Abstract

A steady stream of new patients is necessary for the maintenance and growth of an orthodontic practice. Referrals made by general dentists are an important source of new patients. Orthodontists implement various marketing strategies to foster this relationship. **Purpose:** 1) To develop a valid and reliable questionnaire to evaluate gift giving practices of orthodontists to other dental professionals. 2) To sample orthodontists nationwide for information about their gift giving practices. **Methods:** An initial list of questions was compiled from a review of the literature and discussions with practicing orthodontists. The questionnaire was pretested on part-time faculty and field tested on local orthodontists to establish validity. Reliability was assessed with an anonymous test-retest procedure with orthodontists at a local CE meeting. The final questionnaire was sent to orthodontists randomly selected nationwide. **Results:** Reliability tests (ICC, Kappa and weighted Kappa) of questions demonstrated substantial to excellent reliability (values>0.61). The orthodontists reported that the gifts given most frequently were food items. The most common reasons they reported giving the gifts were as a “thank you” and as an “incentive”. Gifts were generally given annually or quarterly. Best referring offices received gifts more frequently than lower referring offices. The annual value of gifts to a ‘Highest referring’ practice was most commonly $100 - $500. **Conclusion:** Orthodontists reported the kinds of gifts, the frequency and the value of the gifts they give to dentists. The amounts and frequency with which the gifts are given seemed modest and within the published guidelines of the ADA and the AAO.
Dedication

This document is dedicated to my extraordinary husband Hosein and my family.
Acknowledgments

I wish to thank my advisor, Dr. Firestone, for his continual support of me in all aspects of my residency here.

I thank Dr. Fields and Dr. Beck for all their knowledge and constructive criticisms that greatly improved the quality of my thesis.

Lastly I would like to thank everyone at The Ohio State University Division of Orthodontics for supporting me in my education.
Vita

June 2004 ........................................ Arcadia High School, California

2007 .................................................. B.S. Biology, University of California, Irvine

2012 .................................................. D.D.S., University of California, San Francisco

2012-2015 .......................................... Resident, Graduate Orthodontic Program,

The Ohio State University

Fields of Study

Major Field: Dentistry

Specialty: Orthodontics
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CHAPTER 1

INTRODUCTION

The success of an orthodontic practice depends on a steady flow of new patients. An average orthodontic practice sees 50 patients per day with approximately 250 new patient starts per year and 500 active treatment cases.$^{1,2}$ A high volume of new patients is required to maintain this level of productivity and an even higher volume is necessary for growth of an orthodontic practice compared.$^{3}$ Competition for these new patients have become very intense as a result of several factors: a 34% rise in general dentists performing orthodontic treatment$^4$, an 18% increase in the number of new orthodontists graduating per year compared with a decade ago, and delayed retirement of mature practitioners.$^5$ Potential patients are also recruited by pediatric dentists who perform their own orthodontic treatment or have an in-house orthodontist.$^5$ The 2013 Levine Group Data Center$^\text{TM}$ indicated that 75% of orthodontic practices have suffered declines with fewer new starts, reduced collections and higher overheads.$^6,7$ Because of these challenges, more than ever, orthodontists are implementing multiple strategies to attract new patients.
New patients come from a variety of sources such as internal marketing, external marketing, recommendations from patients and referrals from other dentists. The 2010 American Association of Orthodontists (AAO) Member & Patient Census found that orthodontists spent more than $10,000 a year to promote their practices. In a recent study, 100% of orthodontists report general dentists (GPs) as a source of referrals, 79% report other dental specialists as a source of referrals and 99% reported patients as a source of referrals. Historically, the leading source of new patients comes from referrals made by the GPs, followed by patient referrals. Proportionately, of all new patient referrals, 40-50% come from the GPs, with many offices receiving the bulk of their referrals from five or six dentists. Referrals from the GPs are the “back-bone” of most orthodontic practices and the relationship that an orthodontist has with their local dental community is an important factor contributing to the success of their practice.

Recognizing the importance of referrals, orthodontists engage in various forms of marketing to increase their new patients. For a healthcare business, the most important mechanism of growth is referrals – “the trust recommendation that steers new clients in the direction of the business”. To obtain referrals, orthodontists usually engage in some form of marketing to referral sources, such as a ‘thank-you’ note to the referring dentist, lunch meetings, office events and gifts. A recent survey of orthodontists showed that 97% of orthodontists use entertainment and gifts, 87.5% use letters of appreciation, 57% provide educational opportunities for GPs and 86% send reports to GPs as practice-building methods to seek referrals from GPs. Various practice management consultants also recommend that “orthodontists should be grateful to the
dental offices that support them” by “taking small food gifts to referring offices” and “offer[ing] free or discounted treatment for the referring dentist’s family and staff”.\textsuperscript{14,15} It seems to be common for orthodontists to market themselves to their local dental professionals with gifts or incentives\textsuperscript{14-19}; however, not much is understood or known about this practice. There is very little research in this area and even less information about the value of the gifts/incentives and the orthodontists’ description of their motivation for gift giving.

The medical field has a large body of literature on how gifts are given by the pharmaceutical industry to physicians. An estimated $5-6 billion is spent annually marketing to physicians by pharmaceutical companies, averaging almost $9000 per practicing physician.\textsuperscript{20} Drug companies give gifts to physicians with hopes of increasing the sales of promoted drugs.\textsuperscript{21-24} The most common gifts reported by physicians were trinkets (77%), books (41-47%) and meals (41%).\textsuperscript{21} Correlation analysis has shown that physicians who have many patients or write a large number of prescriptions per day are more likely to receive gifts from pharmaceutical companies.\textsuperscript{21} These trends have raised concerns over the influence that medical companies have over physicians. Recently, a new law on disclosure called the Physician Payments Sunshine Act requires pharmaceutical, medical and dental manufacturers and suppliers to report gifts or payments to health care providers that are greater than $100.\textsuperscript{18,19} The purpose of this legislation is to provide greater transparency regarding industry funding and decision making by healthcare providers.
The AAO Legal Department advises that there are “legal issues with either a substantial gift, or a smaller gift in response to each referral.”\textsuperscript{27} However a basket of fruit or flowers at the end of the year will be within legal guidelines.\textsuperscript{27} In both the American Dental Association (ADA) and the AAO Principles of Ethics and Code of Professional Conduct, it states that members shall not accept nor tender “rebates” or “split fees” in relation to the referrals of patients. Members cannot give or receive any substantial remuneration “in exchange for referring or accepting a patient”.\textsuperscript{28,29} However it is unknown if these guidelines are followed in private practice when the competition for patients is so intense.

