Dental Hygienist Attitudes toward Providing Care for the Underserved Population

Lynn A. Marsh RDH, EdD

Abstract

Purpose: The purpose of this study was to investigate registered dental hygienists' attitude toward community service, sensitivity to patient needs, job satisfaction and their frequency to volunteer care for the underserved population.

Methods: A 60 question survey instrument was developed and distributed to 306 participants. The survey instrument addressed the following variables: community service, sensitivity to patient needs, job satisfaction, social responsibility, spirituality and willingness to volunteer care. A total of 109 surveys were returned yielding a 33.9% response rate. SPSS version 19.0 was utilized for data analysis. Based on the factor analysis, the 6 original variables were reduced to 3 variables, which included attitude toward community service, job satisfaction and sensitivity to patient needs.

Results: For registered dental hygienists their level of education, membership in their professional association, attitude toward community service and sensitivity to patients were associated with their frequency of volunteering care for the underserved population. Additionally, a discriminant analysis indicated a strong prediction among registered dental hygienists attitude toward community service and job satisfaction to their frequency of volunteering care for the underserved population.

Conclusion: This research study of the factors that influence registered dental hygienists' frequency of volunteering care indicates how important oral health care preparatory norms and dispositions are to the underserved population. Understanding what persuades registered dental hygienists to volunteer care provides valuable information to registered dental hygienists, as well as dental hygiene programs regarding volunteering care for the underserved population and the importance of attitudes toward community service, sensitivity to patient needs and job satisfaction.

Keywords: Underserved population, access to care, community service, sensitivity to patient needs, job satisfaction

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Introduction

The Surgeon General's Report on Oral Health identified barriers to care as restraining people from care that is needed, and the inability to access venues where care is delivered.[1] Geographic location or physical restrictions that patients endure can be resolved by dental hygienists who are willing to work to overcome these barriers. Numerous reports and studies have been published documenting the increased concern regarding the oral health status of low–income children and the aging population.[1]

Millions of Americans are not receiving oral health care because of "persistent and systemic" barriers that disproportionately affect children, older adults and the underserved populations. More than half of the population does not visit a dentist each year. Children and older adults are considerably less likely to have access to oral health care than are their peers.

Americans living in rural areas have poorer oral health status and more unmet dental needs than their urban counterparts. Older adults, especially those living in long–term care facilities, have a high prevalence of oral health problems and difficulty accessing care by individuals trained in their special needs.[2]

According to Haley et al, 48% of low–income older adults have no dental coverage, 38% have no insurance coverage at all and 21% have insurance coverage that does not include dental care. Low–income older adults are more likely than higher–income older adults to have gone without routine dental care and are one and a half times as likely to have unmet dental needs. Low–income older adults without dental coverage experience difficulty in accessing dental care.[3]

More states with volunteer programs that offer sovereign immunity are essential to helping the un-

derserved population within communities.[4] Health care providers in sovereign immunity states might be more willing to volunteer knowing they would not be held liable for damages. Sovereign immunity would also be appealing to those health care providers that did not hold personal malpractice insurance. Sovereign immunity legislation would allow health care providers to volunteer services in dire need without the concern of malpractice liability. Although volunteer programs alone cannot solve the problem of access to care for the uninsured and underserved populations, they are viable and significant part of a comprehensive approach as future health reform unfolds.[4]

The lack of access to dental care directly affects children, and the majority of high–risk children will develop active carious lesions by the age of 3 or 4. This access to care has a considerable impact in terms of the lost opportunity for disease prevention. As a result of this lost opportunity, most decayed teeth go untreated regardless of the significant health consequences. As the 2000 Surgeon General's Oral Health Report indicated, some public, policymakers and providers considered oral health and the need for care to be less important than other health needs, pointing to the need to raise awareness and improve oral health literacy. When oral health was recognized as important to overall health, increased consideration was given to the importance of dental health and the problems caused by lack of dental care.[1] Table I lists definitions for variables used in this research study.

Methods and Materials

A 60 question survey instrument was developed for distribution to participants of this research study. Respectively, 10 questions addressed social responsibility, spirituality, community service, sensitivity to patient needs, job satisfaction and volunteerism. Completion and return of the survey indicated consent from the subject to participate in this research study. Both the electronic and mailing methods of the survey instrument remained anonymous and confidential throughout the study. The institute review board concerning the rights of human subjects approved this research study.

