

**Determination of Attitudes and Knowledge about Patient Perceptions of
Expanded Roles and Responsibilities for Dentists as "Oral Physicians"**

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Justin Scott Cooper

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Research Mentor: Donald B. Giddon, DMD, PhD

Harvard School of Dental Medicine

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Abstract

The overall objective of this study was to determine knowledge and attitudes of dentists and patients about dentists' expanding their roles in preventive primary health care as oral physicians. There are hundreds of genetic and systemic diseases with oral manifestations which are potentially recognizable by dentists (9,12), including developmental delays, eating disorders, diabetes, osteoporosis, substance abuse, child neglect and abuse, domestic abuse, oral cancer, skin cancer, mental health problems, and lung cancer (3), in addition to using their skills as primary backup to physicians during disasters.

To determine the most salient concerns of dentists, consumers, patients and other health care professionals, informal and structured interviews were conducted personally and electronically, as well by administration of a limited number of pilot surveys. A major focus of these inquiries was to assess the willingness of dentists to expand their roles and of patients these additional services with compensation.

Based on these preliminary observations and various logistic issues, it was decided to first survey patients at two different clinical sites: Harvard School of Dental Medicine (HSDM) teaching practice and a representative private practice in Pennsylvania (PA). In addition to demographic information on gender, age, and education, 85 HSDM patients and 200 PA patients responded to a Likert format scale (Strongly Agree, Agree, Disagree, Strongly Disagree). The average age was 43.8 years across both samples, with a standard deviation of 14.47. Because there were no differences between these patient groups except for older patients in PA, the samples were combined. Statistical analyses by gender, age, and education revealed little difference except that women were more accepting than males of expanded roles as oral/dental physicians. . Similarly, the higher the education, particularly of women, the more supportive of dentists being called oral or the more preferred dental physicians. Understandably, the older patients were more concerned about integration of dental with general health .

Overall the results were surprisingly favorable (at least 71%) toward expanded responsibilities of dentists who should be called oral or dental physicians.

Objective

The overall objective of this research project is to determine the magnitude and bases of public and professional approval or resistance to dentists expanding their roles and responsibilities as “oral physicians.”

Background and Significance

The practice of dentistry today differs greatly from that in the past. The first acknowledgment of oral disease can be found in a Sumerian text that dates back to 5000 BC, in which “tooth worms” described the cause of dental decay. It was not until 2400 years later, in 2600 BC, that an Egyptian scribe named Hesy-Re died, whom many call the first “dentist.” An inscription on his tomb includes the title “the greatest of those who deal with teeth, and of physicians.” This inscription accounts for the earliest known reference of a person identified as a dental practitioner. (14)

Between 500 and 300 BC Hippocrates and Aristotle wrote a great deal about dentistry, including the eruption pattern of teeth, how to treat decayed teeth and gum disease, how to extract teeth using forceps and the ability to stabilize loose teeth and fractured jaws with wires. (14) Of note was a 5th century B.C. historian, Herodotus, who described the medical art in Egypt: "The art of medicine is distributed thus: Each physician is a physician of one disease and no more; and the whole country is full of physicians, for some profess themselves to be physicians of the eyes, others of the head, others of the teeth, others of affections of the stomach, and others of more obscure ailments" (15).

In the years 500 to 1000 AD (during the early middle ages in Europe), medicine,

surgery and dentistry were being practiced primarily by monks (the most educated people during this period). Amalgam was first documented around 70, in a medical text found in China mentioning the use of “silver paste.” By the mid 1100s barbers began to assist the monks in Europe, eventually taking over their responsibilities. (14)

In 1210, a guild of lay barbers, called “barber surgeons”, was first established in France. They helped to provide their community with common hygienic services such as shaving, bleeding and tooth extractions. By the mid 1500s the practice of dentistry was being written about in texts describing procedures such as drilling of teeth, removal of decay, producing gold fillings and maintaining good oral hygiene. It was not until 1723, however, that dentistry first became a true profession after the publication of Pierre Fauchard’s book *The Surgeon Dentist: A Treatise on Teeth*. Known as the “Father of Modern Dentistry,” Pierre Fauchard was a French surgeon who was able to construct a template for practicing dentistry; he instructed on oral anatomy and physiology, restorative procedures and even denture construction. (14)

The world’s first dental school was eventually established in 1840 as the Baltimore College of Dental Surgery. Graduates were awarded the first dental degree, the Doctor of Dental Surgery degree or “D.D.S.” The first university-affiliated dental school was founded soon after at Harvard University in 1867. Harvard decided to grant the degree D.M.D., or *Dentariae Medicinae Doctorae* in Latin. (14) Since this time there has been a continuous semantic debate in the dental community on which dental degree is best for the profession. Such debate has lasted more than a century, and continues in the year 2009. One study conducted in Ohio found that fewer than 20% of lay persons knew that a DDS and DMD received the same level of training and 69% felt

that DMDs had more training (18). DMD degrees at Harvard involved more medicine in the curriculum than did dental schools which granted the DDS degree. Although such debate appears at the forefront in the dental community, the possibility of dentists changing their name to “oral physician” may have a much larger impact on the future of dentistry in the 21st century. This research proposal is not to change the degree granted but to follow the present situation with the D.O. for osteopaths, who are now called physicians without changing their degree.

The dynamics of the healthcare system in America has been vastly changing with many scientific advances in diagnosing and treating complex diseases, growing demand for health care services and rising insurance costs. As the relation of oral health to overall or general health begins to be recognized, it is important for dentists to consider opportunities or even obligations to expand their role in meeting these increased health care needs (1). In 2006, Case Western University took an opportunity to develop a “Dentist-Physician Dual Degree Program,” allowing for students to receive both the D.M.D. and M.D. degree in a 5-year combined program. The goal of this program is to “create the dental health care practitioner of the future...” (19) As dental education begins heading in this direction, it may very well change how dentists expand their roles in their patients’ overall healthcare. Although not as well-trained medically as dentists, several paramedical professions have already appended the term “physician” to their professional designations; i.e. podiatrists are “podiatric physicians” in all states, optometrists are “optometric physicians” in nine states, and chiropractors are “chiropractic physicians” in thirty four states (16, 17).

Dentistry has evolved rapidly over the past several centuries with great technical innovations to greatly minimize pain and vastly improve clinical outcomes. With increasing recognition of the relationship between oral and general health, the dentist has become a key health professional involved in the general health of patients. A dentist today is currently defined as “a licensed practitioner who is skilled in the prevention, diagnosis, and treatment of diseases, injuries, and malformations of the teeth, jaws, and mouth and who makes and inserts false teeth (2).” Regardless of related public perceptions, such a definition is no longer realistic. There are hundreds of genetic and systemic diseases with oral manifestations which are potentially recognizable by dentists (9,12), including developmental delays, eating disorders, diabetes, osteoporosis, substance abuse, child neglect and abuse, domestic abuse, oral cancer, skin cancer, mental health problems, and lung cancer (3).

As evidence of progress, the American Dental Association (ADA) has recently recommended that dentists take on the task of tobacco-use cessation programs for their patients, with reimbursement (4). There have also been recent discussions by the ADA Board of Trustees to consider whether it should be mandatory for dentists to take their patients’ blood pressures to determine their cardiovascular risk and overall health (5). Obesity and substance abuse counseling by physicians are now covered by Medicare/Medicaid (20) and hopefully will eventually include dentists. In addition, the role of dentists in disaster relief during natural and man-made catastrophic disasters has been another topic of debate. Dentists from the state of Illinois have been avidly pursuing legislation change to promote dentists’ use as paramedical professionals in emergency medicine situations during disaster relief (13).

With the actual and potential expanded roles of dentists in the treatment of their patients, it becomes even more important to consider the implication of changing their designation to reflect these increasing responsibilities by permitting them to become “oral physicians.” Following earlier attempts by Dr. David Nash, Dr. Donald Giddon from the Harvard School of Dental Medicine has been at the forefront of promoting the use of the term “oral physicians” for present and future generations of dentists.

Based on preliminary studies of attitudes of both dentists (10) and potential patients (11) toward expanding the roles of dentists and other paramedical health professionals, Giddon has actively pursued legislative change, with the support of Senate and House representatives of the Commonwealth of Massachusetts. House Bill #2680 was one of the first attempts in the U.S. to make this change (6). In a recently published JADA article Dr. Giddon argues that “dentists are not being used to provide all the vital health services for which they are or could easily be trained (7).” Some of the opposition to the proposal includes Dr. Leon Assael from the Oregon Health & Sciences University School of Dentistry and much of organized dentistry, who have provided many counterarguments to changing the name “dentist” (7, 8), such as loss of autonomy, bureaucratic complications, insurance issues, and confusion of the public. There also exists the counterargument that regular dental services are currently under-supplied, which would only be magnified with an expansion of their roles in their patient’s overall health. As recently as March of 2009, an article was published in the New York Times showing that the lack of dentists in Maine has resulted in the need for medical doctors being trained to perform extractions. In Maine, there is only one dentist per 2,300 people, compared with only one dentist for every 1,600 people nationally. (21)

Although the Massachusetts legislature appears to be supportive of this effort to increase the health care base, the Massachusetts Dental Society has been leading the opposition to the oral physician concept with testimony and speaking out in the press (8). Although political debate continues, there is very little evidence on either side for how the public and majority of dentists feel about this issue. In order for Massachusetts to be the first state in the U.S. to authorize the change, it must first be assured of the support of the dental profession and then the public. To accomplish this, a significant study must be conducted of dentist and potential patient knowledge and attitudes about expanded roles and the change in the name of the profession to recognize dentists as oral or dental physicians. Similar information from other health professions, particularly medical doctors, will be needed to complement this data. In anticipation of this project, as the first delegate of the Harvard chapter of the American Student Dental Association, it was possible for me to conduct several discussions with classmates and dental students from other schools. After speaking with the American Student Dental Association Representative to the ADA and ADA Trustee, Dr. Sykes, it seemed to me that the idea of such a survey sparked a great deal of interest and intrigue.

The overall objective of this research project, therefore, is to determine the magnitude and bases of public and professional approval or resistance to dentists expanding their roles and responsibilities as “oral physicians.” It is very important to address both the concerns and opinions of dentists in expanding their role in patient’s health care as well as how the comfort of patients with these expanded roles. It must also be determined how capable dentists feel about diagnosing specific conditions associated with manifestations in the oral cavity. As noted, with hundreds of genetic and

systemic diseases manifest in the orofacial area dentists determine vital signs, examine oral hard and soft tissues and fluids, and easily observable body areas to recognize and refer for diabetes, oral and skin cancer, hypertension, osteoporosis, eating disorders, sleep apnea, substance and child/domestic abuse, and treat tobacco addiction. They may also provide the primary backup to physicians in the event of disasters or bioterrorism, e.g. triage, administer CPR, vaccines, and other injectables, perform minor medical / surgical intervention, and provide psychological support.

The willingness of patients to allow their dentists to provide limited primary care function, performing such diagnoses and/or to refer or possibly treat selected diseases, must also be determined. Of great importance for the dentist may also be the willingness of patients to compensate them for services which are not traditionally performed by dentists, even though there are or may be codes for reimbursement.

Specific Aims:

- 1) To use informal interviews, personal and electronic (e.g., blogs) to develop ideas for the design of surveys.
- 2) To develop a standardized interview of dentists (including dental students) and patients to determine their areas of concern about expanded responsibilities for dentists as oral physicians.
- 3) To establish a reliable and valid survey for knowledge and attitudes of both dentists, potential and actual patients, and physicians about expanded roles for dentists as oral physicians.
- 4) To administer the surveys to several hundred dentists and patients
- 5) To collect responses for preparation of table and data analysis to determine major

factors for and against expanding roles of dentists who may be permitted to be called “oral physicians.”

6) To use the results to develop a position paper, publications, and presentations for legislative action, professional and public awareness (to be completed throughout 2009).

Hypothesis

Patients will agree that the term oral physician is appropriate for dentists more so than other paramedical professions that already use the term.

Materials and Methods

In order to obtain these specific aims, it was decided that a survey would best capture individual opinions in an easily documented format. In order to ask the most appropriate questions for this objective, a series of informal oral and electronic interviews was undertaken.

