathology services. Continuous medical education is needed to increase awareness amongst dentists.

**Keywords:** Oral; Histopathology; General dental practice; Southwest Nigeria

### INTRODUCTION

Oral biopsy and histopathology services are a part of oral diagnostic procedures carried out in dental clinics and histopathology laboratories of tertiary institutions or privately owned laboratories respectively.<sup>1,2</sup> It involves the removal, in part or in entirety an intraoral or orofacial lesion and its transference to a designated laboratory for tissue processing and slide preparation onward for reporting by an oral pathologist in order to arrive at a diagnosis, which then guides treatment.<sup>1-3</sup> Dentistry is primarily a surgical specialty in which the sub-specialties perform minor surgical procedures.<sup>4</sup> Likewise, general dental practitioners (GDPs) are also routinely exposed to oral lesions that may require biopsy taking or referral to a specialist.<sup>5</sup>

However, there are reports indicating that dental practitioners may sometimes discard pathologic tissue taken from patients,<sup>6</sup> including diseased periapical tissue<sup>7</sup> contrary to the policy on excised tissue that states that "All tissue removed from the oral and maxillofacial region of human patients should be submitted to a

pathology laboratory for examination."<sup>8</sup> In some instances, the otherwise "benign looking or inconsequential lesion" ends up being malignant after histopathology.<sup>9</sup> Similarly, periapical tissue attached to teeth, seen after tooth extraction may actually be occult malignancy.<sup>9</sup>

The detection of suspicious lesions and the management of histopathology reports should be within the confines of general dental practice<sup>10,11</sup> as GDPs make up 80% of the dental workforce<sup>4</sup> as well as playing the role of primary oral care providers, thus serving as "gatekeepers" in referring complex cases to specialist.<sup>12</sup> Therefore, GDPs should be capable of doing incisional and excisional biopsies instead of referring such patients to tertiary centres.<sup>10</sup> However, low utilization of these services by GDPs have been reported and reasons suggested include fear of medicolegal complications, use of wrong biopsy technique and regarding biopsy taking as a specialist procedure.<sup>13</sup> An example is the study by Murgod *et al*,

where 14.9% of GDPs carried out biopsies themselves, while 34.3% and 31.3% called a specialist or referred to a higher centre respectively.<sup>13</sup>

Similarly, other studies have reported that these services are predominantly utilized by dental specialists and a small proportion of GDPs. Wan and Savage in their study reported GDPs submitted 10.9% of biopsies at a private oral pathology service in Brisbane, Australia, with a majority (76.2%) of GDPs surveyed, referring all biopsies to a specialist.<sup>14</sup> Also, other reports corroborate this.<sup>6,15</sup> This was attributed to low number of cases seen by GDPs requiring biopsies.<sup>11</sup>

At present, there is paucity of information on how GDPs view and utilize oral histopathology services in this clime, thus the need to evaluate this. Therefore, this study set out to assess the perception and the utilization of oral histopathology services by GDPs domiciled in Southwest Nigeria.

## MATERIALS AND METHODS

This was a cross-sectional study. A total sample of all dentists practising in government and privately owned dental hospitals/clinics in Oyo, Ogun, Ondo, Ekiti and Osun states was used. The inclusion criterion was dental practitioners with an undergraduate qualification of Bachelor of dental surgery while exclusion criteria were non consenting respondents and those that had undergone specialist training. Ethical approval was obtained from the Oyo State Ministry of Health (Ref. No. AD 13/479/987).

A list of all known government and privately owned dental clinics within the study area was obtained from the hospital management boards of the respective states and the dentists were approached to administer the questionnaires. In all, 84 questionnaires were distributed to general practice dentists in five states in southwest Nigeria. The purpose of the study was explained to the dentist and verbal consent was obtained before administering the questionnaire. A pre-tested, semi-structured and self-administered questionnaire was utilized for data collection. Two of the authors (AOA and CAA) had previously evaluated the questionnaire to ensure the questions were suitable and easily understood by the respondents. The questionnaire consisted of three sections: Section A addressed the socio-demographic and professional aspects, while Section B consisted of a fifteen item constructs that defined and described the beliefs, preferences, judgements, opinions or actions of the respondents on oral histopathology services. Similarly, Section C consisted of a six item constructs that examined the utilization of oral histopathology services by general practice dentists.

A modified 5-point Likert rating scale from “strongly disagree” on one end and “strongly agree” at the other end was used to indicate the extent of agreement or disagreement with the statements. Each level on the scale was assigned a numeric value starting at “1” for the least and incrementally by one for each level. The generic response continuum utilized was as follows: “1 = I don’t know, 2 = Strongly Disagree, 3 = Disagree, 4 = Agree, and 5 = Strongly Agree.”

