Characteristics of Patients Seeking Care from Independent Dental Hygienist Practices

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Abstract

Objectives: *This study determined demographic characteristics, satisfaction with care, and likelihood of follow-up dentist visits for patients seen in office-based, independent, dental hygienist practices.* ***Methods:*** *New patients were surveyed after their initial visits to independent hygienist practices to assess their demographic characteristics and satisfaction with care at both the beginning of practice operations and 18 months after the start of these practices. Follow-up surveys were sent to patients 12 and 24 months after their initial visits to the independently practicing dental hygienists to determine if patients had visited a dentist.* ***Results:*** *Most respondents were white, female, had attended some college, and reported high family incomes. Ninety-eight percent of respondents were satisfied with their dental hygiene care. Follow-up questionnaires revealed that over 80 percent of respondents visited the dentist within 12 months of receiving dental hygiene care in independent settings. This level of follow-up care with dentists was found both for respondents who reported having a regular dentist at their initial visits with the hygienists and for those who reported not having a regular dentist.* ***Conclusions:*** *Independent practice by dental hygienists provided access to dental hygiene care and encouraged visits to the dentist. [J Public Health Dent 1997;57(2):76-81]*

Key Words: dental hygienist practice, independent practice, patient satisfaction, access to care.

Improved access to dental care has been a long-standing challenge for the dental profession. Dental utilization rates have gradually increased with the percent of Americans reporting a dental visit within the past year increasing from 37 percent in 1958 (1) to 48 percent in 1981 (2), and 57.2 percent in 1989 (3). Although these percentages are for all types of dental care, visits for dental hygiene services probably followed a similar trend. Results of a nationwide telephone survey by Hayward and coworkers (4) indicated that 63 percent of individuals 5 years of age and older had seen the dentist within the previous year. However, only 46 percent reported a "dental check-up." This finding suggests that less than one-half of the US population receives annual preventive care that might be provided by the dental hygienist.

One method that has been offered to increase patient attendance for preventive care is to permit dental hygienists to provide care directly to the public without supervision by dentists. State laws almost universally restrict access to dental hygiene services to dentist-supervised practice settings; however, there are exceptions. Colorado sanctioned independent dental hygiene practice in all practice settings beginning in 1986 and Washington State permitted unsupervised practice in nonoffice-based settings beginning in 1984 (5). No evaluations of services provided in these independent practice settings have been published.

The presence of dental hygienists in dentists' offices is associated with an increase in the overall provision of preventive and periodontal services (6). In one Australian study an average of 37.7 percent of procedures performed in offices employing hygienists were periodontally related, compared to 18.9 percent in offices without dental hygienists (7). The increased availability of dental hygiene services through independent practice possibly could increase access to this type of care.

A demonstration project was conducted in California from 1987 to 1990 in which dental hygienists practiced without supervision by dentists. This project was conducted under the auspices of the Office of Statewide Health Planning and Development, which has the authority under California law to sanction experimentation with alternative health care delivery systems. The approved experiments were called Health Manpower Pilot Projects (HMPP). Their purpose was to demonstrate and evaluate the effectiveness of new or expanded roles for health care personnel prior to initiating changes in state law (8). A nonprofit organization of dental hygienists, Dental Hygiene Associates, Inc., and California State University at Northridge developed the independent dental hygiene project referred to as HMPP 139. HMPP 139 was stopped in 1990 by court order after lengthy legal proceedings. A history of HMPP 139 and its legal difficulties has been published (9).

The dental hygienists participating in HMPP 139 completed courses in business, management, and a dental hygiene skills update. They then set up practices as they deemed appropriate. The dental hygienists were permitted to perform only general supervision duties as defined by California law. The services they provided were primarily preliminary examination including periodontal charting, intra- and extraoral examination of the soft tissue, scaling, root planing, polishing, and application of fluorides and

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sealants. The hygienists also were permitted to take dental radiographs. Semiannual on-site safety checks were made by licensed California dentists who also checked the practices at startup (9).

Patients treated in the independent practices were informed that care was being provided in an experimental setting and that the practice did not have a dentist's supervision. All patients signed informed consent documents. They also were informed that dental hygiene care did not constitute complete dental treatment or substitute for a dentist's care. HMPP 139 required the participating dental hygienists to refer all patients to dentists for examination.

Sixteen hygienists located in 10 practice sites participated in the demonstration project. One hygienist was never fully established and one saw patients only in institutional settings. The remaining hygienists practiced in eight office-based sites during the three-year life of HMPP 139, in which 7,961 patient visits occurred (9).