1. Informal Interviews

Background information was obtained via informal personal and electronic interviews and discussions with lay persons, classmates, faculty, private practitioners and patients. There was no standard format for conversations but simple open-ended questions regarding the idea of being called “oral physicians” and the responsibilities of dentists in their patient’s overall health. Several ADA and Massachusetts Dental Society

members and executives were also contacted. A scripted dialogue was made and used for subsequent email and telephone conversations (see Appendix A). Although several members and executives were contacted via email and telephone, there were no recorded conversations. All dialogue was founded in person through informal verbal conversation. All of the information gathered was used as a foundation for proceeding with the following stages of this project.

2. Pilot Survey

Based on interviews and pilot surveys of dentists and lay persons, shown in Appendix B, as described below, it was decided to focus on actual and potential patients. This process began with an initial survey for Harvard School of Dental Medicine students, faculty and alumni to be distributed at the HSDM Alumni Day on June 10th, 2006. (See Appendix B for sample of survey). Questions included basic background information such as “year of graduation” and “state in which you practice” to more direct questioning such as “are you in favor of changing your designation as a dentist to “oral physician?”” These preliminary surveys provided a baseline of professional opinion regarding the research topic, specific to dentists and students associated with HSDM.

3. Other Interviews

Online interviews of practicing dentists throughout the United States were conducted via the message boards on dentaltown.com, dentistry.com, ask-the-dentists.com, dentalcom.net, dentistinfo.com and a few others. After registering as a member on some sites, several posts were made in different forums to capture a broad audience and a variety of responses. Continual dialogue with many dentists was made

to explore opinions on the name “oral physician” along with first-hand experiences of dentists expanding their roles in their patients overall healthcare. (See Appendix C for examples of dialogue).

4. Pre-test Survey

A pre-test survey was then developed using all of the background information gathered from previous resources. A list of 43 statements was generated with a Likert format of 4 responses (see Appendix D). Options for responses included only the numbers 1 through 4, with 1 representing “strongly agree,” 2 representing “agree,” 3 representing “disagree,” and 4 representing “strongly disagree.” This format forces subjects to make a decision rather than allow for a neutral response (using these numbers to calculate a mean would require translation to a 5-point scale). These statements were used to create and pretest a survey with face validity. Reliability was determined by finding the same responses to a repeated statement . This pre-test survey was distributed to a random sample of lay persons and dentists during a dental conference in Aruba. [sample of survey found in Appendix D]

5. Concentrate on Consumers

Based on assessment of resources and timing relative to obtaining objectives, it was decided to delay the survey of dentists until after the study of patients was completed; that is, focusing initially on patient perceptions was determined to be the most efficient means of obtaining information about the knowledge and attitudes of the public. Therefore, a final survey specific to patients was developed. . Using information from the pilot studies, the most applicable statements for determining knowledge and attitudes of patients using the same Likert format with 4 possible responses, the

statements were finalized, as shown in the following:

PATIENT ATTITUDES & KNOWLEDGE ABOUT DENTISTRY			
Date _____	Gender M ___ F ___ Age ___		
Occupation _____	Specialty _____		
Highest Degree _____	Last Visit to a Dentist _____		
Please circle one of the following choices for each statement to the best of your ability:			
1 = Strongly Agree 2 = Agree 3 = Disagree 4 = Strongly Disagree			
Dentists are trained to:			
Diagnose oral cancer.	1 2 3 4		
Treat oral cancer.	1 2 3 4		
Provide nutritional advice.	1 2 3 4		
Recognize the oral manifestations of eating disorders.	1 2 3 4		
Recognize high blood pressure.	1 2 3 4		
Recognize diabetes.	1 2 3 4		
Recognize HIV/AIDS.	1 2 3 4		
Recognize leukemia and other blood disorders.	1 2 3 4		
Diagnose oral herpes infections and other oral diseases.	1 2 3 4		
Recognize diseases in the mouth that occur elsewhere in the body.	1 2 3 4		
Dentists should be referred to as:			
Oral physicians.	1 2 3 4		
Dental physicians.	1 2 3 4		
Stomatologists.	1 2 3 4		
Dentists.	1 2 3 4		
Dentists should:			
review the complete patient medical history.	1 2 3 4		
Dentists should:			
be aware of the overall health of their patients.	1 2 3 4		
be expected to inform patients of general health concerns.	1 2 3 4		
provide medication for patients to quit smoking.	1 2 3 4		
Dental care should be compensated by medical insurance.	1 2 3 4		
Periodontal disease (disease of gums & supporting tissues) contributes to cardiovascular disease.	1 2 3 4		
Diseases of the oral cavity adversely affect overall health.	1 2 3 4		
Patients see dentists more often than primary care physicians.	1 2 3 4		
Dentistry is a specialty of medicine.	1 2 3 4		
DMDs are more qualified than DDS's to diagnose and treat oral diseases.	1 2 3 4		
DDS's are more qualified than DMDs to diagnose and treat oral diseases.	1 2 3 4		
The following are designated as physicians:			
Oral / Maxillofacial Surgeons	1 2 3 4	MD	1 2 3 4
Opticians	1 2 3 4	DPM	1 2 3 4
Osteopaths	1 2 3 4	DDS	1 2 3 4
Orthodontists	1 2 3 4	DMD	1 2 3 4
Podiatrists	1 2 3 4	PhD	1 2 3 4
Pediatricians	1 2 3 4	OD	1 2 3 4
Chiropractors	1 2 3 4	OD	1 2 3 4
Periodontists	1 2 3 4	VMD	1 2 3 4
Optometrists	1 2 3 4	ND	1 2 3 4
Pharmacists	1 2 3 4	PA	1 2 3 4
Dentists	1 2 3 4	PharmD	1 2 3 4
		EdD	1 2 3 4
		DO	1 2 3 4

Please continue on the other side →

Acronyms	MD	DPM	DDS	DMD	PhD	OD
Definitions	Doctor of Medicine	Doctor of Podiatric Medicine	Doctor of Dental Surgery	Doctor of Dental Medicine	Doctor of Philosophy	Doctor of Optometry
Acronyms	VMD	ND	PA	PharmD	EdD	DO
Definitions	Doctor of Veterinary Medicine	Doctor of Naturopathy	Physicians Assistant	Doctor of Pharmacology	Doctor of Education	Doctor of Osteopathy

Included were such topics as what health diagnosis and procedures dentists are capable of performing; for example, common physician screening or diagnostic procedures such as taking blood pressure, recognizing diabetes and providing nutritional advice. Other statements included options for what dentists should be referred to, such as “oral physician,” “dental physician,” “stomatologist” or simply “dentist.” Also added were statements requiring agreement about degree associated with all the health professions, including who should be called a “physician” as an indication of knowledge as well as attitude. The finalized survey was only one page, double-sided (see actual size in Appendix E).

6. Survey of Patients

Patient samples were obtained from two distinct dental practice settings. One group consisted of patients who were being treated in the teaching practice at the Harvard School of Dental Medicine. These patients have dental providers who are pre-doctoral and post-doctoral students at HSDM. This group of subjects has a wide range of dental histories, needs, experiences, and perspectives, unique to specific patients in the greater Boston area. Many patients have low socio-economic status and have dental insurance coverage by MassHealth (Medicaid provided by the Commonwealth of Massachusetts). Most patients have the experience of several different dental providers because of the high turnover of dental students graduating from school each year. These patients also receive cheaper care, but require longer appointment times, less experienced care and lower quality lab work.

The second sample consisted of patients who were being treated in a general dentist’s private practice in the city of Warminster, PA. This group consisted of

individuals from a suburb location outside of Philadelphia, PA who were paying for services out of pocket or through private dental insurers. These patients tended to have at most one or two dental providers and received high-end lab work and shorter appointments. The two distinct patient groups were expected to provide a different perspective about their perceived roles of dentists and their expectations.

7. Administration of Survey

The number of surveys distributed to the two samples of patients was, respectively, 85 at HSDM and 200 in the private practice. Each survey was collected and, after obtaining the demographic information, labeled numerically and according to the site from which it was obtained. All of the raw data collected was encoded into an Excel file. Data from both sites was separated in Excel to allow for future inter-site comparisons.

8. Analyses

The demographic information and responses were used to compare the two samples by gender, age, and socioeconomic levels. The results will be presented as differences in frequencies and means (even though not appropriate for ordinal data), and correlations. Chi ² for the comparison of frequencies, Anova/t-tests were used as appropriate.

Results

1. Demographic Data

Survey Sites

Out of several hundred surveys distributed, 285 were returned, of which 85 were from Harvard School of Dental Medicine and 200 were from Pennsylvania. The percent response rate was relatively high, but the exact number distributed was not recorded.

Further descriptive data can be found in the next several pages:

Age

Mean age of all patients: 43.80 years w/ standard deviation of 14.47 years.

There was a significant difference in ages between the sites of survey distribution. HSDM patients were, on average, a little older than those surveyed in private practice: 47.26 years vs. 42.39 years, as can be seen below:

Table I Age Statistics Separated by Site

	source	N	Mean	Std. Deviation	Std. Error Mean
age	HSDM	72	47.26	15.972	1.882
	Father	177	42.39	13.614	1.023

p-value with equal variance assumed $\leq .016$

Gender

Gender Ratio of patients (Males : Females): 115 : 160 = 1 : 1.39

Table II Gender Statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	160	56.1	58.2	58.2
	male	115	40.4	41.8	100.0
	Total	275	96.5	100.0	
Missing	System	10	3.5		
Total		285	100.0		

Education

Education Ratio of patients
(College Degree & Above : No College Degree): 133 : 98 = 1 : 1.36

Table III Education Statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HS	57	20.0	24.7	24.7
	GED	2	.7	.9	25.5
	college/no degree	39	13.7	16.9	42.4
	BA/BS	85	29.8	36.8	79.2
	graduate degree	48	16.8	20.8	100.0
	Total		231	81.1	100.0
Missing	System	54	18.9		
Total		285	100.0		