The quantification of the constructs was obtained by analysis of the distribution of the responses to the individual constructs and also by the summated score for each individual’s responses to each item making up the scale. Thus, a minimum of 15 and a maximum of 75 perception score could be obtained for section B. For section C, items 2, 3 and 5 were used to assess utilization where a minimum score of 3 and a maximum of 15 utilization score could be obtained. Also, barriers to utilization were assessed using items 1, 4 and 6. Furthermore, the summated scores of respondents were grouped based on the mean score of 61 into poor (15-60) and good ( $\geq 61$ ) perception. Likewise for section C, the summated scores of respondents were grouped based on the mean score of 9 into poor (3-8) and good ( $\geq 9$ ).

Furthermore, two questionnaires were excluded because they were inaccurately filled. Thus, 82 questionnaires distributed as follows were available for further analysis: Oyo-41; Osun-6; Ogun-9; Ondo-9 and Ekiti-17. Data was generated from the information obtained in the questionnaires; and analysis was done using SPSS for windows (version 20.0; SPSS Inc. Chicago, IL). Analysis included the use of descriptive statistics (frequencies, tables and charts) and statistical tests ( $\chi^2$  test) to assess the association between the age groups; gender; location of practice; years of practice and the perception as well as the utilization of oral histopathology service. Significance was assessed at a level of  $\alpha = 0.05$ .

## RESULTS

There were 56.1% male and 43.9% female respondents, distributed into the following age groups: 24.4% were 20-29 years; 35.4% were 30-39 years; 20.7% were 40-49 years while 19.5% were above 50 years. Also, the respondents consisted of 58.5% with  $\leq 10$  years of practice post-graduation; 20.7% had practiced for 11-20 years; 19.5% for 21-30 years, while only one (1.2%) had practiced for between 31 and 40 years. Regarding the type of practice, 79.3% work in state government owned dental hospitals and clinics, while 20.7% work in privately owned dental clinics (Table 1).

**Table 1:** Characteristics of respondents by socio-demographic variables

Socio-demographic characteristics	Frequency	Percentage
<b>Gender</b>		
Male	46	56.1
Female	36	43.9
<b>Age group (years)</b>		
20-29	20	24.4
30-39	29	35.4
40-49	17	20.7
≥ 50	16	19.5
<b>Years of practice</b>		
< 10	48	58.7
11-20	17	20.7
21-30	16	19.5
31-40	1	1.2
<b>Type of practice</b>		
Government	65	79.3
Private	17	20.7

More than half (61.0%) of the dentists thought all suspicious lesions should be biopsied. However, 47.6% agreed that biopsies could be performed by dentists that were not specialists while (35.4%) disagreed that patients requiring biopsies should always be referred to specialists (Table 2). About forty eight percent (47.6%) of the respondents agreed that great skills, experience and specialist training were required for biopsy. On assessing their opinion whether it was necessary to send all biopsied tissue for histopathology, 45.1% felt it was not necessary to send diseased tissue for histopathology except they were suspicious.

Furthermore, majority 64.6% of the dentists said they often encountered lesions requiring biopsies but most, consisting 67.9% respondents, did not routinely take biopsies for their patients, with a low proportion of them constituting 28.3%, referring patients requiring biopsies to teaching hospitals while 71.7% of them did not refer. Also, 61% of respondents proffered a

**Table 2:** Distribution of responses on the perception of oral histopathology services – N (%)

Statement	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All suspicious lesions should be biopsied	50 (61.0)	26 (31.7)	4 (4.9)	1 (1.2)	1 (1.2)
Biopsies should be done only for malignant lesions.	4 (4.9)	3 (3.7)	2 (34.1)	28 (54.9)	1 (1.2)
Benign looking lesions can be discarded after excision.	1 (1.2)	12 (14.6)	29 (35.4)	38 (46.3)	2 (2.4)
Dentists other than specialists can perform biopsy procedure themselves.	12 (14.6)	39 (47.6)	21 (25.6)	9 (11.0)	-
Patients who require biopsies should always be referred to specialists.	20 (24.4)	26 (31.7)	29 (35.4)	6 (7.3)	1 (1.2)
Great skills, experience and specialist training are required for biopsy taking.	16 (19.5)	39 (47.6)	21 (25.6)	5 (6.1)	1 (1.2)
All excised tissue specimen should be sent for histopathologic examination.	54 (65.9)	25 (30.5)	3 (3.7)	-	-
Oral lesions that require biopsies may be discarded.	3 (3.7)	1 (1.2)	22 (26.8)	53 (64.6)	3 (3.7)
Soft tissue attachments to the periapical regions of extracted teeth may be encountered in clinical practice.	41 (50.0)	38 (46.3)	-	-	3 (3.7)
Sending diseased periapical tissue for histopathology is unnecessary except when they are suspicious.	15 (18.3)	37 (45.1)	15 (18.3)	15 (18.3)	-
Extracted teeth with periapical lesions should be discarded.	3 (3.7)	14 (17.1)	41 (50.0)	20 (24.4)	4 (4.9)
Diseased periapical tissue can mimic malignancy.	14 (17.1)	49 (59.8)	7 (8.5)	6 (7.3)	6 (7.3)
Provision of accessible oral pathology service would enhance the submission of oral biopsy specimens as well as those of diseased periapical tissue for histopathology.	47 (57.3)	34 (41.5)	1 (1.2)	-	-
Affordable oral pathology service would enhance the submission of oral biopsy specimens as well as those of diseased periapical tissue for histopathology.	51 (62.2)	31 (37.8)	-	-	-