HMPP 139 presented an opportunity to observe and collect data on independent dental hygienist practice. When changes in roles for allied health care personnel are considered in the absence of data, "rhetoric and political power frequently substitute for evidence and rational decision making" (5). This study sought to provide information for decision makers contemplating alternative forms of access to dental care. Three questions were addressed in this study: (1) Who sought care from independently practicing dental hygienists and did this population change over time? (2) How satisfied were patients with their care received from independent dental hygiene practitioners? (3) After an initial visit to an independent hygiene practice, did patients follow-up with dentist visits as they were advised?

Methods

The study was designed to include six patient surveys from each of the eight practices providing office-based dental hygiene care—two surveys of new patients and four follow-up surveys. Two of the surveys were given to new patients on their initial visit to the independent practices. These were the Startup Initial Visit Survey (SUIVS), given to new patients when the practices opened, and the Established Practice Initial Visit Survey (EPIVS), given to new patients at least 18 months after the practices had started. These surveys were designed to determine who sought care from the independent dental hygienists. Both gathered information about demographics, self-assessed oral health, reasons for the dental hygiene visit, relationship with dentists, and knowledge of the independent practice setting.

Because first patients to visit a new independent practice might not be similar to patients entering an established independent practice, the EPIVS was administered to new patients at 18 months to determine any changes in patient demographics as the practices matured. Except for the addition of the satisfaction questions, the SUIVS and the EPIVS questionnaires were identical.

Patient satisfaction was the second research question addressed by the study. Data were gathered by patient satisfaction questions on the EPIVS. For three practices that started operations well into the expected life of the independent practice experiment, patient satisfaction questions were added to the SUIVS. These SUIVS questionnaires with patient satisfaction questions were to be distributed to 150 patients rather than the planned 100 patients for the other practices. By adjusting data collection in this way, we were able to sample responses on patient satisfaction for both startup and established practices.

Two follow-up surveys were planned for patients responding to the SUIVS and EPIVS, the first to be administered 12 months after the independent dental hygiene care and the second 24 months after the independent dental hygiene care. These two surveys were identical. They were administered as postcards and queried whether the patient had seen a dentist in the last year. The follow-up surveys addressed the third research question, whether or not patients treated by independently practicing dental hygienists began to see or continued to see a dentist.

If the study had progressed without interruption, each independent practice would have been represented by six surveys—an SUIVS with 12- and 24-month follow-up surveys, and an EPIVS, also with 12- and 24-month follow-ups. We expected the project to operate a minimum of four years. However, the project closed after three years as the result of legal proceedings. The closing of the project coupled with delayed opening of some practices prevented complete data collection. Table 1 presents an outline of the study design as executed.

The demographic and dental health questions on the SUIVS and EPIVS were based on questions used by the National Center for Health Statistics (NCHS) in its surveys (10). These questions are unambiguous and reliability and validity are presumed by researchers using NCHS data. The dental hygiene satisfaction questions were adapted from the dental satisfaction questionnaire developed and validated by the RAND Corporation (11). The RAND instrument's reliability and validity are considered generalizable to other groups (12). Thus, the satisfaction questions used in this study have a presumption of validity and reliability, although project resources did not provide for an independent assessment.

Dental hygienist participants were

TABLE 1
Study Design and Execution of Surveys by Practice*

Survey and Follow-up	Practice Identification							
	A	B	C	D	E	F	G	H
SUIVS	P	P	P	P	P	P	P	P
12-month	P	P	P	P	P	P	P	P
24-month	P	P	P	P	P	C	C	C
EPIVS	P	P	P	P	P	C	C	C
12-month	P	P	P	P	P	C	C	C
24-month	C	C	C	C	C	C	C	C

*P indicates participated; C indicates closure prior to follow-up.

instructed to give the SUIVS to each of the first 100 new patients in their practices as they were leaving the first patient care visit (150 patients for the late starting practices). The first page was a cover letter requesting participation and providing instructions. Each questionnaire was accompanied by a stamped envelope addressed to the researchers. The dental hygienists were instructed to ask patients to complete and return the questionnaires after leaving the offices. This procedure was used to minimize the potential for hygienists to influence patients' responses. Patient volume in most practices and the early closure of the project resulted in fewer questionnaires being distributed than planned.

Patients completing the SUIVS and EPIVS were asked to provide their names and addresses. This information was used to send the follow-up postcard surveys 12 and 24 months after treatment.