Time Since Last Dental Visit

Mean Number of Months Since Last Dental Visit: 9.61 Months

Descriptive Graphs of Important Data

Figure I

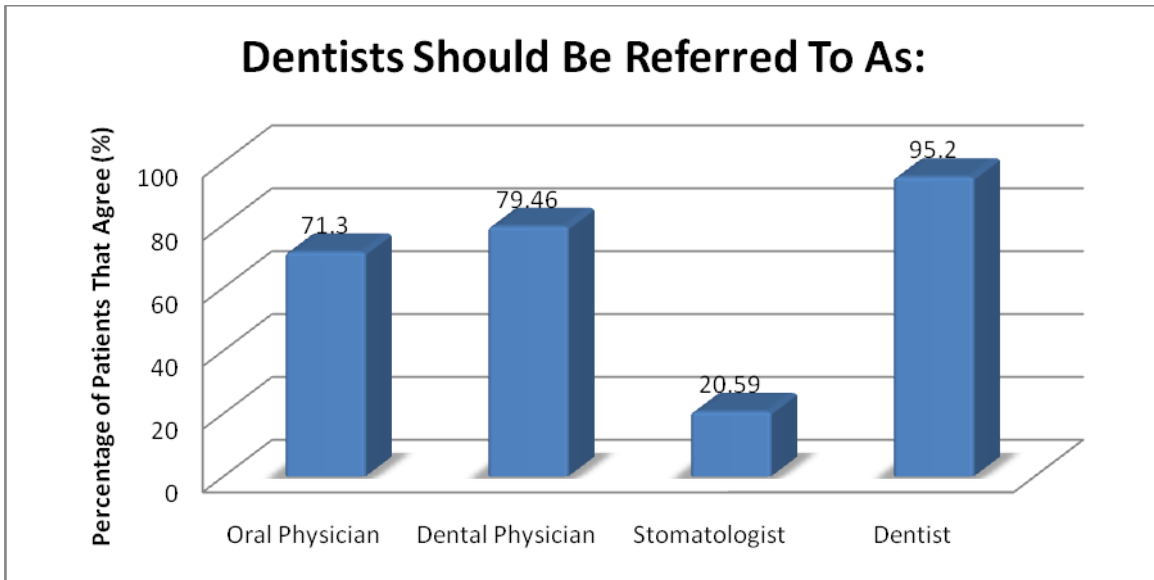


Figure II

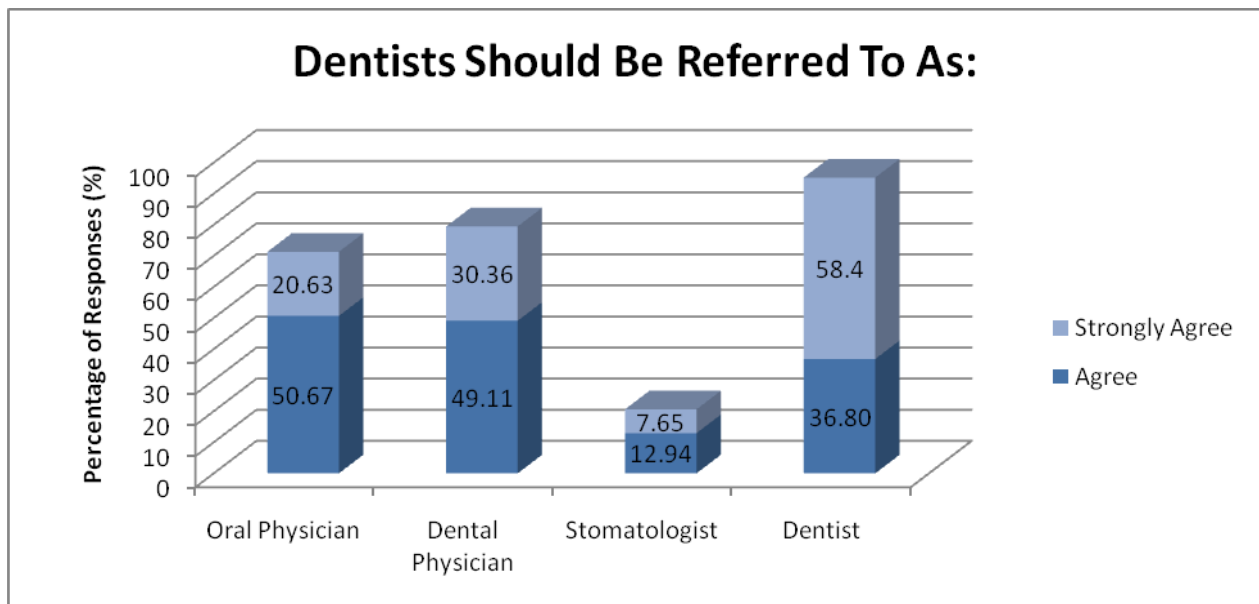


Figure III

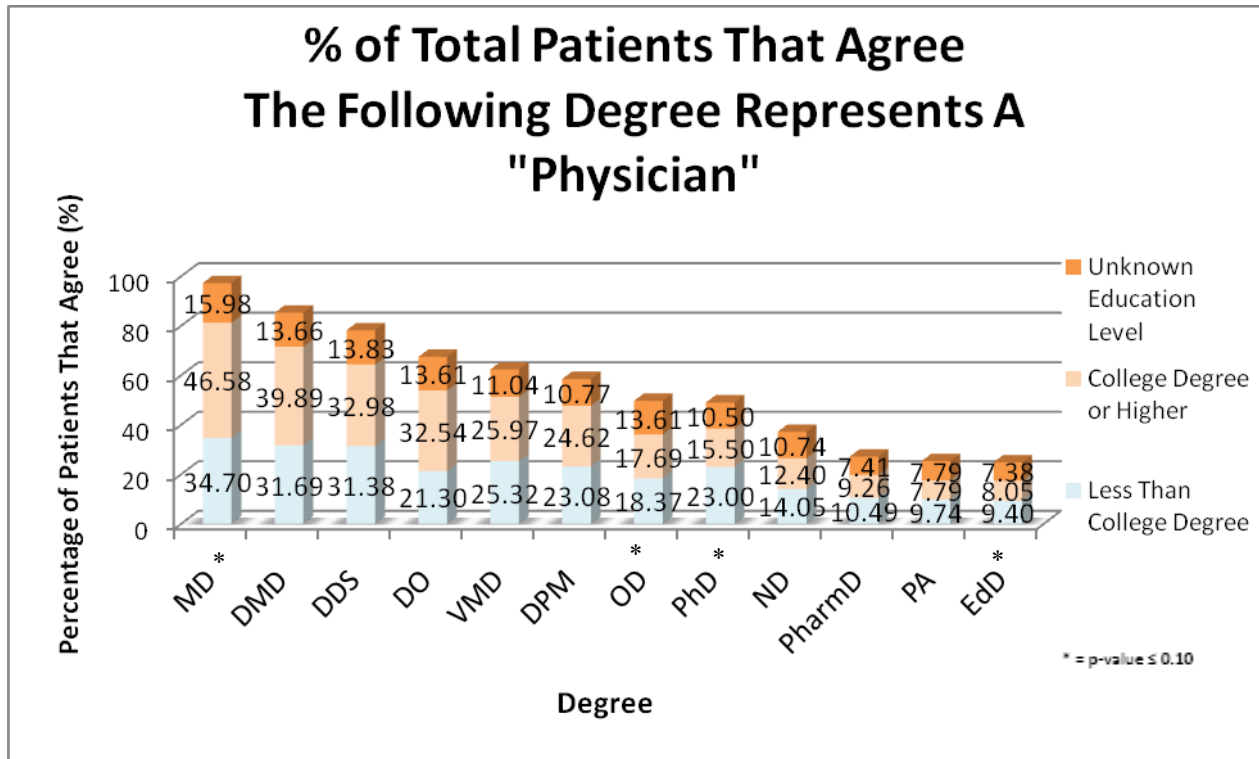
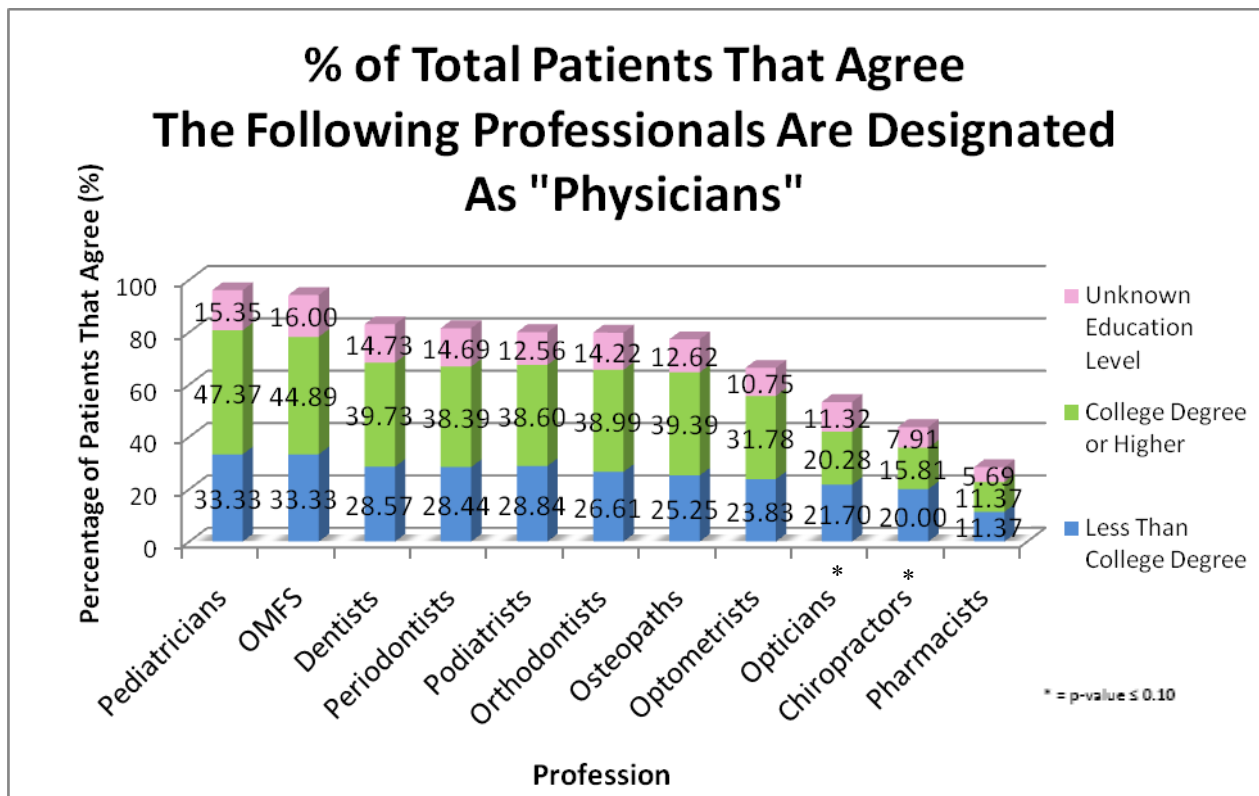


Figure IV



The initial questions on the distributed survey provided very useful demographic information for each patient. The demographics that were the most significant in comparing responses included gender, the location of the survey site (HSDM vs. private practice), age and level of education. For most responses it should be noted that there was no significant difference among the various demographics including the location of the survey site. This allowed for the ability to combine the raw data of both sites to get statistics of the overall patient population. In a chi square test across educational level by gender there was no significant difference (chi sq. = 4.094), in t-tests of males vs. females according to age there was no significant difference ($p = .077$) and in a chi square test of both survey sites for educational level there was no significant difference (chi sq. = 2.601). Still, the following tables provide the most substantial statistics where demographics did affect results, or came very close, as verified by the $p\text{-value} \leq 0.10$:

3. Relation of demographic variables to responses: Split by Gender

There was a significant (or very close to significant) difference in responses between males and females and the following variables:

Table 1. Dentists are trained to recognize HIV/AIDS.

		recognizing_HIV				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	7	34	78	29	148
	male	15	19	50	27	111
Total		22	53	128	56	259

Pearson Chi-Square Value: 8.233; $p\text{-value} \leq .041$

Table 2. Dentists are trained to recognize leukemia and other blood disorders.

		recognizing_blood_disorders				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	6	31	79	33	149
	male	11	17	49	33	110
Total		17	48	128	66	259

Pearson Chi-Square Value: 6.868; p-value ≤ .076

Table 3. Dentists are trained to recognize diseases in the mouth that occur elsewhere.

		recognizing_oral_manifestations_bodily_diseases				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	36	76	36	6	154
	male	30	61	12	8	111
Total		66	137	48	14	265

Pearson Chi-Square Value: 7.699; p-value ≤ .053

Table 4. Dentists should review the complete patient medical history.

		should_review_medical_history				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	98	41	11	5	155
	male	47	48	11	5	111
Total		145	89	22	10	266

Pearson Chi-Square Value: 11.526; p-value ≤ .009

Table 5. Chiropractors are designated as physicians.

		chiropractors				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	18	44	42	18	122
	male	9	20	35	21	85
Total		27	64	77	39	207

Pearson Chi-Square Value: 6.460; p-value ≤ .091

Table 6. ND's are designated as physicians.

		ND				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	7	10	31	14	62
	male	5	21	22	8	56
Total		12	31	53	22	118

Pearson Chi-Square Value: 7.115; p-value \leq .068

Table 7. EdD's are designated as physicians.

		EdD				Total
		strongly agree	agree	disagree	strongly disagree	
gender	female	9	8	41	25	83
	male	4	15	23	18	60
Total		13	23	64	43	143

Pearson Chi-Square Value: 6.730; p-value \leq .081

4. Relation of demographic variables to responses: Split by Site (HSDM vs Private Practice)

There was a significant (or very close to significant) difference in responses between survey sites and the following variables:

Table 8. DMDs are more qualified than DDS's to diagnose and treat oral diseases.

		DMD_more_qualified_DDS				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	11	21	15	6	53
	P.P.	10	51	45	7	113
Total		21	72	60	13	166

Pearson Chi-Square Value: 6.830; p-value \leq .078

Table 9. DDS's are more qualified than DMDs to diagnose and treat oral diseases.