Participants responded to items previously defined and related to job satisfaction based on Williams,[6] social responsibility based on Faulkner and McCurdy,[11] spirituality based on Harrington, Preziosi et al,[12] community service based on McClain et al,[5] sensitivity to patient needs based on Darby et al[8,9] and volunteerism based on Azad.[7] The participants responded to statements on the survey instrument using a 5–point Likert (strongly agree – strongly disagree) scale and reported their own sense of social responsibility, spirituality, community service, sensitivity to patient needs, job satisfaction and their willingness to volunteer to care. The participants responded to statements based on their experience since becoming a dental hygienist. The data gathered from this research study was analyzed using the Statistical Package for the Social Sciences Program (SPSS).

A random sample of 306 participants of the sample size of 1,497 registered dental hygienists on Long Island, New York was used for this study. There were 306 survey instruments distributed to registered dental hygienists for completion electronically, as well as through the U.S. Post Office. Of the 306 surveys, 104 surveys were completed through the web based option of Survey Monkey,

Table I: Table of definitions, for the purposes of this study

Community Service	
	The definition of community service/programs is defined as providing communities with highly accessible, affordable and responsive health promotion, education and disease prevention programs.[5]
Sensitivity to Patient Needs	
	The definition of sensitivity to patient needs is a paradigm that provides a comprehensive and patient–centered approach to the dental hygiene care in which need fulfillment dominates human activity and behavior is organized in relation to unsatisfied needs.[8,9]
Job Satisfaction	
	The definition of job satisfaction is defined as the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs and is a general or global affective reaction that individuals hold about their job.[6]
Social Responsibility	
	The definition of social responsibility is defined as the state of being fit to be trusted, worthy of confidence, and dependable for the improvement of the health of society and its members through spirituality, community service, job satisfaction and volunteerism.[11]
Spirituality	
	Spirituality is defined as "expression of inner life needs by seeking meaningful work that energizes and provides enthusiasm to pursue one's life's work alongside others.[12]
Willingness to Volunteer Care	
	The definition of willingness to volunteer care is through their involvement, professionals demonstrate good citizenship, experience personal satisfaction and growth and advertise their abilities.[7]
Underserved Population	
	The definition of underserved population is defined as children from the ages of 1 to 18 and adults 65 and older that do not have adequate financial resources to avail themselves of appropriate dental care.[10]

and 5 surveys were returned through the U.S. Post Office. A total of 109 respondents submitted surveys, yielding a 33.9% response rate.

For the purpose of this study, all items on the survey instrument were subjected to the factor analysis is SPSS version 19.0 utilizing 109 surveys to acquire distinct variables. Based on the factor analysis, the 6 original variables were reduced to 3 variables, which included job satisfaction, attitude toward community service and sensitivity to patient needs. All results reported are based on the 3 variables, which was the outcome from a reduction of data process utilizing a Principle Component method and a Varimax with Kaiser Normalization rotation procedure. As a result of the factor analysis, items 29, 35, 42r and 46 on the survey instrument did not fit conceptually in the three newly rotated variables and were removed from the survey instrument as well as further statistical analysis.

After the factor analysis, the original factor of volunteering combined with community service to create a new factor, "attitude toward community service." This factor is comprised of both attitudes and actions regarding community service. Additionally, the factor "sensitivity to patient needs" was created on the theoretical framework of Darby et al.9 Several of the items from the proposed factor of spirituality combined with job satisfaction which remained the job satisfaction variable.

A Cronbach analysis of internal consistency was conducted for the reliability of each subscale by using participant responses. An independent t–test and ANOVA were used to analyze the part time and full time registered dental hygienists who hold and do not hold professional membership status and who have different levels of education and years of experience.

A correlation analysis was conducted to examine if a relationship existed between registered dental hygienists' level of education and years of experience, attitude toward community service, sensitivity to patient needs and job satisfaction, and their frequency of providing care for the underserved population.

A discriminant analysis was conducted to determine whether the dental hygienists' part time or full time employment status, professional membership status, level of education, years of experience, attitude toward community service, job satisfaction and sensitivity to patient needs discriminate their frequency of providing care for the underserved population.

Results

A one–way ANOVA between groups was performed to examine the differences between the participant responses regarding years of experience and job satisfaction. There was no significant difference ($F(4)=0.73$, $p=0.58$). No difference was indicated between the registered dental hygienists years of experience and job satisfaction (Table II).