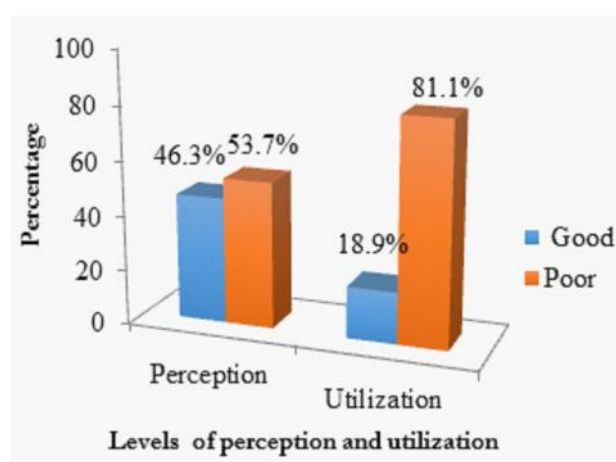
**Table 3:** Distribution of responses indicating barriers and utilization of oral histopathology services

Responses indicating barriers- N (%)	Yes	No
Lesions requiring biopsies are often encountered in my practice.	53 (64.6)	29 (35.4)
Lack of nearby histopathology service hinders sending specimen for microscopic examination.	50 (61.0)	32 (39.0)
High cost of biopsy may hinder sending specimen for microscopic examination.	58 (70.7)	24 (29.3)
<b>Responses indicating utilization- *n (%)</b>		
I routinely take simple biopsies for my patients and follow up the results.	17 (32.1)	36 (67.9)
I refer patients who need biopsies to the teaching hospital for further management.	15 (28.3)	38 (71.7)
I routinely send attached periapical soft tissue for histopathology.	10 (18.9)	43 (81.1)

\*n: dentists encountering lesions requiring biopsies

lack of nearby histopathology service as a hindrance to sending specimens for microscopic examination while 70.7% cited cost as a constraint to carrying out biopsies for patients (Table 3). Similarly, a higher proportion of dentists (29/51.8%) who referred patients that required biopsies to the teaching hospitals for further management were those with less than 10 years clinical experience (Fisher's exact= 10.79, p= 0.08).

On the perception of general practice dentist on oral histopathology services, 53.7% had a poor perception score, while 46.3% had a good perception score (Figure 1). More dentists (47.4%) aged 30-39 years had good perception ( $\chi^2= 9.35$ , p= 0.03) but poor utilization of oral pathology services (p< 0.26) (Table 5). However, majority of participants with poor

**Figure 1:** Participants level of perception and utilization of oral histopathology services**Table 4:** Association between characteristics of respondents and perception score

	Perception of respondents		$\chi^2$	p value
	Poor	Good		
<b>Age (years)</b>				
20-29	16 (36.4)	4 (10.5)		
30-39	11 (25.0)	18 (47.4)	9.35*	.03
40-49	10 (22.7)	7 (18.4)		
≥ 50	7 (15.9)	9 (23.7)		
<b>Gender</b>				
Male	23 (52.3)	23 (60.5)	0.56	.45
Female	21 (47.7)	15 (39.5)		
<b>Years of practice</b>				
< 10	28 (63.6)	20 (52.6)		
11-20	7 (15.9)	10 (26.3)	2.63*	.44
21-30	9 (20.5)	7 (18.4)		
31-40	-	1 (2.6)		
<b>Type of practice</b>				
Government	32 (72.7)	33 (86.8)	2.47	.12
Private	12 (27.3)	5 (13.2)		