		DDS_more_qualified_DMD				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	6	9	26	10	51
	P.P.	10	29	67	8	114
Total		16	38	93	18	165

Pearson Chi-Square Value: 6.754; p-value \leq .080

Table 10. Osteopaths are designated as physicians.

		osteopaths				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	18	23	9	10	60
	P.P.	35	70	20	6	131
Total		53	93	29	16	191

Pearson Chi-Square Value: 9.266; p-value \leq .026

Table 11. Optometrists are designated as physicians.

		optometrists				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	13	24	16	13	66
	P.P.	28	72	28	13	141
Total		41	96	44	26	207

Pearson Chi-Square Value: 6.431; p-value \leq .092

Table 12. DPMs are designated as physicians.

		DPM				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	9	8	12	8	37
	P.P.	16	40	27	7	90
Total		25	48	39	15	127

Pearson Chi-Square Value: 8.490; p-value \leq .037

Table 13. DMDs are designated as physicians.

		DMD				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	32	15	4	2	53
	P.P.	44	61	15	5	125
Total		76	76	19	7	178

Pearson Chi-Square Value: 9.885; p-value \leq .020

Table 14. ODs are designated as physicians.

		OD				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	7	9	11	12	39
	P.P.	22	32	38	12	104
Total		29	41	49	24	143

Pearson Chi-Square Value: 7.554; p-value \leq .056

Table 15. VMDs are designated as physicians.

		VMD				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	15	6	5	11	37
	P.P.	30	40	33	8	111
Total		45	46	38	19	148

Pearson Chi-Square Value: 18.981; p-value \leq .000

Table 16. NDs are designated as physicians.

		ND				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	5	5	10	10	30
	P.P.	7	26	43	12	88
Total		12	31	53	22	118

Pearson Chi-Square Value: 8.939; p-value \leq .030

Table 17. PAs are designated as physicians.

		PA				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	5	5	16	14	40
	P.P.	3	24	57	27	111
Total		8	29	73	41	151

Pearson Chi-Square Value: 8.619; p-value \leq .035

Table 18. PharmDs are designated as physicians.

		PharmD				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	6	8	14	18	46
	P.P.	8	20	57	25	110
Total		14	28	71	43	156

Pearson Chi-Square Value: 7.640; p-value \leq .054

Table 19. EdDs are designated as physicians.

		EdD				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	6	1	11	18	36
	P.P.	7	22	53	25	107
Total		13	23	64	43	143

Pearson Chi-Square Value: 16.857; p-value \leq .001

Table 20. DOs are designated as physicians.

		DO				Total
		strongly agree	agree	disagree	strongly disagree	
source	HSDM	14	9	9	9	41
	P.P.	34	50	28	9	121
Total		48	59	37	18	162

Pearson Chi-Square Value: 9.357; p-value \leq .025

5. Relation of demographic variables to responses: education split by greater vs. less than college degree.

There was a significant (or very close to significant) difference in responses between levels of education and the following variables:

Table 21. Dentists should be referred to as oral physicians.

		referred_as_oral_physicians				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	16	49	13	4	82
by_median	college degree & higher	19	45	21	16	101
Total		35	94	34	20	183

Contingency Coefficient: .200; p-value ≤ .055

Table 22. Dentists should be aware of the overall health of their patients.

		should_be_aware_overall_health				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	50	30	9	1	90
by_median	college degree & higher	63	49	3	3	118
Total		113	79	12	4	208

Contingency Coefficient: .173; p-value ≤ .093

Table 23. Patients see dentists more often than primary care physicians.

		dentists_visited_more_than_PCP				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	11	33	24	20	88
by_median	college degree & higher	23	37	40	11	111
Total		34	70	64	31	199

Contingency Coefficient: .203; p-value ≤ .036

Table 24. Opticians are designated as physicians.

		opticians				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	18	28	18	9	73
by_median	college degree & higher	16	27	32	29	104
Total		34	55	50	38	177

Contingency Coefficient: .225; p-value ≤ .024

Table 25. Chiropractors are designated as physicians.

		chiropractors				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	14	29	22	11	76
by_median	college degree & higher	10	24	42	28	104
Total		24	53	64	39	180

Contingency Coefficient: .237; p-value ≤ .013

Table 26. MDs are designated as physicians.

		MD				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	44	32	2	0	78
by_median	college degree & higher	77	25	2	2	106
Total		121	57	4	2	184

Contingency Coefficient: .201; p-value ≤ .051

Table 27. PhDs are designated as physicians.

		PhD				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	15	31	17	9	72
by_median	college degree & higher	18	13	32	37	100
Total		33	44	49	46	172

Contingency Coefficient: .359; p-value ≤ .000

Table 28. ODs are designated as physicians.

		OD				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	13	14	25	5	57
by_median	college degree & higher	11	15	23	20	69
Total		24	29	48	25	126

Contingency Coefficient: .247; p-value ≤ .042

Table 29. EdDs are designated as physicians.

		EdD				Total
		strongly agree	agree	disagree	strongly disagree	
education_	less than college degree	5	9	27	12	53
by_median	college degree & higher	6	6	29	34	75
Total		11	15	56	46	128

Contingency Coefficient: .239; p-value ≤ .052

6. Relation of demographic variables to responses: Split By Median Age

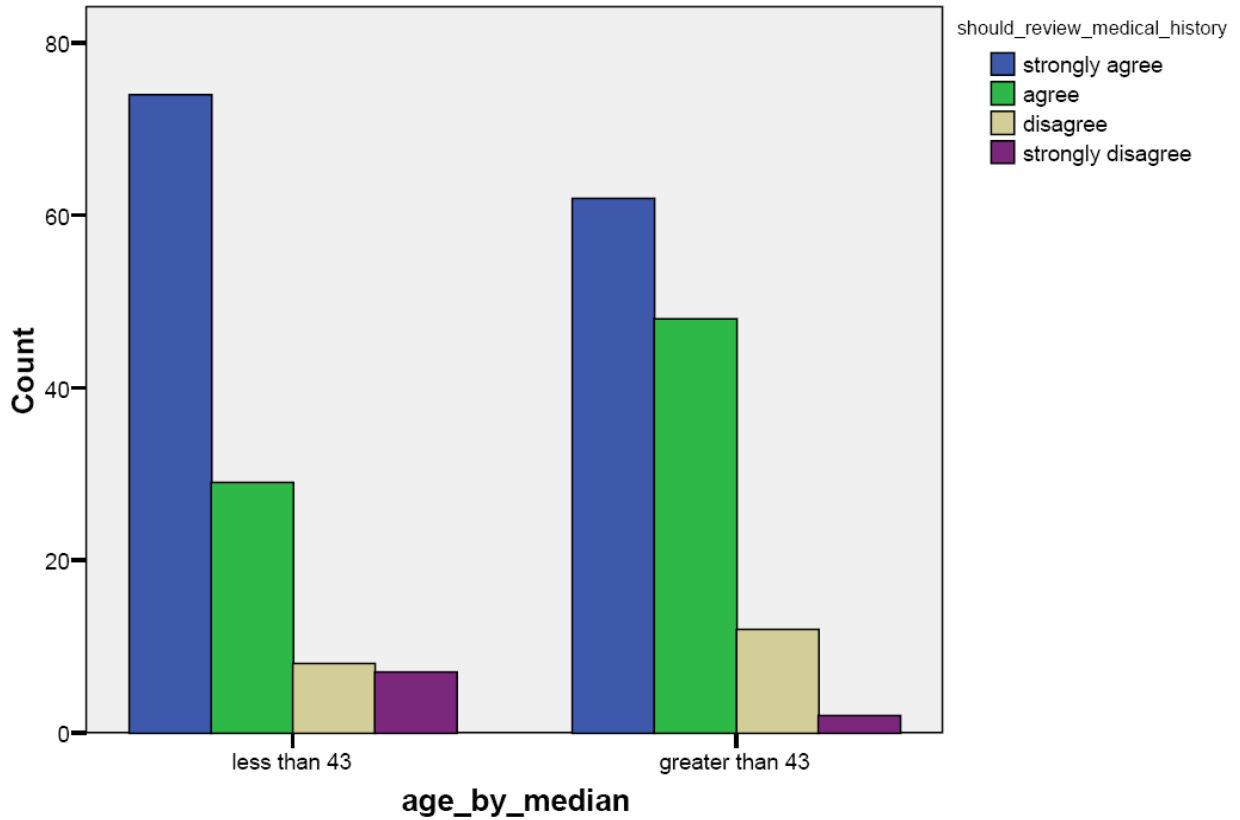
There was a significant (or very close to significant) difference in responses between different ages and the following variables:

Dentists should review the complete patient medical history.

Table 30

		should_review_medical_history				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	74	29	8	7	118
	greater than 43	62	48	12	2	124
Total		136	77	20	9	242

Figure 30



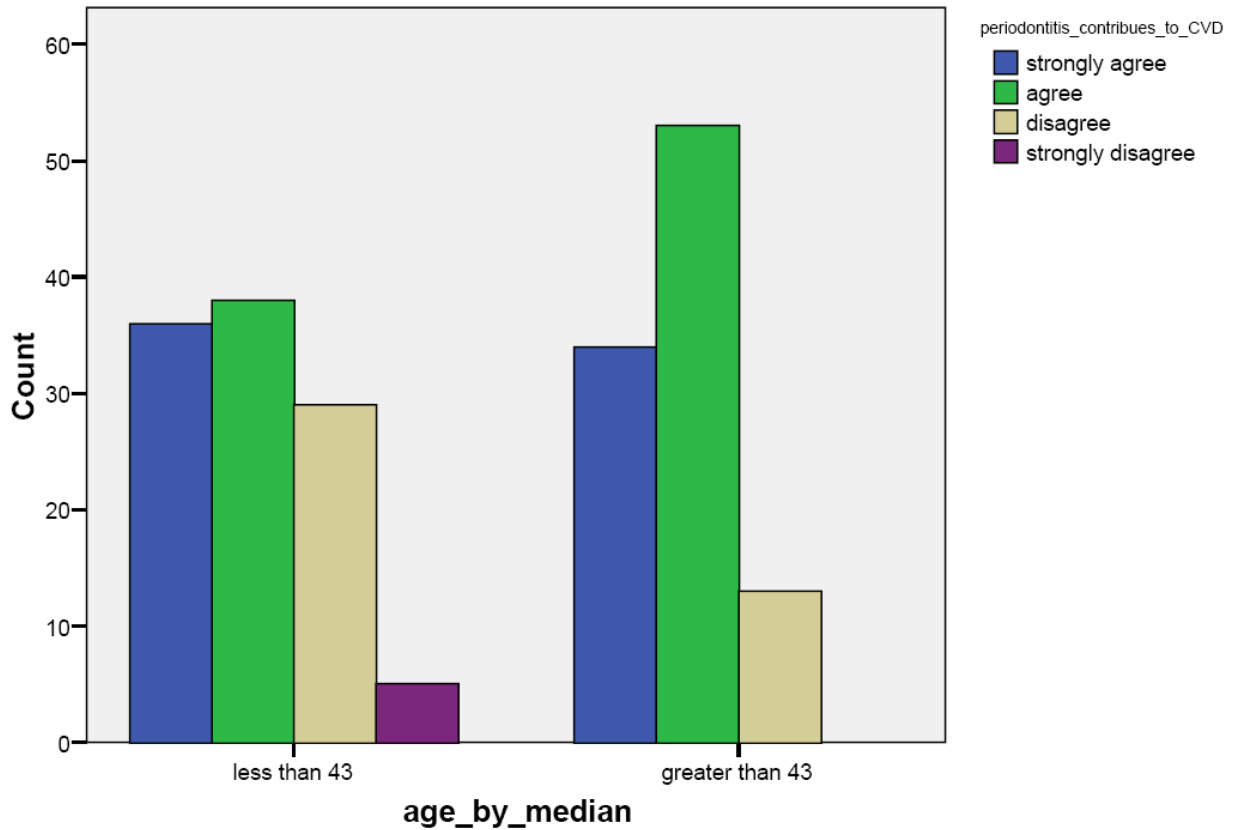
Contingency Coefficient: .191 p-value ≤ .027

Periodontal disease (disease of gums & supporting tissues) contributes to cardiovascular disease.