Very little is known about what kind of gifts are given to dentists by orthodontic specialists even though 97.2\% of them report using entertainment and gifts as a practice-building method.\textsuperscript{1} This high percentage is a significant increase over previously reported figures of orthodontists who give gifts to general dentists, 67.8\% in 2005 and 75.3\% in 2011.\textsuperscript{1} In dentistry, there appear to be no data correlating orthodontic referrals to gifts received by the GPs.

Currently, there are large unknowns about how orthodontists market their practice to general dentists. Not much is known about gifts to GPs: to whom the gifts are given, how often they are given, the amount of each gift, and the reasons why the gifts are given. The primary purpose of the present study is to gain insight into how orthodontists use gifts to GPs as a marketing-strategy by developing a valid and reliable questionnaire to measure these characteristics. A second purpose is to administer the instrument to a national sample for data collection.
Specific Aims

1. To develop a valid questionnaire to measure the marketing promotions and gifting strategies used by the orthodontists with general practitioners.

   Null hypothesis: The questionnaire is not valid.

2. To establish test-retest questionnaire reliability.

   Null hypothesis: There is no significant difference in responses between the answers provided on the questionnaires taken one week apart.

3. To survey a random selection of orthodontists nationwide using the questionnaire to obtain quantitative data regarding gift giving by orthodontic practices.

4. Explore relationships between gift values and the motivations behind giving gifts.

5. To explore specific relationships between practice demographics and gift giving practices.
   a) Years in practice and percentage of gross income spent on marketing
   b) Location of the practice and the number of offices receiving gifts
   c) Location of the practice and the percentage of gross spent on marketing
   d) Location of the practice and the value of gift given to the best referring office
   e) Location of the practice and the value of the typical gift given
   f) Success of the marketing and the future plans of marketing
   g) Sex of the practitioner and the percentage of the gross income spent on marketing

   Null hypothesis: There are no significant correlational relationships between the demographic variables and the gift giving variables.
CHAPTER 2

MATERIALS AND METHODS

HUMAN SUBJECT APPROVAL

This research protocol was approved by a university-based Behavioral and Social Sciences Institutional Review Board in November 2013.

Protocol number: 2013B0386

SURVEY DESIGN/ DEVELOPMENT

Validity study

*Participant Selection and Design*

Validity, or trustworthiness, is the extent to which a question or instrument measures what it is intended to measure.\(^{30,31}\) Validity assesses if the questions are relevant and provide adequate coverage of the subject being studied.\(^{31}\)

The development of the questionnaire started with a review of the literature to
examine current knowledge about marketing strategies of orthodontists. Literature searches were conducted on PubMed and Google Scholar. After performing the literature review on the marketing and gift-giving practices of orthodontists, construct validity was addressed by creating preliminary questions from current knowledge and practices in this field. 1-3,8,10-19

For validity assessment, two participant pools were sampled. In the first validity assessment, inclusion criteria for subjects were full or part-time orthodontic faculty at a research university. A verbal introduction was used to explain the purpose of the study and to recruit participants. All participants implied consent when they elected to fill out the evaluation documents. Participation was voluntary and this was a convenience sample. Nine faculty members participated. Participants were asked if the questions were clear and relevant and to provide written comments.

The revised questionnaire with 27 questions was then distributed at an orthodontic continuing education course for a second validity assessment. Inclusion criteria for subjects in the second validity assessment were orthodontists in private practice in a Midwestern state attending a CERP qualified orthodontic continuing education course. A verbal introduction about the purpose of the study was made to all orthodontic practitioners in attendance and their participation was solicited. All participants implied consent when they elected to fill out the evaluation documents. Participation was voluntary and this was a convenience sample. This second round of testing elicited only minor changes to the questionnaire.
Data Analysis

All comments from this assessment were compiled and discussed with the research committee before any modifications to the questionnaire were made.

Reliability study

Participant Selection and Design

Reliability is a measure of the extent to which results are consistent over time, in other words, the results of the instrument are repeatable. Reliability can be determined through the test-retest method at two different times. If the results are similar then the instrument used has a high degree of stability, or reliability.

In this study, the survey was distributed at a continuing education course. Inclusion criteria were orthodontists in private practice in a Midwestern state who were attending a CERP qualified orthodontic continuing education course. A cover letter and verbal introduction were provided to all in attendance. The introductory material explained the purpose of the study and recruited participants. All participants implied consent when they elected to fill out the questionnaire. Participation was voluntary and this was a convenience sample. Participants were asked to complete the survey on site and turn it in during the meeting. The subjects were informed that their participation was voluntary and no personal information would be collected. When participants turned in their first survey, they were given a second survey in a pre-addressed and stamped envelope to be completed and mailed back one week later. The paired reliability surveys were numerically coded to be matched together. Thirty-eight surveys were completed and
turned in on site and 25 second surveys were received in the mail for a response rate of 65.8%. Thirteen participants failed to complete and/or mail back the second survey. The 25 paired questionnaires were used for the reliability analysis.

**Data Analysis**

The 25 paired survey responses were entered into a spreadsheet (Microsoft Office Excel, Redmond, WA) by one researcher (QLG). Software was used for reliability analysis (SAS Institute Inc, Cary, NC, USA). Answers for each question were sorted into one of three measurement scales - interval/ratio, ordinal and binary. The appropriate reliability analyses used were: Intraclass correlation coefficient (ICC) for interval/ratio data, Kappa for binary data, and weighted Kappa for ordinal data. See Appendix 2 for a complete list of instruments used for each question with reliability values.

