

Rural dental program in Haiti

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Abstract - A rural dental program located on La Gonâve, an island near the coast of Haiti is described along with demographic characteristics of the local population. The oral health of 61 adolescents and young adults seen during screening examinations was assessed. Caries free individuals made up 14.8% of the population. The mean DMFT for the group was 4.20. The OHIS score for the sample was 1.35; the PI score was 0.39. No significant association was found between DMFT, OHIS, PI and sex. One subject had a PI score 5.8 standard deviations from the mean score for the group and exhibited signs suggesting juvenile periodontitis.

Key words: community dentistry; demography; oral health; periodontitis, juvenile; rural health.

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Haiti occupies approximately 1/3 of the western portion of Hispanola, an island 51 km east of Cuba in the Caribbean Sea. The remaining 2/3 of this landmass is the Dominican Republic. Data that describe the practice of dentistry in Haiti and the oral health status of its population are lacking, and dental programs are nonexistent in many areas of the country. Health professionals are trained locally but often emigrate to the United States and Canada or become employed by various international organizations. The last census of dentists occurred in 1968. At that time, the dentist to population ratio was 1/10 000 in the capital, Port-au-Prince, and 1/50 000 in rural areas (essentially the remainder of the country) (1). Haiti has one dental school which is located in Port-au-Prince, and according to 1972 data, it graduates 15 persons each academic year (2). A report describing oral health knowledge and attitudes of a rural Haitian population demonstrated that people were lacking in modern knowledge, and continued to hold local cultural beliefs about the etiology of oral diseases. A majority of those interviewed thought that worms caused pain in the teeth, that one should only visit the dentist when in pain, and that extraction of troublesome teeth was a preferred treatment (3).

The objective of this report is to describe a rural dental program located in Haiti. Additionally, the oral health status of a selected group of the programs's target population was examined.

The dental program is currently located on La Gonâve, a 1165 km² island about 16 km away from the coast of Haiti. The population in 1971 was estimated at approximately 65 000 people but current estimates place the number at 55 000 persons or less as many individuals have left the island for Port-au-Prince or for the United States.

There are several small villages on the island and the most notable is Anse à Galets, a community of approximately 2500 residents. The village contains a medical clinic, a hospital, a library, a food cooperative, and seven schools, and has become the focus of most health and social services on the island. Water is acquired from a centrally located fountain; its fluoride ion content is unknown. There is no artificial water fluoridation in Haiti, although some natural fluoridation does exist (2).

MATERIAL AND METHODS

The dental program is supported by a non-profit secular organization. The physical plant consists of a one room building con-

taining three chairs with high-speed units, and an attached covered veranda containing two chairs with slow speed units. Extractions, restorations, and periodontal therapy are performed inside, while prophylaxes and health education are provided on the veranda, which also serves as a waiting area. Inside, portable dental chairs and units are used, which facilitate easily changed operating configurations (left handed operator, operator with assistant/no assistant) and support screening examinations at schools.

The clinic is directed by a local dentist and staffed by visiting dentists (primarily from the United States) who come for varying amounts of time. The typical visit is 2 wk to 1 month in duration. A 2-wk visit is the least amount of time that can be accommodated as publicizing the visit on the island cannot be accomplished quickly.

Treatment is limited to oral hygiene instruction, prophylaxes, amalgam and composite restorations, simple extractions, and the occasional prosthetic repair. The former services are targeted for children and adolescents and participants are identified in local schools via screening examinations. A card is sent home with each child indicating treatment needs and their cost. Extenuating circumstances regarding ability to pay for treatment are always evaluated, and children from poorer schools are usually treated without charge. Adults pay modest fees. Patients often come in small groups and an attempt is made to complete all treatment on an individual during one visit. Frequently, a person must travel a great distance to attend the clinic and completing treatment eliminates the burden of return visits.