Table 31

		periodontitis contributes to CVD				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	36	38	29	5	108
	greater than 43	34	53	13	0	100
Total		70	91	42	5	208

Figure 31



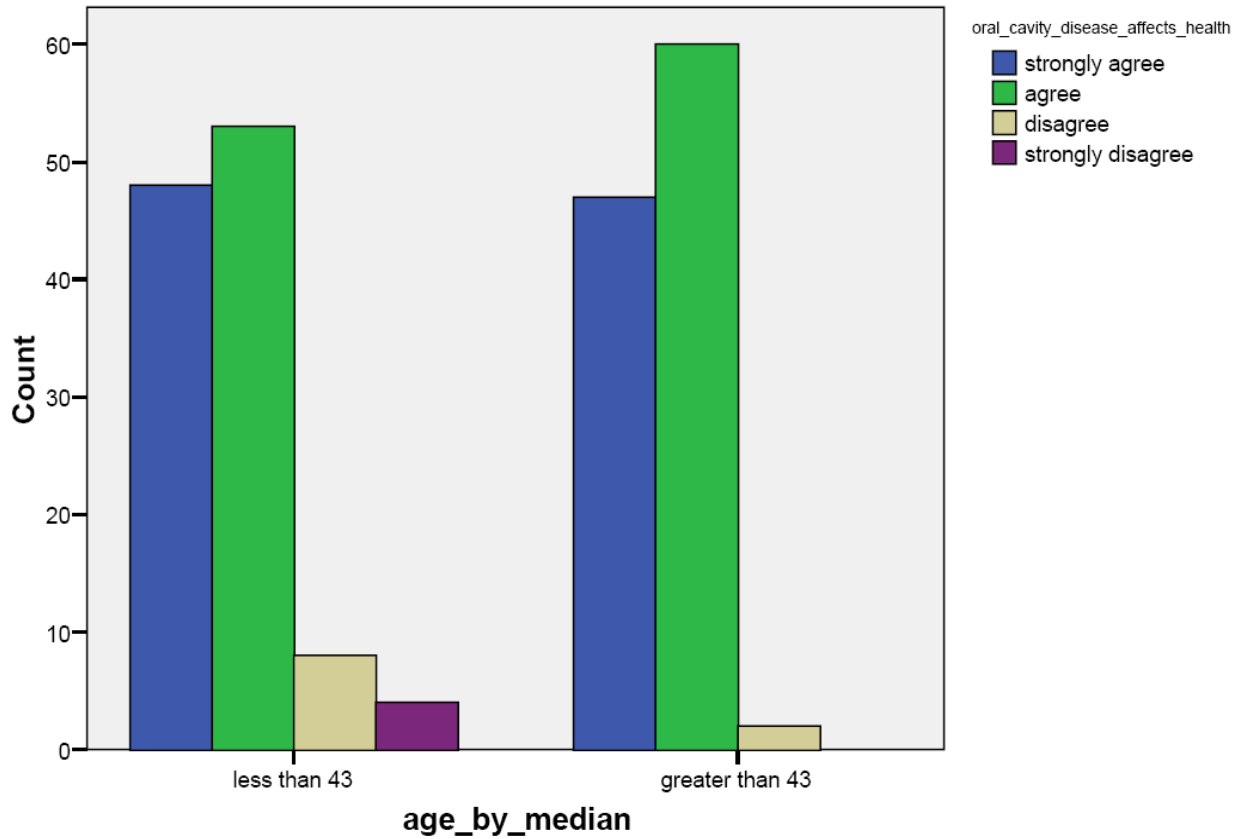
Contingency Coefficient: .245 p-value ≤ .004

Diseases of the oral cavity adversely affect overall health.

Table 32

		oral cavity disease affects health				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	48	53	8	4	113
	greater than 43	47	60	2	0	109
Total		95	113	10	4	222

Figure 32



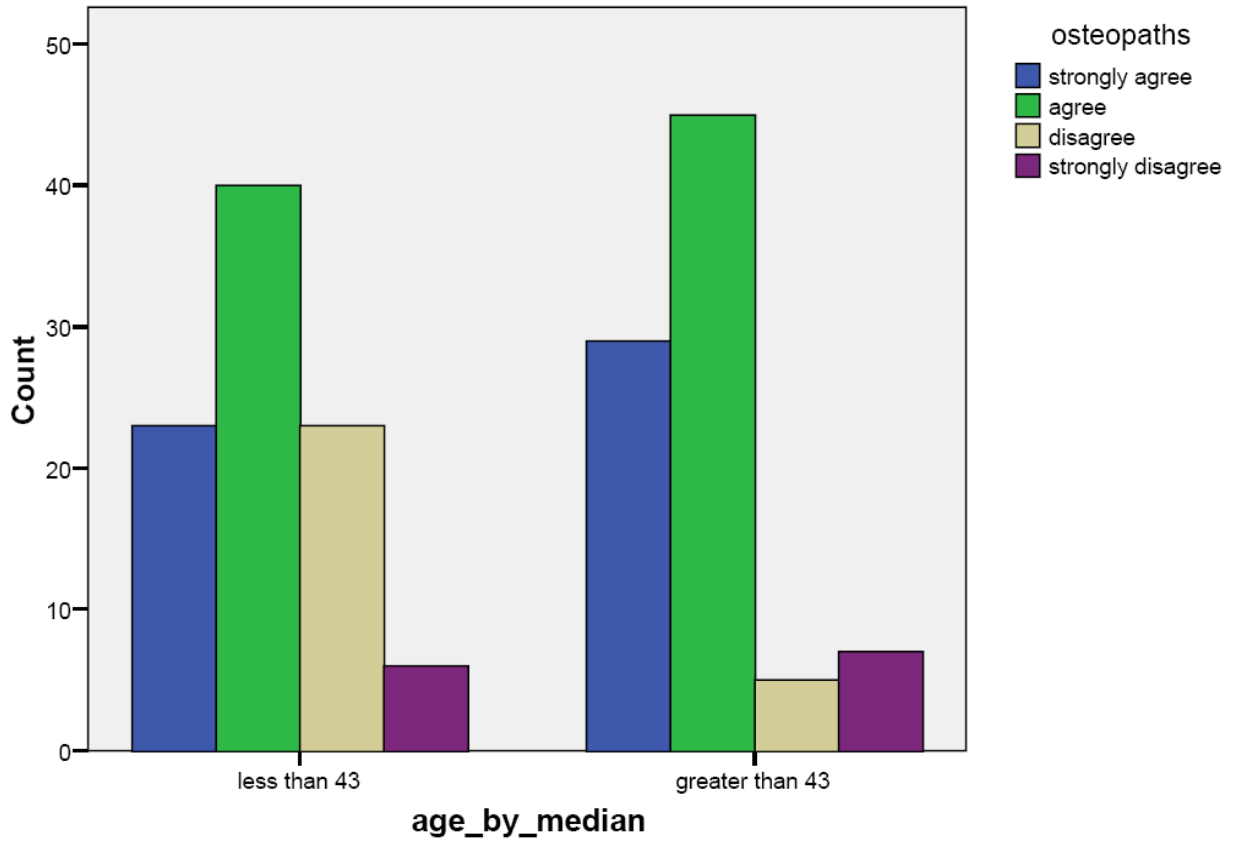
Contingency Coefficient: .186 p-value ≤ .047

Osteopaths are designated as physicians.

Table 33

		osteopaths				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	23	40	23	6	92
	greater than 43	29	45	5	7	86
Total		52	85	28	13	178

Figure 33



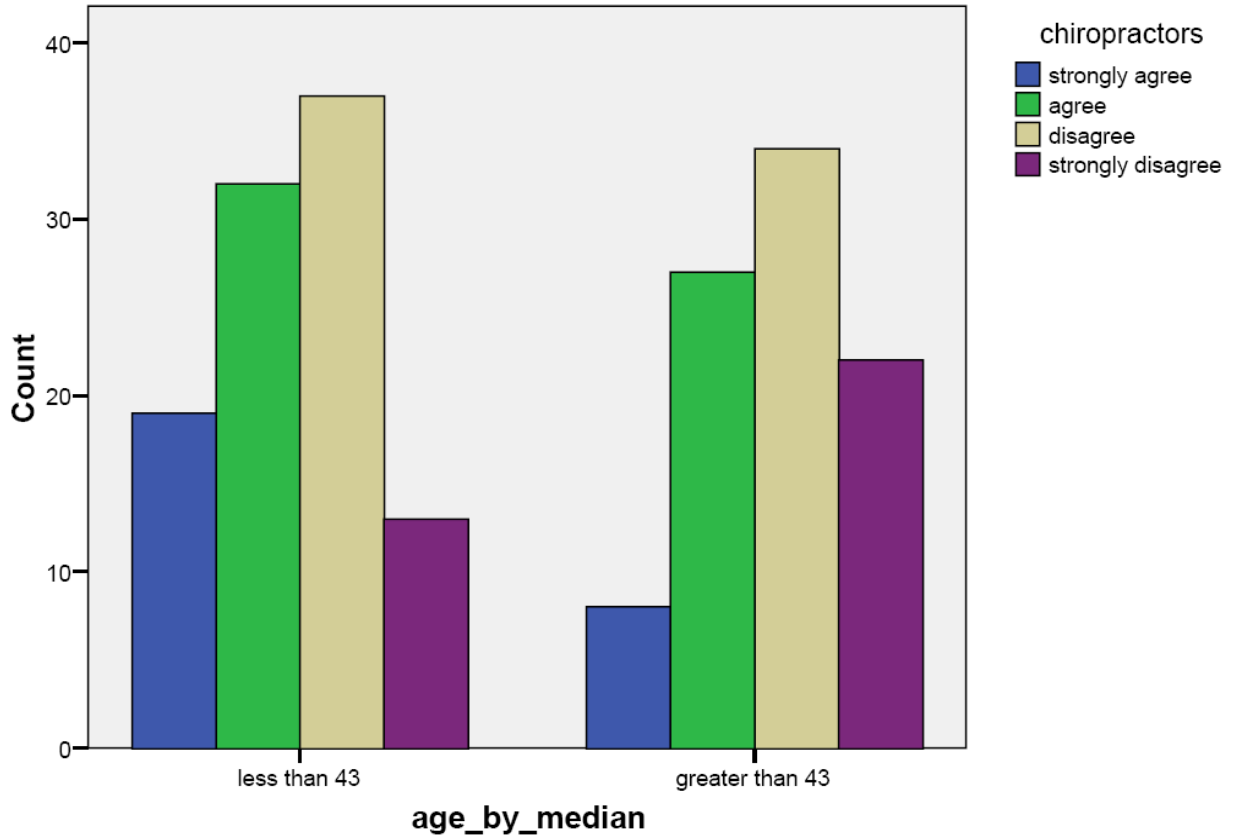
Contingency Coefficient: .256 p-value ≤ .006

Chiropractors are designated as physicians.