A control group of new patients seeking care from dentists was sought. Letters requesting their participation and providing the opportunity for a postcard response for further information were sent to all general dentists practicing in the zip code areas of the independent dental hygiene practices. Ten dentists returned the postcard asking for more information. The researchers contacted each by telephone and explained the project. All agreed to participate and SUIVS and envelopes were distributed to the 10 dentists' offices. However, only 31 patient responses were received from the 10 practices, 25 from one practice. Efforts to elicit more responses from the dentists' offices failed, so a comparison group is not available.

Descriptive statistics (% distribution) for patients in the independent dental hygienist practices were generated. Changes in demographics of new patients between startup and established practices were tested using the chi-square test of independence.

Results

Response rates for the SUIVS and EPIVS in each of the practices are presented in Table 2. Hygienists in five practices (A–E) were given 100 SUIVS questionnaires to distribute to patients on their initial visits. Practices F–H were provided with 150 SUIVS questionnaires. After 18 months, 150 EPIVS were sent to practices A through E.

TABLE 2
Number of Initial Visit Questionnaires Distributed, and Number and Percent Returned by Practice

	SUIVS			EPIVS		
Practice	Distributed	Returned	%	Distributed	Returned	%
A	100	77	77.0	61	32	52.5
B	100	78	78.0	97	62	63.9
C	100	85	85.0	69	35	50.7
D	100	62	62.0	123	45	37.4
E	*	28	*	79	40	50.6
F	*	7	*			
G	150	90	60.0			
H	107	71	66.4			
Total	657	463†	70.5	429	214	49.9

*Unknown.
†Excludes practices E and F.

TABLE 3
Demographic Characteristics of Patients and Differences Between Startup and Established Practices

	SUIVS & EPIVS All Practices		SUIVS Practices A–E		EPIVS Practices A–E	
Characteristic	%*	(*n*)	%*	(*n*)	%*	(*n*)
Age (years)						
<18	13	(95)	12	(38)	23	(49)†
18–64	76	(536)	78	(255)	68	(145)
65+	10	(73)	11	(36)	9	(20)
Sex						
Male	39	(276)	41	(133)	40	(86)
Female	61	(431)	59	(195)	60	(127)
Ethnic origin						
White	89	(620)	93	(303)	80	(169)†
Nonwhite	11	(78)	7	(22)	20	(42)
Educational attainment (18+)						
High school or less	21	(130)	21	(62)	26	(42)
1–3 years college	37	(226)	38	(111)	35	(58)
4+ years college	42	(257)	41	(118)	39	(64)
Family income						
<$20,000	22	(131)	21	(60)	31	(52)†
$20,000–$34,999	17	(103)	14	(40)	19	(32)
$35,000–$49,999	27	(161)	30	(87)	23	(39)
$50,000+	34	(202)	35	(99)	28	(44)

*May not total to 100% due to rounding.
†$P \leq .05$ for differences between SUIVS and EPIVS.

Patient distribution of questionnaires for practice H was not complete, and the number distributed in practices E and F was not recorded, so a response rate for these practices could not be calculated. Excluding practices E and F, 657 SUIVS questionnaires were distributed to patients and 463 were returned, a response rate of 70.5 percent. For the EPIVS, 429 questionnaires were distributed, with 214 being returned, a response rate of 49.9 percent.

Characteristics of Patients Seeking Care from Independent Dental Hygiene Practices. Demographic characteristics for respondents to the SUIVS and EPIVS questionnaires are presented in Table 3. Overall (SUIVS and EPIVS combined for all practices), most patients treated by the independently practicing dental hygienists were adults: 76 percent were between the ages 17 and 65 years, 10 percent were 65 years of age or older, and the remaining 13 percent were under 18 years of age. Sixty-one percent of those responding were female. Data on ethnic origin revealed that 89 percent of the respondents were white, and 11 percent were American Indian/Native Alaskan, Asian, African-American, or Hispanic.

Educational attainment was analyzed for respondents aged 18 years or older. Of these, 21 percent had no more than a high school education. Almost 80 percent had attended college and 42 percent had finished four or more years of college. Twenty-two percent of patients reported total family income of less than $20,000 per year, 44 percent earned between $20,000 and $49,999, and 34 percent earned $50,000 or more per year.

Some changes in patient demographics were noted as the practices matured. A comparison of data for the five practices that participated in both the SUIVS and the EPIVS are present in Table 3. New patients in established practices were more likely to be nonwhite, younger, and report lower family incomes.

Data on the use of dental services and the relationship of patients with dentists are shown in Table 4. Time since last dental appointment and last prophylaxis were similar for SUIVS and EPIVS respondents combined. Sixty percent of respondents had made a dental visit within the previous year and 63 percent reported a prophylaxis during that time. Twenty-one percent had not had a dental visit for two years or longer; 19 percent had not had a prophylaxis in that period of time. Forty-one percent reported not having a regular dentist at the time of their hygiene visit.