Health education and oral hygiene instruction have been offered in the schools in conjunction with an earlier dental program, and it is anticipated that this instruction will commence again. Usually a local resident is trained as a dental assistant and that individual visits classrooms on a regular basis to teach brushing and describe the dental program. Brushing is taught in groups with the class repeating in unison a sequence of brushing positions until all quadrants have been cleaned. The dental assistant revisits the classroom until students have learned the proper brushing sequence. Periodic visits are then made to review the exercise and correct any deficiencies. The desired behavior is reinforced when individuals present for treatment at the dental clinic.

Oral health status of target population – As part of the clinic's screening activities, a group of adolescents and young adults was examined to determine the oral health status of that population. The sample, comprising 61 males and females, was drawn from two schools located in Anse à Galets, and from similarly aged patients presenting for treatment at the clinic. The mean age of the sample was 17.5 yr; 18.1 yr for males, 16.8 yr for females. All examinations were conducted by a single observer (W.P.L.) using a flat plane mirror and a double-ended explorer/

probe (HuFriedy 23/CP6) to assess caries and periodontal disease. The presence of caries was determined according to criteria proposed by the World Health Organization (4), and the numbers of decayed, missing, and filled teeth (DMFT) (5) were assessed for each person. As it appeared that some teeth in this population may have been lost due to periodontal disease, missing teeth were assigned to their respective categories according to clinical assessment and the patient's recollection of reasons for extraction. Oral hygiene status was determined by the Simplified Oral Hygiene Index (OHI-S) of GREENE & VERMILION (6). Periodontal disease was measured with the Periodontal Index of RUSSELL (7) modified thusly: using a probe graduated at 4 and 6 mm and placed apically at the mesiofacial line angle of each tooth, a score of 4 was given to a tooth exhibiting a pocket of 4–6 mm in depth and a score of 6 was given to a tooth with a pocket exceeding 6 mm in depth. The classification of 8 for advanced destruction with loss of masticatory function was used in accordance with the original index. Differences in mean values for males and females were tested utilizing Student's *t*-test; the level of significance was 5%.

RESULTS

Table 1 represents the distribution of DMFT components by sex and for the group. The average DMFT score was 4.20. Fifteen percent of persons examined were caries free. The largest number of cariously involved teeth in one individual was 15. Thirteen percent of the group had filled teeth; the greatest number of restorations being five in one individual. There were no significant differences between males and females for D, M, F, and DMFT scores. Females appeared to have slightly more carious and filled teeth and slightly less missing teeth.

Table 2 shows mean scores for oral debris, calculus, oral hygiene, and periodontal disease by sex and for the group. The overall mean debris score was 0.58; the mean calculus score for the group was 0.78. Debris and calculus scores tended to be slightly higher in males than in females but this was not statistically significant. The mean PI score for the group was 0.39. The mean PI scores for males and females varied slightly but were not significantly different. The maximum individual PI score (2.13)

Table 1. Average DMFT and component scores for 61 Haitian adolescents and young adults in relation to sex

Component	Men (<i>n</i> =32)	Women (<i>n</i> =29)	Group (<i>n</i> =61)	<i>P</i> -value
Decayed	3.13	3.59	3.34	0.55
Missing	0.63	0.52	0.57	0.65
Filled	0.25	0.31	0.28	0.79
DMFT	4.00	4.41	4.20	0.65

Table 2. Average OHI and component and PI scores for 61 Haitian adolescents and young adults in relation to sex

Component	Men (<i>n</i> = 31)	Women (<i>n</i> = 29)	Group (<i>n</i> = 60)	<i>P</i> -value
DI	0.63	0.52	0.58	0.30
CI	0.83	0.71	0.78	0.46
OHI-S	1.46	1.23	1.35	0.32
PI	0.46*	0.31	0.39**	0.29

* *n* = 32.

** *n* = 61.

was 5.8 standard deviations from the mean score for the group.