Table 34

		chiropractors				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	19	32	37	13	101
	greater than 43	8	27	34	22	91
Total		27	59	71	35	192

Figure 34



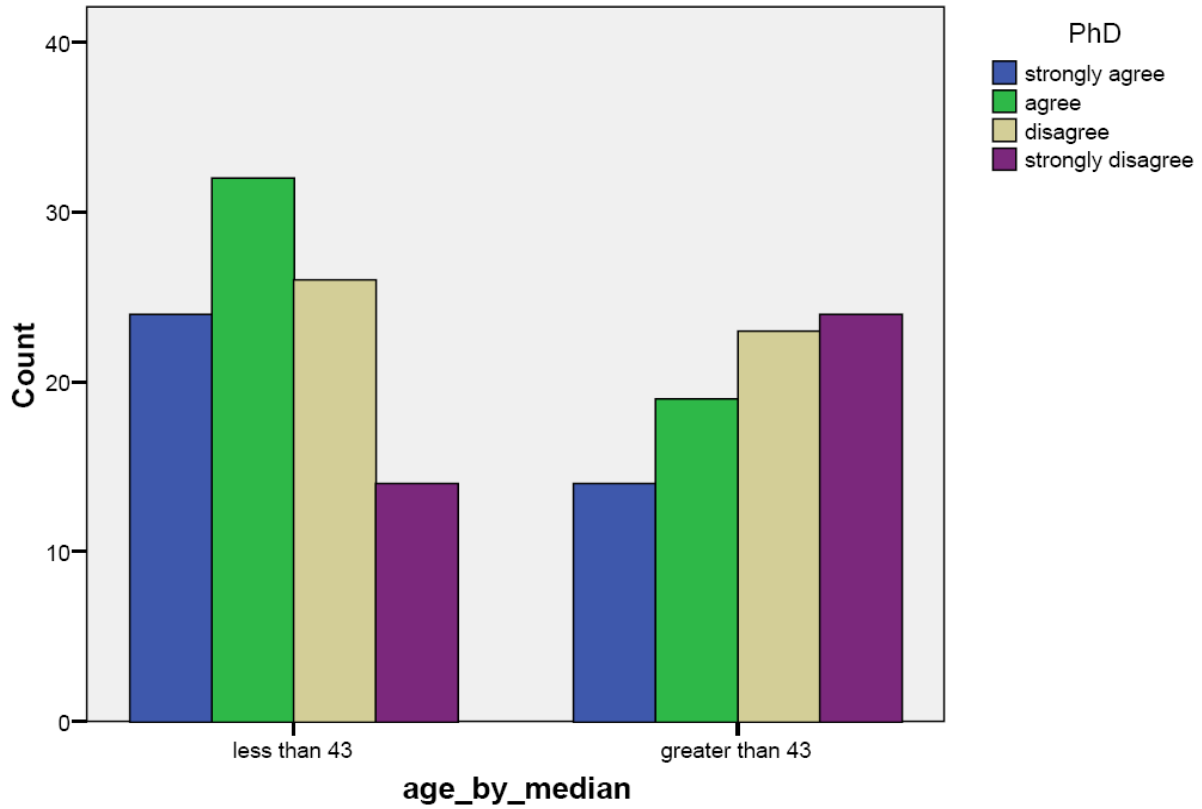
Contingency Coefficient: .186 p-value ≤ .077

PhDs are designated as physicians.

Table 35

		PhD				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	24	32	26	14	96
	greater than 43	14	19	23	24	80
Total		38	51	49	38	176

Figure 35



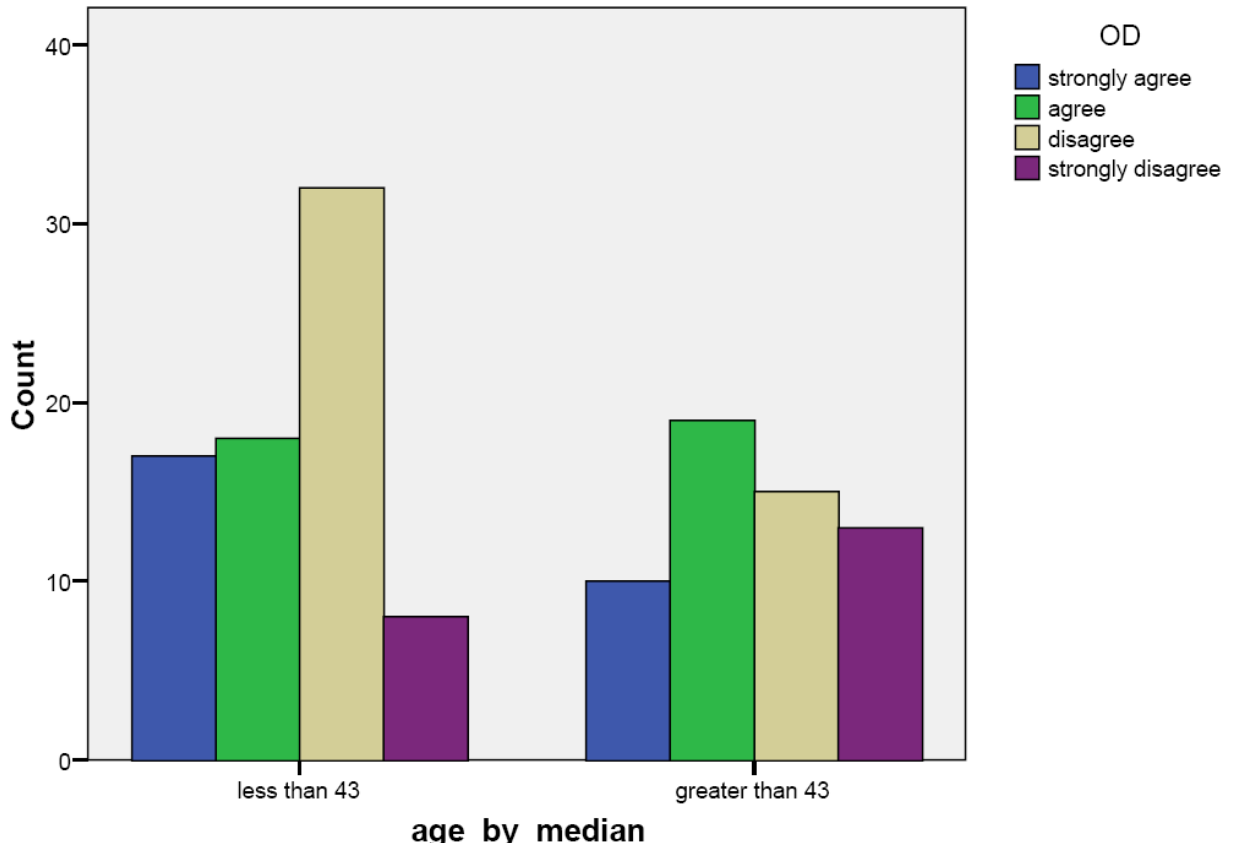
Contingency Coefficient: .200 p-value ≤ .061

ODs are designated as physicians.

Table 36

		OD				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	17	18	32	8	75
	greater than 43	10	19	15	13	57
Total		27	37	47	21	132

Figure 36



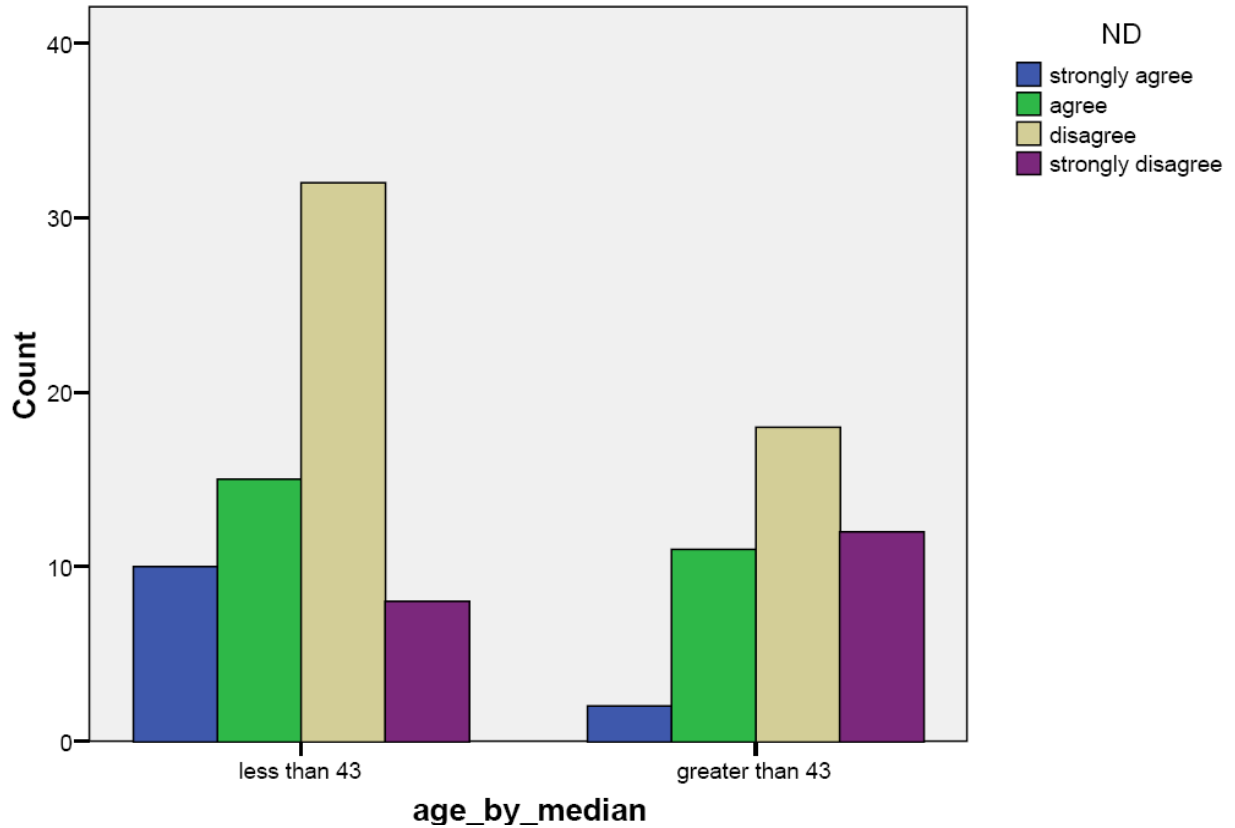
Contingency Coefficient: .222 p-value ≤ .077

NDs are designated as physicians.

Table 37

		ND				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	10	15	32	8	65
	greater than 43	2	11	18	12	43
Total		12	26	50	20	108

Figure 37



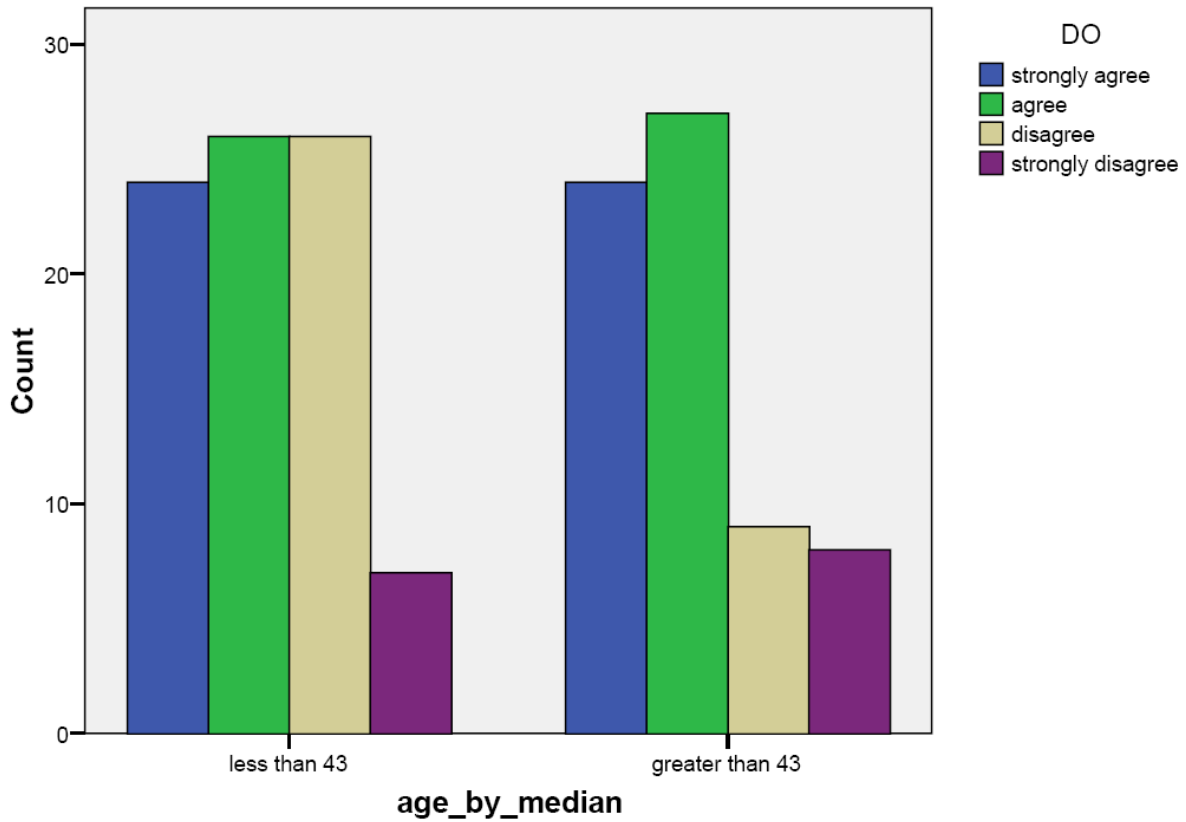
Contingency Coefficient: .237 p-value ≤ .091

DOs are designated as physicians.