For this study, an ICC or Kappa value above 0.75 indicated excellent reliability, an ICC between 0.4-0.75 indicated fair to good reliability, and an ICC below 0.4 indicated poor reliability.

**Nationwide data acquisition**

**Participant Selection and Design**

After the questions were validated and their reliability established, the questionnaire was used for national data acquisition. The questionnaire was converted to an electronic form and placed on SurveyMonkey® (https://www.surveymonkey.com/s/OSUOrtho). A greeting email was created with the survey link embedded. This email was sent a random sample of 2300 AAO members. A
second follow-up email was sent 4 weeks later to remind subjects to complete the survey if they had not yet done so. Data collection was terminated 6 weeks from the original email. There were 172 responses collected. This represented 7.5% of the sample surveyed.

Inclusion criteria for subjects in this study were orthodontists in the United States who were members of the American Association of Orthodontists (AAO). The sample consisted of a 2300 orthodontists selected at random from the list of all AAO members by The American Association of Orthodontists (AAO) Partners in Research program, an entity established for survey distribution to its members on behalf of faculty or residents of orthodontic programs for research purposes. It is unknown how this random sample was generated by the AAO. All participants implied consent when they elected to fill out the electronic questionnaire. Participation was voluntary.

Data Analysis

172 responses were returned. Responses were exported into a spreadsheet (Microsoft Office Excel, Redmond, WA) for data analysis. Software was used for data analysis (SAS Institute Inc, Cary, NC, USA). All data were coded for analyses of central tendencies and summery data by one of the investigators (QLG). For cross tabulation analysis of demographic variables and gift giving variable, Spearman’s correlation coefficient was used for ordinal data, ANOVA was used for interval variables, and Wilcoxon two-sample test was used for sex differences. See Table 7 for a complete list of paired variables and correlational tests used.
CHAPTER 3

MANUSCRIPT

Gift giving practices of orthodontists to other dental professionals

ABSTRACT

A constant influx of new patient is necessary for the success and growth of an orthodontic practice. Referrals made by general dentists are an important source of new patients. Orthodontists implement various marketing strategies to foster this relationship. **Purpose:** 1) To develop a valid and reliable questionnaire to evaluate gift giving practices of orthodontists to other dental professionals. 2) To sample orthodontists nationwide for information about their gift giving practices. **Methods:** An initial list of questions was compiled from a review of the literature and discussions with practicing orthodontists. The questionnaire was pretested on part-time faculty and field tested on local orthodontists to establish validity. Reliability was assessed with an anonymous test-retest procedure of orthodontists at a local CE meeting. Lastly, the final questionnaire was sent to orthodontists randomly selected nationwide. **Results:** Reliability tests used were ICC, Kappa and weighted Kappa. All questions exhibited substantial to excellent reliability (Values>0.61). **Conclusion:** Most commonly, the gifts given were food items. They were given as a “thank you” and as an “incentive”. Gifts were generally given annually or quarterly. Best referring offices received gifts more frequently than lower referring offices. The annual value of gifts to a ‘Highest referring’ practice was most commonly $100 - $500. The amounts and frequency with which the gifts are given seemed modest and within legal guidelines.
INTRODUCTION

The success of an orthodontic practice depends on a steady flow of new patients. An average orthodontic practice sees 50 patients per day with approximately 250 new patient starts per year and 500 active treatment cases.\textsuperscript{1,2} New patients come from a variety of sources such as internal marketing, external marketing, recommendations from patients and referrals from other dentists.\textsuperscript{3,8} In a recent study, 100% of orthodontists report general dentists (GPs) as a source of referrals, 79% report other dental specialists as a source of referrals and 99% reported patients as a source of referrals.\textsuperscript{1} Proportionately, of all new patient referrals, 40-50% come from the GPs,\textsuperscript{1,6} with many offices receiving the bulk of their referrals from five or six dentists.\textsuperscript{10} Referrals from the GPs are the “backbone” of most orthodontic practices\textsuperscript{11} and the relationship that an orthodontist has with their local dental community is an important factor contributing to the success of their practice.

Recognizing the importance of referrals, orthodontists engage in various forms of marketing to increase their new patients.\textsuperscript{8,10-15} To obtain referrals, orthodontists usually engage in some form of gift giving to referral sources, such as a thank-you note to the referring dentists, lunch meetings, office events and gifts.\textsuperscript{1,13,14} A recent survey of orthodontists showed that 97% of orthodontists use entertainment and gifts, 87.5% use letters of appreciation, 57% provide educational opportunities for GPs and 86% send reports to GPs as practice-building methods to seek referrals from GPs.\textsuperscript{1} It seems to be common for orthodontists to market themselves to their local dental professionals with
gifts or incentives\textsuperscript{14-19}; however, not much is understood or known about this practice. There is very little research in this area and even less information about the value of the gifts/incentives and the orthodontists’ description of their motivation for gift giving.

The AAO Legal Department advises that there are “legal issues with either a substantial gift, or a smaller gift in response to each referral.”\textsuperscript{27} However a basket of fruit or flowers at the end of the year will be within legal guidelines.\textsuperscript{27} In both the American Dental Association (ADA) and the AAO Principles of Ethics and Code of Professional Conduct, it states that members shall not accept nor tender “rebates” or “split fees” in relation to the referrals of patients. Members cannot give or receive any substantial remuneration “in exchange for referring or accepting a patient”.\textsuperscript{28,29} However it is unknown if these guidelines are followed in private practice when the competition for patients is intense.