Differences between respondents to the SUIVS and EPIVS questionnaires on time since last dental visit and time since last prophylaxis were both significant ($P<.05$). Compared to SUIVS respondents, more respondents to the EPIVS had not made a dental visit (50% vs 40%) or had not received a prophylaxis (53% vs 34%) in the past year. The percent who did not have a regular dentist increased from 41 percent to 49 percent as the practices matured, a difference that approached significance ($P=.06$).

TABLE 4
Use of Dental Services and Relationships with Dentists

Characteristic	SUIVS & EPIVS All Practices		SUIVS Practices A–E		EPIVS Practices A–E	
	%*	(*n*)	%*	(*n*)	%*	(*n*)
Time since last dental visit						
< 1 year	60	(409)	60	(192)	51	(101)†
1–2 years	20	(134)	20	(63)	24	(48)
2+ years	21	(143)	20	(65)	26	(51)
Time since last prophylaxis						
< 1 year	63	(425)	66	(211)	47	(91)†
1–2 years	19	(127)	19	(59)	25	(48)
2+ years	19	(127)	15	(49)	28	(55)
Relationship with dentist						
Have regular dentist	59	(415)	59	(192)	51	(106)
Do not currently have/never had regular dentist	41	(288)	41	(132)	49	(102)

*May not total to 100% due to rounding.
†$P<.05$ for differences between SUIVS and EPIVS.

TABLE 5
Percent of Respondents Seeing a Dentist in Previous 12 Months by Prior Relationship to Dentist and Time Since Last Dental Visit

Characteristic	SUIVS & EPIVS		12-month Follow-up		24-month Follow-up	
	%	(*n*)	%	(*n*)	%	(*n*)
Relationship to dentist						
Had regular dentist	59	(415)	88	(182 of 208)	93	(116 of 125)
Did not have/never had regular dentist	41	(228)	84	(63 of 75)	78	(35 of 45)
Time since last dental visit						
Within 2 years	79	(543)	82	(210 of 255)	89	(131 of 147)
2 years or longer	21	(143)	74	(36 of 49)	88	(22 of 25)

Patient Satisfaction. The second research question addressed satisfaction of independent dental hygiene practice patients with their care. Patients answered on a five-point Likert scale (strongly agreed, agreed, were not sure, disagreed, strongly disagreed) whether they agreed or not with the statement "I am satisfied with my dental hygiene treatment." Ninety-nine percent of the respondents ($n=368$) agreed or agreed strongly that they were satisfied. Only 1 percent ($n=6$) provided other responses—three individuals were not sure, one disagreed, and two disagreed strongly with the satisfaction statement. New patients responding from the established practices gave a virtually identical set of responses to those at startup. Ninety-eight percent agreed or agreed strongly ($n=210$), 1 percent were not sure, and 1 percent disagreed or disagreed strongly.

Patient Visits to the Dentist. The third research question assessed follow-up visits to dentists by patients seen in these independent dental hy-

gienist practices. Both the 12-month and 24-month follow-up surveys were sent to 330 individuals who had provided their names and addresses. An additional 382 individuals were sent only the 12-month follow-up survey because the project closed prior to the time for the 24-month follow-up. Of the 712 12-month follow-up surveys mailed to patients, 44 percent (n=311) were completed and returned. Of the 330 24-month follow-up surveys mailed, 52 percent (n=172) were completed and returned. Eighty percent of the respondents had seen a dentist within 12 months of their visit to one of the independent dental hygienists and 89 percent had seen a dentist within 24 months.

Data were analyzed to determine if patients' relationship with a dentist and time since last dental visit were associated with their seeking follow-up care from dentists. As shown in Table 5, 88 percent of patients who reported having a regular dentist prior to being seen in an independent hygienist practice visited the dentist within 12 months after care. Of those who reported not having a regular dentist, 84 percent visited the dentist within 12 months. At 24 months, 93 percent and 78 percent of those with and without a regular dentist, respectively, reported a dental visit within the last year. At the 12-month follow-up, 82 percent of those who had seen a dentist within two years prior to receiving hygiene care had a dental visit in the following 12 months. For those who had not seen a dentist in two years or longer, 74 percent visited the dentist within one year after being treated by the independent dental hygienist. At the 24-month follow-up, almost 90 percent of respondents in both groups had seen a dentist in the preceding 12 months.