Table 38

		DO				Total
		strongly agree	agree	disagree	strongly disagree	
age_by_median	less than 43	24	26	26	7	83
	greater than 43	24	27	9	8	68
Total		48	53	35	15	151

Figure 38



Contingency Coefficient: .209 p-value ≤ .074

Table 39. Descriptive Statistics of Designations

	Mean	Std. Deviation	N
referred_as_oral_physicians	2.29*	.901	167
referred_as_dental_physicians	2.06*	.876	167
referred_as_stomatologists	3.00*	.857	167
referred_as_dentists	1.51*	.751	167

*Means reported are according to paired responses and may appear different than previous results.

Table 40. Pairwise Comparisons

Measure: MEASURE_1

(I) attitudes	(J) attitudes	Mean Difference (I-J)	Std. Error	Sig. ^a
oral physician	dental physician	.234 *	.073	.010
	stomatologist	-.707*	.076	.000
	dentist	.778 *	.090	.000
dental physician	oral physician	-.234*	.073	.010
	stomatologist	-.940*	.081	.000
	dentist	.545 *	.083	.000
stomatologist	oral physician	.707 *	.076	.000
	dental physician	.940 *	.081	.000
	dentist	1.485*	.089	.000
dentist	oral physician	-.778*	.090	.000
	dental physician	-.545*	.083	.000
	stomatologist	-1.485*	.089	.000

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

*The comparison of relative mean differences (based on SA=1, A=2, D=3, DS=4), shows that “being called a dentist” is the most agreed-upon term (95.2%), but dental physician and oral physician are also agreeable (SA+A) by at least 79% and 71% of the respondents, respectively-- a surprisingly higher number than expected based on previous informal surveys of dentists.

Discussion

In response to the primary reason for the survey, the average responses to the statement “dentists should be referred to as “oral physicians”” was 2.18 on a scale of 1 to 4, with 1=Strongly Agree, 2= Agree, 3=Disagree, and 4=Strongly Disagree. This represents 71.3% of recorded responses in agreement with the statement, as shown in Figure I on page 17. Such responses indicate that dentists will likely be accepted by the

public or by patients to perform expanded duties and be called “oral physicians.” In comparison with responses to other names, the preferences as indicated by agreement were: dental physicians (1.90), oral physician (2.18), stomatologist (3.07) and dentist (1.50). In essence, patients were agreeable to the change appropriate to what dentists can and actually do, but were most agreeable to their remaining dentists. Somewhat surprising, however, was the disagreement with stomatologist, probably because of their unfamiliarity with the term. The preference for “dental physician” was a surprise, most likely because it was closer to the familiar term of dentist. Dentists, however, seem to prefer oral rather than dental because oral includes more than just the teeth, rather the entire orofacial area.

In general the patients participating in this survey responded in the way one would expect for the population at large; that is, they appeared to be aware of what dentists can or should do. As noted, however, in the previous tables, there were some differences related to gender, site of survey distribution, education and age. For example, more females strongly agree that dentists should review patient’s complete medical history (Table D). More patients at HSDM strongly agreed to the statement that DMDs are designated as physicians than patients from the private practice (Table M). Most patients with higher education disagreed with the statement that PhDs are designated as physicians, whereas most patients with less education agreed to that same statement (Table BB). Also, older patients agreed with the statement that periodontal disease (disease of gums & supporting tissues) contributes to cardiovascular disease, significantly more than younger patients (Table FF and Figure VI).

The appropriate designation of dentists and other paramedical professions relative to physician and who should be addressed as doctor was mostly correct. The question of who should be called “doctor” or “dentist” when both physicians and dentists (and other nonphysicians) are called “doctor” (except by the New York Times) does re-ignite the issue recently raised by Giddon with the Royal Society of Medicine (23).

All these concerns appear to be consistent with other studies, in agreement with dentistry being a branch of medicine, and the perception that DMDs are better qualified than DDS’s. Part of the basis of this perception may be those who realize that dentists receiving the DMD degree have the term “medicine” in their degree.

Unfortunately, as alluded to above, these results may have been biased by the wording of some of the statements to a group of subjects who were already favorable to dentists and dentistry. For example, the last section asked the patients to indicate which of the categories should be designated as physicians (even Medicare classifies for reimbursement most of the clinical professionals as physicians, e.g. medical doctors, dentists, osteopaths, podiatrists, chiropractors and optometrists) (22). Except for sophisticated lay persons, the intent of identifying all health care professionals may have been misunderstood. There should have been a separate control statement for designating these same professions as doctor.

Nevertheless, when responding to which degrees represented “physicians,” the average response among all patients to the statement that “dentists” are “physicians” was 1.91. Similarly, “podiatrists” had a mean response of 1.91, compared with “optometrists” with a mean of 2.25 and “chiropractors” with a mean response of 2.61. These results are particularly important to recognize the superordinate position in the

hierarchy of paramedical professions in view of the fact that optometrists and chiropractors are both legally able to advertise as “physicians” in many states.

Osteopaths, surprisingly, received a mean response of 2.03, less than both “dentists” and “podiatrists.” When looking at the results based on degrees, DMDs received a mean Likert response of 1.75 vs DDS’s 2.00. DOs had a mean Likert response of 2.12 vs. MDs 1.40. PhD’s received a mean Likert response of 2.52 and VMD’s received a mean Likert response of 2.19. Again, the issue of bias toward dentists arises because the surveys were administered in dental offices. As expected, most patients strongly agreed that MDs are “physicians,” with DMDs closest to physicians.

Also in support of dentists as oral/dental physicians was the general agreement (mean of 1.73) that dentistry is a specialty of medicine. It would have been useful to possibly explore this a little further and ask such questions as whether dentists would be even better qualified as physicians if they went to medical school. Although not part of this survey, several deans and dental educators have raised the issue of whether dentists need more training in medicine (25) or actually should receive a medical degree in order to expand these responsibilities (24).

In addition to undertaking more formal surveys of dentists and physicians, a survey of dental students who will be receiving more medical and basic science training than previously would be interesting. Associated with this trend is the fact that more schools are now awarding the DMD to more qualified oral physicians of the future.

Conclusion and Future Plans

In summary, the results of this survey provided some expected, unexpected, and interesting information about the present and future of dentists as *de facto* or actual oral/dental physicians in the health care system.

1. Surprisingly, more than 71 % of the respondents agreed that dentists ought to be called oral or dental physicians.
2. Some of the expanded duties and acceptance of dentists as being some type of physician was related to age, gender, or socioeconomic level.
3. In general, the higher the education level, the less likely patients would be willing to call professions other than medical doctors “physicians” even though chiropractors, optometrists, osteopaths and podiatrists are currently recognized as physicians in many states.

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Appendix A

7/20/2006 Telephone / email recruitment script:

For the dentist:

Hello, my name is Justin Cooper. I'm a second year dental student at Harvard. I would like to ask you a few questions about how you feel about recognizing and/or referring various problems related to your patients' general health. The benefit to you for participating would be to help develop continuing education and public and professional awareness programs about expanding the role of dentists in overall health care

It will take only about fifteen minutes. There is no compensation or reimbursement.

For the patient:

Hello, my name is Justin Cooper. I'm a second year dental student at Harvard. I would like to ask you a few questions about your experiences with dentists talking to you about your general health, which may not appear to be directly related to the treatment of your teeth or surrounding structures. The benefit to you for participating would be to help develop continuing education and public and professional awareness programs about expanding the role of dentists in overall health care

It will take only about fifteen minutes. There is no compensation or reimbursement.

Appendix B

HARVARD SCHOOL OF DENTAL MEDICINE ALUMNI SURVEY

Please answer the following questions:

Name (optional) _____ Year of Graduation _____

Gender ___M ___F Specialty _____

State in which you practice _____

Are you in favor of changing your designation as a dentist to “oral physician”?

___Yes___No

Please give your reasons for either answer:

Are you aware of

1) The article by Giddon and Assael: Should dentists become ‘oral physicians’? JADA, 2004; 135:438-446.

___ Yes ___ No

2) The article by Giddon: Why dentists should be called oral physicians now. J Dent Ed 2006; 70(2):111-114.

___ Yes ___ No

3) The bill filed in the Massachusetts legislature to permissively change the name of dentist to oral physician.

___ Yes ___ No

4) The fact that chiropractors, podiatrists, and optometrists are called physicians in many states.

___ Yes ___ No

Appendix C

Examples of diseases or conditions that dentists have screened for or discovered, that resulted in an appropriate medical referral:

Examples
Ludwig's Angina
Hypertension
Hypothyroidism
Sleep Apnea
Tonsillitis
Bulimia
Diabetes
Oral Cancer
HIV / AIDS

*Pedodontists, in particular, reported finding abnormal pathology and referred to a physician with the resulting diagnosis:

Diagnosis
Acute Lymphocytic Leukemia
Histiocytosis X
Diabetes Mellitus

Appendix D

SURVEY ABOUT PHYSICIANS, DENTISTS AND SURGEONS

Date _____

Gender M ___ F ___ Age ___ Occupation _____

Specialty _____ Highest Degree _____

Dentists are trained to diagnose oral cancer.

Strongly Disagree Disagree Agree Strongly Agree

Dentists are trained to treat oral cancer.

Strongly Disagree Disagree Agree Strongly Agree

An oral surgeon / oral & maxillofacial surgeon is a dentist.

Strongly Disagree Disagree Agree Strongly Agree

Dentists can provide nutritional advice.

Strongly Disagree Disagree Agree Strongly Agree

Dentists are able to prescribe all medications.

Strongly Disagree Disagree Agree Strongly Agree

Dentists should know the patient's complete medical history.

Strongly Disagree Disagree Agree Strongly Agree

Dentists are able to administer vaccinations by injection for flu and other diseases.

Strongly Disagree Disagree Agree Strongly Agree

Dentists should be called oral physicians.

Strongly Disagree Disagree Agree Strongly Agree

Dentists should be called dental physicians

Strongly Disagree Disagree Agree Strongly Agree

Dentist should be called stomatologists.

Strongly Disagree Disagree Agree Strongly Agree

Dentists should accept medical insurance.

Strongly Disagree Disagree Agree Strongly Agree

Dentists can recognize the oral manifestations of eating disorders.

Strongly Disagree Disagree Agree Strongly Agree

Dentists are trained to recognize hypertension.

Strongly Disagree Disagree Agree Strongly Agree

Dentists are trained to recognize diabetes.