Currently, there are large unknowns about how orthodontists market their practice to general dentists even though 97.2\% of them report using entertainment and gifts as a practice-building method.\textsuperscript{1} Not much is known about gifts to GPs: to whom the gifts are given in the office, how often they are given, the amount of each gift, and the reasons why the gifts are given. The aim of the present study is to gain insight into how orthodontists use gifts to GPs as a marketing-strategy by developing a valid and reliable questionnaire to measure this practice. A second aim is to administer the instrument to a national sample for data collection.
MATERIALS AND METHODS

Validity study

Validity, or trustworthiness, is the extent to which a question or instrument measures what it is intended to measure.\textsuperscript{30,31} Validity assesses if the questions are relevant and provide adequate coverage of the subject being studied.\textsuperscript{31}

The development of the questionnaire started with a review of the literature on PubMed and Google Scholar to examine current knowledge about gift giving strategies of orthodontists. Construct validity was addressed by creating preliminary questions from current knowledge and practices in this field.\textsuperscript{1-3,8,10-19}

For validity assessment, two participant pools were sampled. In the first validity assessment, inclusion criteria for subjects were full or part-time orthodontic faculty at a research university. A verbal introduction was used to explain the purpose of the study and to recruit participants. All participants implied consent when they elected to fill out the evaluation documents. Participation was voluntary and this was a convenience sample. Participants were asked if the questions were clear and relevant and to provide written comments.

The revised questionnaire with 27 questions was then distributed at an orthodontic continuing education course for a second assessment of validity. Inclusion criteria for subjects in the second validity assessment were orthodontists in private practice attending a CERP qualified orthodontic continuing education course. A verbal introduction about the purpose of the study was made to all orthodontic practitioners in attendance and their participation was solicited. All participants implied consent when they elected to fill out
the evaluation documents. Participation was voluntary and this was a convenience sample. This second round of testing elicited only minor changes to the questionnaire.

**Reliability study**

Reliability is a measure of the extent to which results are consistent over time, in other words, the results of the instrument are repeatable. Reliability can be determined through the test-retest method. If the results are similar then the instrument used has a high degree of stability, or reliability.

In this study, the survey was distributed at a continuing education course. Inclusion criteria were orthodontists in private practice who were attending a CERP qualified continuing education course. A cover letter and verbal introduction were provided to all in attendance. The introductory material explained the purpose of the study and recruited participants. All participants implied consent when they elected to fill out the questionnaire. Participation was voluntary and anonymous and this was a convenience sample. Participants were asked to complete the survey on site and turn it in during the meeting, then they were given a second survey in a pre-addressed and stamped envelope to be completed and mailed back one week later. The paired reliability surveys were coded to be matched together.

For reliability analysis, the 25 paired survey responses were entered into a spreadsheet (Microsoft Office Excel, Redmond, WA) by one researcher (QLG). Software was used for reliability analysis (SAS Institute Inc, Cary, NC, USA). The appropriate reliability analyses used were: Intraclass correlation coefficient (ICC) for interval/ratio
data, Kappa for binary data, and weighted Kappa for ordinal data. See Appendix B for a complete list of instruments used for each question with reliability values.

For this study, an ICC or Kappa value above 0.75 indicated excellent reliability, an ICC between 0.4-0.75 indicated fair to good reliability, and an ICC below 0.4 indicated poor reliability.

**Nationwide data acquisition**

After the questions were validated and their reliability established, the questionnaire was used for national data acquisition. The questionnaire was converted to an electronic form and placed on SurveyMonkey® (http://www.surveymonkey.com). A greeting email was created with the survey link embedded. This email was sent to a random sample of 2300 AAO members. A second follow-up email was sent 4 weeks later to remind subjects to complete the survey if they had not yet done so. Data collection was terminated 6 weeks from the original email.

Inclusion criteria for subjects in this study were orthodontists in the United States who were members of the American Association of Orthodontists (AAO). The sample consisted of 2300 orthodontists selected at random from the list of all AAO members by The American Association of Orthodontists (AAO) Partners in Research program, an entity established for survey distribution to its members on behalf of faculty or residents of orthodontic programs for research purposes. It is unknown how this random sample was generated by the AAO. All participants implied consent when they elected to fill out the electronic questionnaire. Participation was voluntary.
Data Analysis

Responses were exported into a spreadsheet (Microsoft Office Excel, Redmond, WA) for data analysis. Software was used for data analysis (SAS Institute Inc, Cary, NC, USA). All data were coded for analyses of central tendencies and summary data by one of the investigators (QLG). For cross tabulation analysis of demographic variables and gift giving variable, Spearman’s correlation coefficient was used for ordinal data, ANOVA was used for interval variables, and Wilcoxon two-sample test was used for sex differences. See Table 4 for a complete list of paired variables and correlational tests used.

RESULTS

Validity

Nine full-, or part-time faculty reviewed construct and content validity and their corrections or modifications were incorporated in the questionnaire. In the second validity assessment, the revised questionnaire (Appendix A) was reviewed by private practice orthodontists and their comments and changes were also incorporated in the questionnaire.
Reliability

Thirty-eight orthodontists attending a local continuing education course agreed to participate by completing the first survey on site. Thirteen failed to complete and/or mail back the second survey. The dropout rate is 34.2%. The 25 completed-pairs of questionnaires were used for reliability analysis.

The overall reliability for questions with a continuous variable were all excellent (ICC>0.75). The overall reliability of the questions with ordinal or nominal data showed substantial to almost perfect agreement (K> 0.61).

The complete list of ICC and Kappa values for each question can be found in Appendix B. No questions exhibited less than substantial reliability; all were used in the nationwide survey.

Nationwide Data Collection

One hundred seventy-two or 7.5% of the 2300 randomly emailed questionnaires were collected. Two questions (Q6 and Q7) were added after initial collection had begun after suggestions made by a participant to include questions regarding the success of gift giving and future plans for gift giving. After discussion with the research committee, Q6 and Q7 were added to the questionnaire. Thus the responses to these two questions need to be interpreted with caution due to lack of validity and reliability testing.