DISCUSSION

The commencement of a dental program in Anse à Galets has complemented other health services now being provided to the community. Oral hygiene instruction in the schools, coupled with screening examinations, appears to be generating an adequate patient flow for the clinic. Presently, demand for treatment is highest among adolescents and young adults, and is probably due to clinic activities involving these age groups. It does seem that demand for prophylaxes and restorations by younger persons has stimulated greater interest in preventive services from adults, heretofore a group that only requested extractions and relief from pain.

Several aspects of the program have proved to be troublesome. Provider availability remains uncertain as dentists are not given remuneration for their services. The program can only furnish local transportation, living accommodations, and treatment supplies for dentists who wish to work on the island. Dependence upon volunteers can disturb continuity of care, and community expectations of continuous service have, on occasion, been disrupted by the cancellation of a visit by a dentist. At present, it does not appear that a locally trained dentist would be willing to practice on La Gonave because of its remote location.

The absence of roads and public transportation makes access to the clinic difficult for some residents and likewise prevents clinic staff from visiting some schools. A satellite clinic established on the other side of the island proved to be unworkable and diluted program resources.

Another difficulty is the burgeoning demand for more complex dental services. Many community members have crowns, bridges, and removable ap-

pliances that were acquired from dentists in urban areas, and need replacement or repair. Providing these services is still beyond the scope of the present program.

The group of adolescents and young adults that were examined represent a convenience sample, and thus generalizations about the population of Haiti must be made cautiously. By only examining subjects from two schools and persons presenting at the clinic, individuals who were not attending school or who might not have come to the clinic because of fear or lack of knowledge of its existence, may have been excluded from the sample. Furthermore, different socioeconomic groups in the community attend different schools. However, the two schools from which the sample was drawn have students from both upper and lower social classes. It should be noted that on La Gonave the social spectrum is not that broad.

Available data on the oral health status of Haitians are lacking and thus results have been compared to selected United States health statistics (8, 9). While age categories do not allow for exact comparisons, it can be noted that the study population (mean age 17.5 yr) had a lower DMFT score than US children age 12–17 yr in 1971–74 (6.2 DMF teeth). Components of the index for the Haitian group have a similar pattern to that found among black 12–17-yr-olds in the United States, namely a large D component and relatively small M and F components. With regard to the study population, the D component probably reflects the unavailability of treatment and to a lesser degree, lack of knowledge about the need for treatment.

The oral hygiene status of the study population, when compared to available US data on hygiene status, suggests that Haitians have less debris and more calculus. When compared to blacks in the US, OHI scores are similar although Haitians still exhibit more calculus and less debris (8). The PI score for the sample, 0.39, is between that of PI

scores for US persons of similar ages (youths 12–17-yr: 0.31; adults 18–24 yr: 0.54; US age groups sampled in different years) (9).

A finding which suggests further study is the presence of juvenile periodontitis in the study population. One 18-yr-old male (PI = 2.13) exhibited manifestations of the disease which would be categorized as Class II involvement of the periodontium (10). There was evidence of bone destruction around all permanent first molars, maxillary and mandibular incisors, and maxillary canines and premolars. Another 18-yr-old male (PI = 1.36) exhibited a less defined pattern of periodontal pockets, thus prohibiting a diagnosis of other than advancing periodontal disease. This finding of juvenile periodontitis appears to concur with the findings of others who suggest that the disease may be more prevalent among blacks (11–13). Based on personal experience in Barbados, HARVEY *et al.* (14) feel that the condition could be more common among non-Caucasians and possibly more prevalent in warmer climates. However, as Caucasians were not included in his sample, the author states only that the disease was prevalent among blacks in Barbados. Further investigation is needed to corroborate findings of the present investigation regarding the extent of juvenile periodontitis amongst Haitians.

The availability of a dental clinic with portable equipment and community familiarity with the dental staff increase the attractiveness of Anse à Galets as a location for expanded investigations of the oral health status of Haitians and of disease processes which may be prevalent in that population.

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