Strongly Disagree Disagree Agree Strongly Agree

- Dentists can recognize HIV/AIDS.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists can recognize leukemia and other blood disorders.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists can diagnose oral herpes infections and other oral diseases.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists are trained to perform surgery.
 Strongly Disagree Disagree Agree Strongly Agree
- Periodontal disease is related to cardiovascular disease.
 Strongly Disagree Disagree Agree Strongly Agree
- The health of the oral cavity reflects overall health.
 Strongly Disagree Disagree Agree Strongly Agree
- Patients see their dentists more often than they see their primary care physicians.
 Strongly Disagree Disagree Agree Strongly Agree
- Oral cancer is most often detected by dentists.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists are responsible for the overall health of their patients.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists are expected to warn patients about any general health concerns.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists should be responsible for helping patients quit smoking.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentistry is a specialty of medicine.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists receive training in medicine.
 Strongly Disagree Disagree Agree Strongly Agree
- Dentists receive the same pre-clinical training as physicians.
 Strongly Disagree Disagree Agree Strongly Agree
- A DMD is more qualified than a DDS to diagnose and treat diseases of the mouth.
 Strongly Disagree Disagree Agree Strongly Agree
- A DDS is more qualified than a DMD to diagnose and treat diseases of the teeth.
 Strongly Disagree Disagree Agree Strongly Agree
- An orthodontist should be considered physician.
 Strongly Disagree Disagree Agree Strongly Agree
- Oral and maxillofacial surgeons should be considered physicians.
 Strongly Disagree Disagree Agree Strongly Agree
- Osteopaths (DOs) are physicians.
 Strongly Disagree Disagree Agree Strongly Agree

Podiatrists are physicians.
 Strongly Disagree Disagree Agree Strongly Agree

Chiropractors are physicians.
 Strongly Disagree Disagree Agree Strongly Agree

Pharmacists are doctors.
 Strongly Disagree Disagree Agree Strongly Agree

Dentists are doctors.
 Strongly Disagree Disagree Agree Strongly Agree

Dentists are physicians of the mouth.
 Strongly Disagree Disagree Agree Strongly Agree

Physicians are doctors.
 Strongly Disagree Disagree Agree Strongly Agree

Dentists treat infections.
 Strongly Disagree Disagree Agree Strongly Agree

Dentists only treat teeth.
 Strongly Disagree Disagree Agree Strongly Agree

Cavities or caries are infections in the teeth.
 Strongly Disagree Disagree Agree Strongly Agree

DMDs, DDSs, MDs and PhDs are all doctors.
 Strongly Disagree Disagree Agree Strongly Agree

Dentists should receive additional training beyond dental school
 Strongly Disagree Disagree Agree Strongly Agree

Appendix E

PATIENT ATTITUDES & KNOWLEDGE ABOUT DENTISTRY

Date _____ Gender M ___ F ___ Age ___
Occupation _____ Specialty _____
Highest Degree _____ Last Visit to a Dentist _____

Please circle one of the following choices for each statement to the best of your ability:

1 = Strongly Agree 2 = Agree 3 = Disagree 4 = Strongly Disagree

Dentists are trained to:

Diagnose oral cancer.	1	2	3	4
Treat oral cancer.	1	2	3	4
Provide nutritional advice.	1	2	3	4
Recognize the oral manifestations of eating disorders.	1	2	3	4
Recognize high blood pressure.	1	2	3	4
Recognize diabetes.	1	2	3	4
Recognize HIV/AIDS.	1	2	3	4
Recognize leukemia and other blood disorders.	1	2	3	4
Diagnose oral herpes infections and other oral diseases.	1	2	3	4
Recognize diseases in the mouth that occur elsewhere in the body.	1	2	3	4

Dentists should be referred to as:

Oral physicians.	1	2	3	4
Dental physicians.	1	2	3	4
Stomatologists.	1	2	3	4
Dentists	1	2	3	4

Dentists should:

review the complete patient medical history.	1	2	3	4
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Dentists should:

be aware of the overall health of their patients.	1	2	3	4
be expected to inform patients of general health concerns.	1	2	3	4
provide medication for patients to quit smoking.	1	2	3	4
Dental care should be compensated by medical insurance.	1	2	3	4
Periodontal disease (disease of gums & supporting tissues) contributes to cardiovascular disease.	1	2	3	4
Diseases of the oral cavity adversely affect overall health.	1	2	3	4
Patients see dentists more often than primary care physicians.	1	2	3	4
Dentistry is a specialty of medicine.	1	2	3	4
DMDs are more qualified than DDS's to diagnose and treat oral diseases.	1	2	3	4
DDS's are more qualified than DMDs to diagnose and treat oral diseases.	1	2	3	4

The following are designated as physicians:

Oral / Maxillofacial Surgeons	1	2	3	4	MD	1	2	3	4
Opticians	1	2	3	4	DPM	1	2	3	4
Osteopaths	1	2	3	4	DDS	1	2	3	4
Orthodontists	1	2	3	4	DMD	1	2	3	4
Podiatrists	1	2	3	4	PhD	1	2	3	4
Pediatricians	1	2	3	4	OD	1	2	3	4
Chiropractors	1	2	3	4	VMD	1	2	3	4
Periodontists	1	2	3	4	ND	1	2	3	4
Optometrists	1	2	3	4	PA	1	2	3	4
Pharmacists	1	2	3	4	PharmD	1	2	3	4
Dentists	1	2	3	4	EdD	1	2	3	4
					DO	1	2	3	4

Appendix F

Frequency Distribution for “The Following Are Designated As Physicians: ”

OMFS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	115	40.4	51.1	51.1
	agree	97	34.0	43.1	94.2
	disagree	7	2.5	3.1	97.3
	strongly disagree	6	2.1	2.7	100.0
	Total	225	78.9	100.0	
Missing	System	60	21.1		
Total		285	100.0		

Mean = 1.57 Std. Dev = 0.685 N = 225

opticians

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	41	14.4	19.3	19.3
	agree	72	25.3	34.0	53.3
	disagree	60	21.1	28.3	81.6
	strongly disagree	39	13.7	18.4	100.0
	Total	212	74.4	100.0	
Missing	System	73	25.6		
Total		285	100.0		

Mean = 2.46 Std. Dev = 1.004 N = 212

osteopaths

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	56	19.6	28.3	28.3
	agree	97	34.0	49.0	77.3
	disagree	29	10.2	14.6	91.9
	strongly disagree	16	5.6	8.1	100.0
	Total	198	69.5	100.0	
Missing	System	87	30.5		
Total		285	100.0		

Mean = 2.03 Std. Dev = 0.869 N = 198

orthodontist

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	66	23.2	30.3	30.3
	agree	108	37.9	49.5	79.8
	disagree	33	11.6	15.1	95.0
	strongly disagree	11	3.9	5.0	100.0
	Total	218	76.5	100.0	
Missing	System	67	23.5		
Total		285	100.0		

Mean = 1.95 Std. Dev = 0.81 N = 218

podiatrists

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	75	26.3	34.9	34.9
	agree	97	34.0	45.1	80.0
	disagree	30	10.5	14.0	94.0
	strongly disagree	13	4.6	6.0	100.0
	Total	215	75.4	100.0	
Missing	System	70	24.6		
Total		285	100.0		

Mean = 1.91 Std. Dev = 0.852 N = 215

pediatricians

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	122	42.8	53.5	53.5
	agree	97	34.0	42.5	96.1
	disagree	3	1.1	1.3	97.4
	strongly disagree	6	2.1	2.6	100.0
	Total	228	80.0	100.0	
Missing	System	57	20.0		
Total		285	100.0		

Mean = 1.53 Std. Dev = 0.66 N = 228

chiropractors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	28	9.8	13.0	13.0
	agree	66	23.2	30.7	43.7
	disagree	81	28.4	37.7	81.4
	strongly disagree	40	14.0	18.6	100.0
	Total	215	75.4	100.0	
Missing	System	70	24.6		
Total		285	100.0		

Mean = 2.62 Std. Dev = 0.934 N = 215

periodontists

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	66	23.2	31.3	31.3
	agree	106	37.2	50.2	81.5
	disagree	29	10.2	13.7	95.3
	strongly disagree	10	3.5	4.7	100.0
	Total	211	74.0	100.0	
Missing	System	74	26.0		
Total		285	100.0		

Mean = 1.92 Std. Dev = 0.798 N = 211

optometrists

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	44	15.4	20.6	20.6
	agree	98	34.4	45.8	66.4
	disagree	46	16.1	21.5	87.9
	strongly disagree	26	9.1	12.1	100.0
	Total	214	75.1	100.0	
Missing	System	71	24.9		
Total		285	100.0		

Mean = 2.25 Std. Dev = 0.92 N = 214

pharmacists

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	15	5.3	7.1	7.1
	agree	45	15.8	21.3	28.4
	disagree	93	32.6	44.1	72.5
	strongly disagree	58	20.4	27.5	100.0
	Total	211	74.0	100.0	
Missing	System	74	26.0		
Total		285	100.0		

Mean = 2.92 Std. Dev = 0.877 N = 211

dentists

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	70	24.6	31.3	31.3
	agree	116	40.7	51.8	83.0
	disagree	26	9.1	11.6	94.6
	strongly disagree	12	4.2	5.4	100.0
	Total	224	78.6	100.0	
Missing	System	61	21.4		
Total		285	100.0		

Mean = 1.91 Std. Dev = 0.799 N = 224

MD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	139	48.8	63.5	63.5
	agree	74	26.0	33.8	97.3
	disagree	4	1.4	1.8	99.1
	strongly disagree	2	.7	.9	100.0
	Total	219	76.8	100.0	
Missing	System	66	23.2		
Total		285	100.0		

Mean = 1.4 Std. Dev = 0.577 N = 219

DPM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	27	9.5	20.8	20.8
	agree	49	17.2	37.7	58.5
	disagree	39	13.7	30.0	88.5
	strongly disagree	15	5.3	11.5	100.0
	Total	130	45.6	100.0	
Missing	System	155	54.4		
Total		285	100.0		

Mean = 2.32 Std. Dev = 0.934 N = 130

DDS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	52	18.2	27.7	27.7
	agree	95	33.3	50.5	78.2
	disagree	30	10.5	16.0	94.1
	strongly disagree	11	3.9	5.9	100.0
	Total	188	66.0	100.0	
Missing	System	97	34.0		
Total		285	100.0		

Mean = 2.00 Std. Dev = 0.821 N = 188

DMD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	79	27.7	43.2	43.2
	agree	77	27.0	42.1	85.2
	disagree	20	7.0	10.9	96.2
	strongly disagree	7	2.5	3.8	100.0
	Total	183	64.2	100.0	
Missing	System	102	35.8		
Total		285	100.0		

Mean = 1.75 Std. Dev = 0.798 N = 183

PhD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	42	14.7	21.0	21.0
	agree	56	19.6	28.0	49.0
	disagree	56	19.6	28.0	77.0
	strongly disagree	46	16.1	23.0	100.0
	Total	200	70.2	100.0	
Missing	System	85	29.8		
Total		285	100.0		

Mean = 2.53 Std. Dev = 1.065 N = 200

OD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	31	10.9	21.1	21.1
	agree	42	14.7	28.6	49.7
	disagree	49	17.2	33.3	83.0
	strongly disagree	25	8.8	17.0	100.0
	Total	147	51.6	100.0	
Missing	System	138	48.4		
Total		285	100.0		

Mean = 2.46 Std. Dev = 1.009 N = 147

VMD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	48	16.8	31.2	31.2
	agree	48	16.8	31.2	62.3
	disagree	39	13.7	25.3	87.7
	strongly disagree	19	6.7	12.3	100.0
	Total	154	54.0	100.0	
Missing	System	131	46.0		
Total		285	100.0		

Mean = 2.19 Std. Dev = 1.015 N = 154

ND

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	14	4.9	11.6	11.6
	agree	31	10.9	25.6	37.2
	disagree	54	18.9	44.6	81.8
	strongly disagree	22	7.7	18.2	100.0
	Total	121	42.5	100.0	
Missing	System	164	57.5		
Total		285	100.0		

Mean = 2.69 Std. Dev = 0.902 N = 121

PA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	10	3.5	6.5	6.5
	agree	29	10.2	18.8	25.3
	disagree	74	26.0	48.1	73.4
	strongly disagree	41	14.4	26.6	100.0
	Total	154	54.0	100.0	
Missing	System	131	46.0		
Total		285	100.0		

Mean = 2.95 Std. Dev = 0.846 N = 154

PharmD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	15	5.3	9.3	9.3
	agree	29	10.2	17.9	27.2
	disagree	73	25.6	45.1	72.2
	strongly disagree	45	15.8	27.8	100.0
	Total	162	56.8	100.0	
Missing	System	123	43.2		
Total		285	100.0		

Mean = 2.91 Std. Dev = 0.908 N = 162

EdD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	14	4.9	9.4	9.4
	agree	23	8.1	15.4	24.8
	disagree	66	23.2	44.3	69.1
	strongly disagree	46	16.1	30.9	100.0
	Total	149	52.3	100.0	
Missing	System	136	47.7		
Total		285	100.0		

Mean = 2.97 Std. Dev = 0.918 N = 149

DO

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	53	18.6	31.4	31.4
	agree	61	21.4	36.1	67.5
	disagree	37	13.0	21.9	89.3
	strongly disagree	18	6.3	10.7	100.0
	Total	169	59.3	100.0	
Missing	System	116	40.7		
Total		285	100.0		

Mean = 2.12 Std. Dev = 0.975 N = 169