The demographic characteristics of the respondents are noted in Table 1. The average respondent was 46.3 years old male and had been in practice for 15.9 years. The majority of participants (70.2%) practiced in a suburban location and a quarter was female.
Table 1. Demographics of participants and question

<table>
<thead>
<tr>
<th>Q1. Age</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.3</td>
<td>48</td>
<td>29-64</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2. Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>123 (73.2%)</td>
<td>45 (26.8%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q3. Years in Practice</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.9</td>
<td>15.5</td>
<td>1-35</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4. Practice Location</th>
<th>Rural</th>
<th>Suburban</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 (9.4%)</td>
<td>120 (70.2%)</td>
<td>35 (20.4%)</td>
<td></td>
</tr>
</tbody>
</table>

Three out of four responders gave gifts and the majority did not plan to change their gifting practices. A minority (8.8%) planned to decrease their futures gifting.

Figure 1. Question 5 and 7

Participants were almost equally split between those who thought gifts were successful to highly successful (53%) and those who thought it was not successful to unsuccessful (47%). (Figure 2)
Figure 2. Question 6- Success of gifts

The majority of orthodontists spend less than 1% of gross on gifts and only 16% spend more than 3%. (Figure 3)

Figure 3. Question 18

In Table 2, details on gifting are listed regarding who receives the gifts, the reasons, the frequency and what types of gifts were given. Some questions allowed the participants to select multiple answers thus the percentages add up to more than 100.

Figure 4 shows the breakdown on what kinds of gifts were used by orthodontists; most commonly it was food items.
Table 2. Gifting characteristics and question numbers

*Participants can select multiple choices.

Confidence intervals listed are between low 95% and high 95%.

<table>
<thead>
<tr>
<th>Q8. Who determines which offices receive gifts?</th>
<th>Doctor</th>
<th>Office Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79.3%</td>
<td>22.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q9. Who gets the gifts?</th>
<th>GP</th>
<th>Pediatric Dentist</th>
<th>Periodontist</th>
<th>Endodontist</th>
<th>Oral Surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95.8%</td>
<td>76.6%</td>
<td>17.0%</td>
<td>6.4%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q10. Which offices receive gifts?</th>
<th>All</th>
<th>Only Referring</th>
<th>Best Referring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95.8%</td>
<td>76.6%</td>
<td>17.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q11. The reason for the gifts</th>
<th>As a “Thank you”</th>
<th>Incentive</th>
<th>Marketing</th>
<th>Match others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>78.7%</td>
<td>61.0%</td>
<td>69.5%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Confidence Interval</td>
<td>71.0-85.2</td>
<td>52.4-69.1</td>
<td>61.2-77.0</td>
<td>8.9-21.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q12. What determines which office receives gifts?</th>
<th># of Referrals</th>
<th>Location</th>
<th>Personal Relationship</th>
<th>Any referrals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>68.6%</td>
<td>59.1%</td>
<td>64.7%</td>
<td>44.0%</td>
</tr>
<tr>
<td>Confidence Interval</td>
<td>60.1-76.3</td>
<td>50.4-67.4</td>
<td>56.1-72.7</td>
<td>35.6-52.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q14. How often?</th>
<th>Annually</th>
<th>Quarterly</th>
<th>Monthly</th>
<th>Per New Pt</th>
<th>Special Occasions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48.5%</td>
<td>38.6%</td>
<td>9.1%</td>
<td>0</td>
<td>17.4%</td>
</tr>
</tbody>
</table>

Figure 4. Question 15

Q15: What Kinds of Promotions/Gifts are Given?

<table>
<thead>
<tr>
<th>Kind of Gift</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Items/Dinners</td>
<td>89%</td>
</tr>
<tr>
<td>Holiday Open House</td>
<td>12%</td>
</tr>
<tr>
<td>Gift Cards</td>
<td>41%</td>
</tr>
<tr>
<td>Tickets to events</td>
<td>24%</td>
</tr>
<tr>
<td>Educational Items</td>
<td>25%</td>
</tr>
<tr>
<td>Discounted Treatment</td>
<td>44%</td>
</tr>
<tr>
<td>Jewelry</td>
<td>3%</td>
</tr>
<tr>
<td>Electronics</td>
<td>5%</td>
</tr>
<tr>
<td>Vacations</td>
<td>2%</td>
</tr>
</tbody>
</table>
Table 3 shows the gift giving differences of orthodontists to the highest and lowest referring practices. The gifts to highest referring offices were more valuable and given more frequently to the dentist rather than other members of the office.

Table 3. Gift giving practices to highest referring versus lowest referring offices

<table>
<thead>
<tr>
<th>Question</th>
<th>Highest Referring Office</th>
<th>Lowest Referring Office</th>
<th>Per new patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q19, 22. Approximate value of gifts?</td>
<td>27.8%</td>
<td>82.9%</td>
<td>0</td>
</tr>
<tr>
<td>Q19A. Best referrals</td>
<td>56.3%</td>
<td>17.1%</td>
<td>0</td>
</tr>
<tr>
<td>Q19B. Typical referrals</td>
<td>12.7%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q20. Who gets the gifts?</td>
<td>3.2%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q21. How often are the gifts given?</td>
<td>64.9%</td>
<td>44.9%</td>
<td>0</td>
</tr>
<tr>
<td>Q21A. Annual</td>
<td>23.7%</td>
<td>18.9%</td>
<td>0</td>
</tr>
<tr>
<td>Q21B. Quarterly</td>
<td>18.3%</td>
<td>11.0%</td>
<td>0</td>
</tr>
<tr>
<td>Q21C. Monthly</td>
<td>77.9%</td>
<td>81.1%</td>
<td>0</td>
</tr>
<tr>
<td>Q21D. Per new patient</td>
<td>46.9%</td>
<td>65.6%</td>
<td>0</td>
</tr>
<tr>
<td>Q21E. More than once per year</td>
<td>45.3%</td>
<td>25.6%</td>
<td>0</td>
</tr>
<tr>
<td>Q21F. Never</td>
<td>7.03%</td>
<td>2.3%</td>
<td>0</td>
</tr>
</tbody>
</table>

Some questions were open-ended and allowed the respondents to fill in an answer. These results are listed in Table 4. The confidence intervals are listed along with range. The range for a few of the questions was very wide but it was not the same participant who gave these responses to all these questions, so the entries were included.