N (%); \* Fisher's exact

**Table 5:** Association between characteristics of respondents and utilization score

	Level of utilization		$\chi^2$	p value
	Poor	Good		
<b>Age (years)</b>				
20-29	12 (27.9)	2 (20.0)	3.94	0.26*
30-39	19 (44.2)	3 (30.0)		
40-49	5 (11.6)	4 (40.0)		
≥ 50	7 (16.3)	1 (10.0)		
<b>Gender</b>				
Male	22 (51.2)	9 (90.0)	0.03*	
Female	21 (48.8)	1 (10.0)		
<b>Years of practice</b>				
<10	29 (67.4)	5 (50.0)	2.83	0.47*
11-20	8 (18.6)	2 (20.0)		
21-30	5 (11.6)	3 (30.0)		
31-40	1 (2.3)	-		
<b>Type of Practice</b>				
Government	37 (86.0)	9 (90.0)	1.0*	
Private	6 (14.0)	1 (10.0)		

N%; \* Fisher's exact

perception of oral histopathology had less than 10 years of practice (63.6%) and 52.3% were males, though not statistically significant (Table 4). Also, on the utilization of oral histopathology services, 53 dentists responded to the question on previous encounters with oral histopathology lesions that required biopsies, thus were eligible for the assessment of their utilization of these services, of which 81.1% had a poor utilization score while 18.9% had a good utilization score (Figure 1). A higher proportion of dentists constituting 44.2% respondents with poor utilization scores were aged 30-39 years ( $\chi^2= 3.94$ ,  $p= 0.26$ ), while more males (90%) had good utilization scores compared to females ( $p= 0.03$ ) (Table 5).

## DISCUSSION

Previous reports exist in literature on oral histopathology services and general dental practitioners,<sup>10,11,14,16</sup> and a few similarities and differences do exist when comparing them with the present study. This survey was conducted using 82 GDPs which is higher than 44 recorded by Wan and Savage in their study.<sup>14</sup> However, the respondents in this study were less than 227 general dental practitioners surveyed in the study by Diamanti *et al.*<sup>11</sup> The disparities could be due to relative differences in the numbers of practitioners in these climes.

Almost all the dentists that participated in this study agreed that all suspicious lesions should be biopsied; an opinion also shared by a group of general practice dentists in the study by Murgod *et al.*<sup>13</sup> On assessing whether the dentists sent excised tissue for histopathology, Murgod *et al.* observed that more than

half of the dentists in their study always sent excised tissue specimen for histopathology.<sup>13</sup> However, 63.4% of dentists in this study believed that it was not necessary to send all diseased tissue for histopathology except suspicious lesions. Various reasons may account for this amongst which lack of a nearby histopathology laboratory service has been given for not carrying out biopsies by general dental practitioners,<sup>13</sup> just as the dentists in this study expressed that high cost of these services would hinder their utilization, while availability of a nearby histopathology laboratory would enhance the use.

On the other hand, most of the participants in this study thought that great skills, experience and specialist training were required to do biopsies; this opinion was also expressed by general practice dentists in some studies.<sup>13,14</sup> This may explain why many of the respondents in this study would rather refer patients requiring biopsies, which was similar to observations by Wan and Savage as well as Murgod *et al.*<sup>13, 14</sup> In addition, years of clinical practice have been thought to influence the possibility of a dentist doing a biopsy for a patient.<sup>13, 14</sup> This study recorded more dentists with fewer years of clinical experience referring patients to teaching hospitals. This may be due to a lack of competence by younger dentists who did not routinely carry out biopsy procedures when required.<sup>14</sup>

Overall, some significant findings were observed in this study. The perception of the GDP's on oral histopathology services was poor, implying that they are unaware of the importance of these services in patient care. It is surprising that the higher proportion of poor perception scores were obtained by dentists who had fewer years of practice which contradict the assumption that they are abreast with standard patient care in view of their more recent graduation from dental school. Likewise, the utilization of this service was poor. The barriers to uptake proffered by the respondents in this study were lack of nearby facility and cost. These factors have been identified in previous reports on the utilization of dental services as barriers.<sup>17</sup> Also, dentists in government owned hospitals constituted a higher proportion (85.7%) of those with good utilization scores, but this may be relative and can be attributed to their higher proportion compared to private practitioners in this study.

## CONCLUSION

This study set out to assess the perception of GDPs on oral histopathology services as well as their utilization of these services and realized that their perception as well as utilization was poor among GDPs studied. However, a nationally representative data

would be necessary to verify this. Also of importance is the need for continuous medical education in order to increase the awareness of dentists, particularly those with longer years of practice in order to improve patient care.

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