A one–way ANOVA between groups was performed to examine the differences between the participant responses regarding years of experience and community service. There was no significant difference ($F(4)=1.27$, $p=0.29$). In addition, there was no significant difference between the registered dental hygienists' years of experience and community service (Table III).

A one–way ANOVA between groups was performed to examine the differences between the participant responses regarding years of experience and sensitivity to patient needs. There was no significant difference ($F(4)=0.61$, $p=0.66$). No difference was indicated between the registered dental hygienists years of experience and sensitivity to patient needs (Table IV).

A one–way ANOVA between groups was performed to examine the differences between the participant responses regarding level of education and job satisfaction. There was no significant difference ($F(2)=0.61$, $p=0.55$). No difference was indicated between the registered dental hygienists level of education and job satisfaction (Table V).[13]

A one–way ANOVA between groups was performed to examine the differences between the participant responses regarding level of education and their attitude toward community service. There was a significant difference ($F(2)=11.32$, $p=0.00$) between the registered dental hygienists level of education and their attitude toward community service (Table VI).[13]

There was a significant difference in the means between the registered dental hygienists level of education and attitude toward community service between the bachelor degree ($p=0.01$) and the master's degree plus doctoral degree ($p=0.00$) and the associate degree. The participants with a master's degree plus doctoral degree reported more positive attitudes toward community service than the associate degree and bachelor degree participants. In addition, the bachelor degree participants expressed more positive attitudes toward community service than the associate degree participants.[13]

A correlation statistical analysis procedure utiliz-

ing the Pearson Product Moment Correlation Test was conducted to examine the existence of a relationship among registered dental hygienists' level of education and years of experience, community service, sensitivity to patient needs, job satisfaction and their frequency of volunteering care. Using the Pearson Correlation approach, a p value of <0.05 was required for significance.[13]

There was a significant correlation regarding the registered dental hygienists' frequency of volunteering and all the variables: positive attitude toward community service (r=0.59, p=0.00), sensitivity to patient needs (r=0.30, p=0.00), level of education (r=0.34, p=0.00) and job satisfaction (r=0.25, p=0.02). Attitudes toward community service shared a variance of r^2=34.81%, sensitivity to patient needs shared a variances of r^2=9%, level of education shared a variance of r^2=12% and job satisfaction shared a variance of r^2=6.25%. There was also a significant relationship between the registered dental hygienists level of education and attitude toward community service (r=0.44, p=0.00), with a shared variance of r^2=19.36%. In addition, there was no significant relationship among the registered dental hygienists' years of experience and job satisfaction, attitude

Table II: Descriptive statistics: Years of experience and job satisfaction

	n	M	SD
Less than 1 year	13	59.92	7.71
1 to 5 years	19	58.42	10.37
5 to 10 years	13	55.69	8.84
10 to 20 years	21	57.00	9.57
More than 20 years	27	60.22	9.47
Total	93	58.45	9.33

One–Way Between Groups Analysis of Variance (ANOVA): Job Satisfaction					
	Sum of Squares	df	Mean Square	F	p
Between Groups	256.04	4	64.01	0.73	0.58
Total	325,746	93			

Table III: Descriptive statistics and ANOVA: Years of experience and attitude toward community service

	n	M	SD
Less than 1 year	14	63.71	7.00
1 to 5 years	18	56.39	12.12
5 to 10 years	12	54.50	15.44
10 to 20 years	19	59.95	9.02
More than 20 years	26	60.23	13.92
Total	89	59.17	12.06

One–Way Between Groups Analysis of Variance (ANOVA): Community Service					
	Sum of Squares	df	Mean Square	F	p
Between Groups	730.77	4	182.69	1.27	0.29
Total	324,374	89			

Table IV: Descriptive statistics and ANOVA: Years of experience and sensitivity to patient needs

	n	M	SD
Less than 1 year	14	66.93	5.14
1 to 5 years	19	64.05	8.74
5 to 10 years	12	66.33	6.88
10 to 20 years	22	65.95	6.80
More than 20 years	26	67.19	6.88
Total	93	66.11	7.01

One–Way Between Groups Analysis of Variance (ANOVA): Sensitivity to Patient Needs					
	Sum of Squares	df	Mean Square	F	p
Between Groups	121.39	4	30.35	.61	.66
Total	410,944	93			

toward community service and sensitivity to patient needs. A strong relationship was evident among sensitivity to patient needs and community service (r=0.50, p=0.00) and shared 25% of the variance. Also, a relationship was evident among job satisfaction and community service (r=0.37, p=0.00) and shared 13.7% of the variance. Lastly, there was no significant relationship among the registered dental hygienists level of education and job satisfaction and sensitivity to patient needs. However, a significant difference is evident regarding the registered dental hygienists' level of education and attitude toward community service.[13]