Table 4. Open ended questions

<table>
<thead>
<tr>
<th>Question</th>
<th># of Responses</th>
<th>Mean</th>
<th>Median</th>
<th>Low 95% CI</th>
<th>High 95% CI</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q13. How many offices receive gifts?</td>
<td>133</td>
<td>28.8</td>
<td>25</td>
<td>24.6</td>
<td>32.9</td>
<td>0-200</td>
</tr>
<tr>
<td>Q16A. Value of average gift to best referring office</td>
<td>119</td>
<td>$131</td>
<td>$80</td>
<td>89.0</td>
<td>172.0</td>
<td>0-2000</td>
</tr>
<tr>
<td>Q16B. Value of average gift to typical practice</td>
<td>116</td>
<td>$54</td>
<td>$40</td>
<td>45.3</td>
<td>62.1</td>
<td>0-250</td>
</tr>
<tr>
<td>Q17. Value of largest gift</td>
<td>120</td>
<td>$346</td>
<td>$150</td>
<td>219.0</td>
<td>473.7</td>
<td>0-5000</td>
</tr>
<tr>
<td>Q25. Value of gift to non-referring office</td>
<td>111</td>
<td>$80</td>
<td>$35</td>
<td>45.4</td>
<td>114.4</td>
<td>0-1500</td>
</tr>
<tr>
<td>Q26. Value of gift to NEW prospective office</td>
<td>169</td>
<td>$115</td>
<td>$50</td>
<td>66.4</td>
<td>164.4</td>
<td>0-2500</td>
</tr>
</tbody>
</table>
Finally, the results of the further analysis is listed in Table 5, which showed a lack of relationship between all variables analyzed except for question 6 and 7 with an inverse relationship that accounted for a small percentage of the variance.

Table 5. Cross tabulation analysis of variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test</th>
<th>Value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3:18  Yrs in Practice &amp; % of gross spent on gifts</td>
<td>Spearman Rho</td>
<td>-0.12</td>
<td>0.18</td>
</tr>
<tr>
<td>Q4:13  Location &amp; # offices sent gifts</td>
<td>ANOVA</td>
<td>1.24</td>
<td>0.29</td>
</tr>
<tr>
<td>Q4:18  Location &amp; % of gross spent on gifts</td>
<td>Spearman Rho</td>
<td>0.11</td>
<td>0.20</td>
</tr>
<tr>
<td>Q4:16A Location &amp; value of gift to best referring office</td>
<td>ANOVA</td>
<td>1.08</td>
<td>0.34</td>
</tr>
<tr>
<td>Q4:16B Location &amp; value of gift to typical office</td>
<td>ANOVA</td>
<td>0.55</td>
<td>0.58</td>
</tr>
<tr>
<td>Q6:7   Success of marketing &amp; future plans</td>
<td>Spearman Rho</td>
<td>-0.18</td>
<td>0.04*</td>
</tr>
<tr>
<td>Q2:18  Gender &amp; % of gross spent on gifts</td>
<td>Wilcoxon 2-sample</td>
<td>2026.5</td>
<td>0.12</td>
</tr>
</tbody>
</table>

DISCUSSION

The questionnaire developed was valid and followed formats previously established in similar studies. The questionnaire was shown to be reliable using the test-retest method. Kappa and ICC values showed that all questions were reliable at the substantial to excellent agreement levels.

In the nationwide quantitative data collection, Questions 6 and 7 were added after the electronic survey feedback was opened with 27 (16%) of the responses already collected. The responses to these questions must be regarded with caution since, although they were significant to the scope of the survey, they had not been tested for validity and reliability.
A total of 172 orthodontists responded anonymously to the online questionnaire, a response rate of 7.5%, which represents around 2% of all orthodontists in the nation.\textsuperscript{1} A follow-up email reminder was sent out 4 weeks after the initial email. This is in keeping with survey best practices for follow-up reminders which can increase electronic responses by 25%.\textsuperscript{45,46} The survey instrument is a common one used for email surveys so it is familiar to the recipients;\textsuperscript{45-49} however, it does not provide explanations of the data.\textsuperscript{50,51} We cannot assess the respondent’s honesty, interpretations of the questions and thoughtfulness of their answers. Electronic surveys also have lower response rates and level of completeness than paper-based surveys.\textsuperscript{46-48,52} A previous systematic review of internet-based surveys to health professionals reported response rates ranged from 9-94%.\textsuperscript{48} Response rates of web-based surveys sent to dentists ranged from 6.3-16.5%.\textsuperscript{49,53,54} Our response rate of 7.5% falls in that range and was higher than the 3% response rate of the 2013 JCO Practice Study.\textsuperscript{1} Due to the low response rate (7.5%), we may have increased variability and limited generalizability.

The sample population’s median age was 48 with 15.9 years in practice compared to the JCO Practice study median age of 50 and 18 years in practice.\textsuperscript{1} Our sample appears to be skewed towards slightly younger orthodontists who had fewer years in practice. We are unable to compare this sample to the overall AAO membership because the AAO does not collect demographic information on its members. Although the AAO represents about 95% of orthodontists nationwide\textsuperscript{55}, it is unlikely that our sample represents the target population of all orthodontists in the U.S. Similar reductions in mean age and years in practice occurred when the JCO switched their biennial survey from direct mail to
online between 2011 and 2013: mean age dropped from 54 to 50 and years in practice dropped from 23 to 18.\textsuperscript{1}

The 2013 JCO study reported that 100\% of orthodontists used general dentists as a source of referrals and 78.9\% use other specialists. Our study found similar trends - 95.8\% of gift-giving participants gave gifts to general dentists and 76.6\% gave to pediatric dentists, the top two dental sources for referrals to orthodontic practices.\textsuperscript{10-12} Most participants gave gifts-77.8\%, which is similar to the 2011 JCO value of 75.3\%, but lower than the 2013 JCO value of 97.2\%. This jump in JCO values was most likely because the 2013 survey grouped gifts and entertainments together versus previous JCO studies that asked about gifts only. Although almost half (46.7\%) of orthodontists found gift-giving to be not very successful or unsuccessful, but only 8.8\% planned to decrease their future plans of gift giving (Table 3). This might be a case of maintaining the status quo, or the fear of a backlash if gifts were discontinued. Those who found gift-giving to be unsuccessful might not be giving gifts thus selected “no change” (62.7\%) to the question regarding future plans (Figure 1).