Discussion

This research project was undertaken to provide information for legislators and other decision makers who must assess the merits of alternative practice settings for dental hygienists. We have addressed three issues regarding independent dental hygiene practice: who sought care from these practices, were the patients satisfied with their care, and did the patients seek follow-up care from dentists. Answers to these questions can provide information on the potential impact of independent dental hygiene practice on access to care.

The study was limited in several ways. First, the project operated from the beginning under a legal challenge that ultimately forced the practices to close. How the independent dental hygienists would have marketed their services under different conditions is not known. The premature closure of the project also meant that data collection was limited. A second weakness is that we relied on self-reported data, and there is always the potential for response bias in self-reports. Third, project resources did not allow for a nonresponse analysis for the initial visit surveys. This concern is mitigated slightly by the good response rates, ranging from 50 percent to 70 percent, but such an analysis would have been desirable. For the 12- and 24-month follow-up surveys, response rates were 44 percent and 52 percent. A comparison of the demographics of responders and nonresponders in these follow-up surveys revealed similarities in sex and educational attainment. However, compared to nonresponders, fewer responders were under 18 years of age and fewer were nonwhite (P<.05). The reasons for these differences are not clear. A fourth weakness of this study is that dentists in the same areas as the experimental dental hygiene practices were unwilling to participate in the study, so there was no comparison group of dentists' patients.

In the absence of a control group, characteristics of dental hygienist patients were compared to the western regional sample of employed dentate adults described in the adult oral health survey by the National Institute of Dental Research (13). Both our sample and that of the NIDR demonstrated high educational attainment; 37 percent of our sample and 36.5 percent of the western regional sample had completed one to three years of college. However, 42 percent of our group compared to only 21.2 percent in the NIDR sample completed 16 or more years of education.

Data on income could not be compared directly because different categories were used in the two studies to summarize the data; however, 61 percent of our sample reported incomes of $35,000 or more per year, while 26.7 percent of the NIDR sample reported earning $40,000 or more per year. Sixty percent of our study sample and 58.4 percent of the regional sample of employed adults reported having had a dental visit within the last year. Although differences between the two study results exist, notably in those attaining the highest levels of education and percentages with the highest incomes, these data also share similarities.

Changes in the independent dental hygiene practices as they matured provided some insight into whether or not independent practice by dental hygienists will broaden access to care. A comparison between the SUIVS and EPIVS results highlighted some shifts in the treated population. Compared to the startup practices, a larger proportion of new patients in established practices were nonwhite and had lower incomes, those groups with historically lower rates of dentist utilization. Also, the time since last dental visit and last prophylaxis was greater for patients seen in the established practices.

Patient satisfaction is increasingly accepted as an element in perceived quality of care (14). Patient satisfaction with services provided by the independently practicing dental hygienists was very high. Ninety-eight percent of the survey respondents reported they were satisfied or very satisfied with care. Other investigators have described satisfaction with dental care as generally being high. Using the satisfaction questionnaire upon which ours was based, Davies and Ware (12) reported a mean score of 3.26 for general satisfaction on a scale of 1 to 5, 5 being the most satisfied. Using multiple scales scored 1 to 6, Chapko et al. (15) reported mean scores on seven of 13 scales to be 5.5 or higher, between 5.0 and 5.5 on two more scales, and between 4.5 and 5.0 on the four remaining scales.

The results of this study suggest that independently practicing dental hygienists facilitated visits to the dentist among their patients. The follow-up surveys indicated that more than 88 percent of patients who reported having a regular dentist and 84 percent of those who reported not having a regular dentist were seen for dentist visits within 12 months of treatment by the independent practice dental hygienists. In addition, more than 70 percent of the respondents went to the dentist within 12 months even if it had

been two years or longer since they had last visited a dentist. This result is in contrast to the responses to the initial visit surveys, where 41 percent reported not having a regular dentist and 21 percent had not seen a dentist in two years or longer. If independent dental hygiene practitioners can focus patients to initiate or return to dentist care, they can indeed improve oral health for the population.

One experiment over a limited period of time does not answer all questions about independent dental hygiene practice. Nevertheless, this study does begin to address issues of interest to the dental community. Patients of independent dental hygiene practices just getting started tended to be white, well educated, and earned high incomes. Results suggest that a more diverse population of patients was treated after the practices were established for 18 months. Generally, patients were satisfied with dental hygiene care provided in settings without dentists. Also, under the circumstances of this study of independent practices where referral to dentists was required, patients sought dentist care in both the first and second year after the dental hygiene visit. The independent dental hygienist practices facilitated access to dental care in California. These data provide a step away from rhetoric and toward analysis of the consequences of independent dental hygiene practice.

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