Table V: Descriptive statistics and ANOVA: Level of education and job satisfaction

	n	M	SD
Associate Degree	57	57.82	8.82
Bachelor Degree	18	58.28	9.80
Master Degree or Doctoral Degree	18	60.61	10.59
Total	93	58.45	9.33

One–Way Between Groups Analysis of Variance (ANOVA): Job Satisfaction					
	Sum of Squares	df	Mean Square	F	p
Between Groups	106.90	2	53.45	0.61	0.55
Total	325,746	93			

Table VI: Descriptive statistics and ANOVA: Level of education and attitude toward community service

	n	M	SD
Associate Degree	52	55.60	11.19
Bachelor Degree	18	58.67	10.45
Master Degree or Doctoral Degree	19	69.42	10.24
Total	89	59.17	12.06

One–Way Between Groups Analysis of Variance (ANOVA): Attitude toward Community Service					
	Sum of Squares	df	Mean Square	F	p
Between Groups	2665.32	2	1332.66	11.32	.00
Total	324,374	89			

Table VII: Wilk's Lambda

Test of Function(s)	Wilks' Lambda	Chi–square	df	p
1 through 2	0.61	33.53	12.00	0.00
2	0.99	0.78	5.00	0.98

A discriminant analysis was performed to determine whether the registered dental hygienist's part–time or full–time status, membership status, level of education and years of experience, community service, sensitivity to patient needs and job satisfaction could classify within the 3 levels of frequency of volunteering: never, twice a year and once a year.

The overall Wilk's Lambda was significant (Λ=0.61, x^2(12, N=73)=33.53, p<0.01), indicating that the overall predictors were distinguished among the groups. Additionally, the residual Wilk's Lambda was not significant (Λ=0.99, x^2=(5, N=73)=0.78, p<0.01). The discriminant analysis test indicated that the predictors of attitude toward community service and job satisfaction distinguish significantly among the registered dental hygienists who volunteered twice a year, and those who never volunteered or who volunteered once a year. Both discriminant functions were analyzed and reported as a result of their significance (Table VII).[13]

The first discriminant function indicates that attitude toward community service has a relatively large positive coefficient as level of education has a weaker coefficient, and a negative relationship exists among sensitivity to patient needs, membership status and full–time/part–time employment status. The second discriminant function indicates that the largest positive coefficient is job satisfaction, while a negative relationship is evident for community service, sensitivity to patient needs and membership status. On the strength of these standardized functions and structure coefficients, the first and second discriminant functions are identified as 1=Attitude toward Community Service and 2=Job Satisfaction. Attitude toward community service and level of education accounts for 38.44% of the variance in frequency to volunteer, while job satisfaction, sen-

sitivity to patient needs and membership accounts for 1.21% of the variance in frequency to volunteer care. The values labeled group centroids are the mean values on the discriminant functions for the registered dental hygienist frequency to volunteer care (Tables VIII, IX).[13]

Table VIII: Standardized canonical discriminant function coefficients

	1	2
Job Satisfaction	0.07	0.98
Attitude toward Community Service	0.88	–0.06
Sensitivity to Patient Needs	–0.01	–0.56
Membership	–0.14	–0.41
Full–time/Part–time	–0.03	0.18
Level of Education	0.33	0.08

Table IX: Functions at Group Centroids

Frequency of Volunteering	Function	
	1	2
Never	–0.90	0.04
Once a year	0.32	–0.14
Twice a year	0.99	0.13
Unstandardized canonical discriminant functions evaluated at group means		

The means of discriminant function are consistent with the analysis of the functions of group centroids. Dental hygienists that volunteer most frequently had the highest discriminant function mean (M=0.99) regarding attitude toward community service (discriminant function 1). Dental hygienists that volunteer once a year had a lower discriminant function mean score (M=0.32), while dental hygienists that never volunteer had a negative discriminant function mean score (M=–0.90). Additionally, dental hygienists that volunteer most frequently had the highest discriminant function mean (M=0.13) regarding job satisfaction (discriminant factor 2). Dental hygienists that never volunteer had a lower discriminant function mean score (M=0.04) while dental hygienists that volunteer once a year had a negative discriminant function mean score (M=–0.14).[13]

Discussion

The findings suggest that registered dental hygienists, who are members of the American Dental Hygienists' Association, are more active participants in community service activities than registered dental hygienists that are not members. In addition, registered dental hygienists who held a bachelors, master's or doctoral degree had more positive attitudes toward community service activities, a greater sense of sensitivity to patient needs and were more likely to volunteer care for the underserved population than those who held an associate degree.