Looking at percentage of gross practice income spent, the majority of orthodontists (60.5\%) spent less than 1\% of gross on gifts to other dentists. This is lower than the 2-7\% for total practice marketing recommended by dental practice advisors.\textsuperscript{56,57} However this study was limited to marketing practices of orthodontists in terms of gifts and promotions to other dentists, so it would be expected to be less than those recommendations. We did not assess other forms of marketing such as communications to the doctors, internal marketing to patients, or external marketing to the community or
advertisements. The largest category of type of gift was food items with discounted orthodontic treatment and gift cards distant second and third choices (Figure 4). Surprisingly 10.7% of participants still gave what would appear to be relatively expensive items such as jewelry, electronics, or vacations which correlate to the high mean dollar amount of $346 for largest gift ever given. These items might be considered to be outside of AAO legal guidelines regarding not giving gifts of “substantial” value.

Table 4 showed an area that is at first glance difficult to understand: the gift values to a non-referring office and to a new prospective office are both higher than the gift value to a typical office ($80 / $115 versus $54, respectively). Is this to entice a non-referrer to become a referral source? More likely, the gifts to a typical referring office are sent more frequently, thus lower in value.

Some areas raised some concerns over the ethics of gift-giving. Although the number one reason for giving gifts was as a “Thank you”, 61% of respondents also selected “Incentive” as the reason for gifts with a confidence interval of 52.4-69.1% (Table 2). Similarly question 12 revealed that the main determinant of which office receives gifts is the number of referrals that office is sending (68.6%). Also there are distinct differences in the marketing practices to highest referring and lowest referring offices (Table 3). The gifts to the highest referring offices were more valuable and sent more frequently. Although when asked why the gifts are given in questions 14, 21, and 24, none of the respondents checked the choice “per new patient”. However it seems that gifting practices were very much based on incentivizing and rewarding referrals. Although people followed the AAO legal guidelines of not giving a gift “in response to
each referral”27, the trends in the responses suggest that the spirit of the guidelines were being overlooked. The pressure for orthodontists to do everything that they can to protect their best referral sources will probably increase in the future as the number of orthodontists, and thus competition for patients, increases.4,5,7,9

For our last aim, we evaluated seven pairs of demographics and gift-giving variables (Table 7) to look for any correlational trends. Surprisingly only one pair showed a significant relationship after statistical analyses: success of gifts (Q6) and future plans to increase, maintain or decrease promotions/gifts (Q7). However these two questions were not tested for validity and reliability. In addition, the relationship was weak with a low Spearman Rho value of -0.18, P=0.04. It seemed that if gift giving was viewed as successful, then orthodontists would not increase their spending. We hypothesize that the orthodontists who viewed their marketing to GPs as successful saw no need to increase their spending in this category of marketing. Other variables thought to be related showed no correlation such as location and gift values.

Weaknesses of this study include: 1) the sample population not representative of the target population, 2) a low response rate of 7.5%, 3) limitations of the questionnaire instrument being anonymous, 4) lack of validity and reliability testing for Q6 and Q7 and 5) limiting this study to only gift giving to general dentists and not all forms of marketing typical of an orthodontic practice. Data entry errors might also occur because of non-responses to individual questions and during coding of open-ended questions.50

Looking forward, there are areas that invite future research. Referrals from patients seem to have surpassed those from general dentists as the number one referral
source of new patients in an orthodontic practice.¹ Future research can look into marketing practices of orthodontists to patients. Previous studies have found that the major determinants for general dentists to send referrals were good communication and referrals back to the dentist.¹¹,¹²,⁵⁸ So, possibly all these gifts are a waste of time and energy and orthodontists should focus more on the professional relationship. This study only examined how orthodontists give gifts to other dentists, future studies can follow up on how the dentists perceive this relationship.

In conclusion, the overall trends reported in this study are consistent with those reported by other researchers.¹⁻³,⁶⁻¹⁵ The study results are unique in giving information about the amount and frequency of gift giving to referring and non-referring dentists. The amounts and frequency with which gifts are given seemed, for the most part, modest and within the guidelines set out by the AAO. However, while sending more ‘rewards/gifts’ to better referring GP offices seems reasonable and understandable, when done to excess, may move into an ethical ‘gray zone’. Lastly, this study does not intend to suggest guidelines of gifting to dentists but merely to provide some information on this practice.
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## APPENDIX A

Electronic Survey

### 1. GENERAL DEMOGRAPHICS

1. What is your age? 

2. What is your gender? 
   - Female 
   - Male 

3. How many years in practice of Orthodontics? 

4. How would you describe your practice location? 
   - Rural 
   - Suburban 
   - Urban 

5. Do you give practice promotions and/or gifts to other dentists and/or offices? 
   - Yes 
   - No 

6. Overall, how successful would you say your marketing promotions/gifts are? 
   - Highly successful 
   - Successful 
   - Not very successful 
   - Unsuccessful 

7. Do you plan to increase or decrease promotions/gifts in the future? 
   - Increase 
   - Decrease 
   - No change 

### 2. 

8. Who in your office determines which dental offices receive promotions/gifts? 
   - You (the doctor) 
   - Office manager 
   - Other (please specify) 
   

9. To what kinds of practices do you give promotions/gifts to? (Check all that apply)

- General dentist
- Pediatric dentist
- Periodontist
- Endodontist
- Oral Surgeon
- Other (please specify)

10. Which offices receive promotions/gifts? (Check all that apply)

- All offices, including potential offices
- Only referring offices
- Best referring offices

11. The reasons why you give promotions/gifts? (Check all that apply)

- As a “Thank you” for referrals
- Incentive to promote referrals
- Marketing to put your name out to other practices
- To match promotions/gifts from other orthodontists
- Other (please specify)

12. What determines which practices receive promotions/gifts? Based on: (Check all that apply)

- Number of referrals
- Location
- Personal relationship
- Any referrals (vs. non-referral)
- Other (please specify)

13. Each year, about how many offices receive promotions/gifts from your practice?
14. How often are the promotions/gifts given? (Check all that apply)
- Annually
- Quarterly
- Monthly
- Per new patient referred from specific office
- Special occasions, ie birthdays
- Other (please specify)

15. What kinds of practice promotions/gifts are given? (Check all that apply)
- Food items / Dinners
- Holiday open house
- Gift cards
- Tickets to sports events
- Educational items, ie seminars, CE
- Discounted or complementary orthodontic treatment
- Jewelry
- Electronics
- Vacations
- Other (please specify)

16. What is the value of an average promotion/gift given to: (not counting orthodontic treatment)
   - Best referring practice
   - Typical practice

17. What is the value of the largest promotion/gift you have given? (per person, not counting orthodontic treatment)

18. About what percentage of total gross income do you spend on promotions/gifts annually?
- Less than 1% of annual gross income
- 1-2% of gross
- 3-4% of gross
- >5% of gross
### 4. HIGHEST REFERRING OFFICE

19. What's the approximate value of promotions/gifts each year to the best referring office(s)?

- [$<100$
- [$100-500$
- [$500-1000$
- [$>1000$

20. In that office, to whom are the gifts given in the offices? (Check all that apply)

- Referring dentist
- Front office staff
- Hygienist
- The office as a whole
- Other (please specify)

21. How often do you give the best referring office a gift? (Check all that apply)

- Annually
- Quarterly
- Monthly
- Per new patient referral from that office
- Other (please specify)

### 5. LOWEST REFERRING OFFICE

22. What's the approximate value of promotions/gifts each year to the lowest referring office(s)?

- [$<100$
- [$100-500$
- [$500-1000$
- [$>1000$
23. In that office, to whom are the promotions/gifts given in the offices? (Check all that apply)

- Referring dentist
- Front office staff
- Hygienist
- The office as a whole
- Other (please specify)

24. How often do you give the lowest referring office a promotion/gift? (Check all that apply)

- Annually
- Quarterly
- Monthly
- Per new patient referral from that office
- Other (please specify)

6. NON-REFERRING OFFICE / PROSPECTS

25. What's the approximate value of promotions/gifts each year to a currently non-referring office?

26. What is the value of promotions/gifts given to a NEW prospective referring office?

27. If an office increases referrals to you, does that increase the promotions/gifts given?

- Yes
- No
APPENDIX B

Reliability Values

<table>
<thead>
<tr>
<th>Question</th>
<th>K</th>
<th>LCB_{.95}</th>
<th>UCB_{.95}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8a</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q8b</td>
<td>0.8608</td>
<td>0.5967</td>
<td>1</td>
</tr>
<tr>
<td>Q8c</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q9a</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q9b</td>
<td>0.8308</td>
<td>0.5114</td>
<td>1</td>
</tr>
<tr>
<td>Q9c</td>
<td>0.614</td>
<td>0.1266</td>
<td>1</td>
</tr>
<tr>
<td>Q9d</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q9e</td>
<td>0.8991</td>
<td>0.7068</td>
<td>1</td>
</tr>
<tr>
<td>Q9f</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q10a</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q10b</td>
<td>0.6374</td>
<td>0.2653</td>
<td>1</td>
</tr>
<tr>
<td>Q10c</td>
<td>0.7708</td>
<td>0.4698</td>
<td>1</td>
</tr>
<tr>
<td>Q10d</td>
<td>0.8308</td>
<td>0.5114</td>
<td>1</td>
</tr>
<tr>
<td>Q10e</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q11b</td>
<td>0.7442</td>
<td>0.4174</td>
<td>1</td>
</tr>
<tr>
<td>Q11c</td>
<td>0.7708</td>
<td>0.4698</td>
<td>1</td>
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<td>Q12a</td>
<td>0.8136</td>
<td>0.5715</td>
<td>1</td>
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<tr>
<td>Q12b</td>
<td>0.6239</td>
<td>0.2915</td>
<td>0.9563</td>
</tr>
<tr>
<td>Q12c</td>
<td>0.6374</td>
<td>0.2653</td>
<td>1</td>
</tr>
<tr>
<td>Q14a</td>
<td>0.8608</td>
<td>0.5967</td>
<td>1</td>
</tr>
<tr>
<td>Q14b</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q14c</td>
<td>0.8308</td>
<td>0.5114</td>
<td>1</td>
</tr>
<tr>
<td>Q14d</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q14e</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q14f</td>
<td>0.6441</td>
<td>0.0079</td>
<td>1</td>
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<tr>
<td>Q15a</td>
<td>0.8308</td>
<td>0.5114</td>
<td>1</td>
</tr>
<tr>
<td>Q15b</td>
<td>0.614</td>
<td>0.1266</td>
<td>1</td>
</tr>
<tr>
<td>Q15c</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q15d</td>
<td>0.8791</td>
<td>0.6493</td>
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<tr>
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<tr>
<td>----------</td>
<td>-------</td>
<td>------------</td>
<td>------------</td>
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<tr>
<td>Q18</td>
<td>0.8811</td>
<td>0.7418</td>
<td>1</td>
</tr>
<tr>
<td>Q19</td>
<td>0.9341</td>
<td>0.8036</td>
<td>1</td>
</tr>
<tr>
<td>Q22</td>
<td>0.7755</td>
<td>0.3566</td>
<td>1</td>
</tr>
<tr>
<td>Q27</td>
<td>0.6972</td>
<td>0.354</td>
<td>1</td>
</tr>
</tbody>
</table>

### Weighted kappa statistics

### Intraclass correlation coefficients

<table>
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<tr>
<th>Question</th>
<th>ICC</th>
<th>LCB$_{95}$</th>
<th>UCB$_{95}$</th>
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