The research results suggest that registered dental hygienists' attitude toward community service, sensitivity to patient needs and job satisfaction relate to the frequency in which dental hygienists volunteer care for the underserved population. A positive attitude toward community service has a significant relationship to frequency of volunteering to serve underserved populations. The recognition of the significant findings related to the frequency of volunteering and community service are consistent with findings as reported by McBride et al, that citizenship came with responsibilities that included being involved in one's community and taking care of the underserved population.[14] Volunteerism aids in developing open–mindedness and understanding of the underserved populations. It is imperative to understand the potential challenges regarding the underserved population and successful volunteerism by registered dental hygienists. An increasing number of health professionals argue that volunteerism, encouragement and guidance represent core professional responsibilities with essential implications for responsibly serving underserved populations.[15]

The discriminant analysis predicted that registered dental hygienists' attitudes toward community service activities have an impact on the frequency of their volunteering care for the underserved population. While 11% of the variance was accounted for in job satisfaction, the discriminant analysis clearly demonstrated that registered dental hygienists who hold positive attitudes toward community service programs and activities will more frequently volunteer care for the underserved population. The assumption can be made that the better disposed a dental hygienist is toward community service, the more frequently one will volunteer care for the underserved population.[13] These findings relate to service and frequency to volunteer care were consistent with findings in the literature. Although volunteer programs alone cannot solve the problem of access to care for the uninsured and underserved populations, they are a viable and significant part of a comprehensive approach as future health reform unfolds.[4]

The results of this study are limited to registered dental hygienists on Long Island, New York. All par-

ticipants in this study graduated from an accredited dental hygiene school and held a license to practice dental hygiene in New York State. Dental hygienists practicing on Long Island participated in this study and results may generalize to dental hygienists' in similar regions of the U.S. composed of small towns and hamlets in a suburban setting.

The following recommendations are made: Incorporate more volunteering and community service activities within the dental hygiene curriculum, and facilitate agreements with other health care disciplines to foster a volunteer and community service program within the curricula.[13]

Registered dental hygienists who held positives attitudes toward community service represented 33% of participants on the dimension of attitude toward community service. Furthermore, participants that provided community outreach to the uninsured or underinsured also held positive dispositions toward community service and represented 31% of the respondents. Lastly, respondents who participated in outreach oral hygiene projects for various communities indicated they held positive dispositions toward community service, and represent 15.9% of the participants on the dimension of attitude toward community service.[13]

The results of this research study illustrate the attitudes of registered dental hygienists regarding frequency of volunteering care for the underserved population. Of the 306 surveys, there were 109 participants. This research study is limited to the research population and is too small to generalize to all registered dental hygienists. Therefore, the following recommendations are made to support future research based on the findings and conclusions of this study:

1. Replicate this study by distribution of a survey instrument to a wider respondent and more diverse population
2. Conduct studies regarding volunteerism among dental hygienists and volunteerism to serve the uninsured, elderly and underserved population
3. Design the study in order to reach an equal population of members and non–members of the American Dental Hygienists' Association
4. Conduct an ethnographic study to better understand the motive of registered dental hygienists for volunteering care for the underserved population

Conclusion

This investigation of the factors that influence registered dental hygienists' frequency of volunteering care indicates how important oral health care preparatory norms and dispositions are to oral care for underserved populations. Understanding what motivates registered dental hygienists to volunteer care provides valuable information to the profession as well as dental hygiene program leaders related to the importance of fostering attitudes toward community service, sensitivity to patient needs and job satisfaction variables. It is evident that the attitudes of registered dental hygienists toward community service are not universal. Community service and volunteer directives could influence the awareness of dental hygienists as well as dental hygiene students. Consequently, the findings of this research study could increase understanding regarding preventive oral health care for the underserved population through the incorporation of community service and volunteering programs.

Lynn Marsh RDH, EdD, is a full–time professor at Farmingdale State College Department of Dental Hygiene.

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