ARTICLE ANALYSIS & EVALUATION // **ETIOLOGY/OTHER**

ALTHOUGH LIMITED EVIDENCE SUGGESTS PATIENT PERCEPTIONS AND EXPECTATIONS FOR DENTAL IMPLANTS ARE REALISTIC, MANY MISCONCEPTIONS REMAIN

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REVIEWER
PAUL S. FARSAI

The aim of this study was to investigate the knowledge, perceptions, and expectations for implant therapy among patients who had at least 1 missing tooth and were interested in receiving dental implants.

SORT SCORE			
A	B	C	**N/A**

SORT, Strength of Recommendation Taxonomy

LEVEL OF **EVIDENCE**		
1	**2**	3

See page 9A for complete details regarding SORT and LEVEL OF EVIDENCE grading system

SOURCE OF FUNDING
Information not available

TYPE OF STUDY/DESIGN
Cross-sectional study (survey)

KEYWORDS
Dental implants, Patient education, Patients' expectations

ARTICLE TITLE AND BIBLIOGRAPHIC INFORMATION

What do patients expect from treatment with Dental Implants? Perceptions, expectations and misconceptions: A multicenter study. **Yao J, Li M, Tang H, Want P-L, Zhao Y-X, McGrath C, Mattheos N.** *Clin Oral Implants Res 28(3):261-71.*

SUMMARY

Subjects

The study was designed as a multicenter trial and included 277 subjects enrolled in 4 university clinics that offered dental implants in 3 locations in China (Hong Kong, SiChuan, and JiangSu) from June 2014 to May 2015. Subjects who had at least 1 missing tooth and requested an initial dental implant consultation were invited to participate in the study. Subjects who had previously received implants were also included; however, those who had previously received an implant consultation elsewhere for the same reason they were visiting the multicenter sites (including diagnosis and offer of a treatment plan) and were seeking a second opinion were excluded from the study.

Key Risk/Study Factor

A 34-item questionnaire was developed to investigate patients' preoperative information, perceptions, and expectations for treatment with dental implants. The questionnaire covered 7 domains: (1) personal characteristics (4 items); (2) previous experiences (2 items); (3) impacts (2 items); (4) psychosocial factors: (a) perception—8 items, (b) attitude—2 items, (c) values/norms—2 items, and (d) self-efficacy—2 items; (5) encouragement (3 items); (6) outcome expectations (7 items); and (7) overall evaluation (2 items).

Main Outcome Measure

The primary outcome variables in the study were patients' information level about implants and perceptions and outcome expectations of the treatment with dental implants.

Main Results

A total of 410 questionnaires were distributed in the 4 clinical centers and 277 (67.7% response rate) were collected. Due to the similarity of population

characteristics in 2 sites, the data retrieved from these 2 sites were combined. Of the 277 respondents, 126 (45.5%) were male. The biggest age distribution represented was 26-34 years, comprising 105 individuals (38.6%). Most respondents had completed a high school education level or below (36%); 35.6% reported a bachelor level education. Eighty-four respondents (31.3%) had lost anterior tooth/teeth, and 149 (55.6%) had lost a single tooth. About 43% had reported that someone in their circle of family or friends had received dental implant services.

The main source of information about dental implants came from the dentist or the hygienist ($n = 113$, 42%) followed by the second most common source of information being someone in the subject's circle of colleagues, friends, or family members ($n = 67$, 25%). Although 62.8% of the participants felt that they were "well informed" about the treatment with dental implants, 30.3% disagreed about being "well informed" and 6.9% were uncertain. However, only 17.7% of those who agreed they were well informed about dental implants felt confident with the information they had.

The 3 survey statements with the highest agreement reported by patients were:

1. "Dental implants should be done by specialists or dentists trained specially for this" with an agreement frequency of 95.7%.

2. "Dental implants are well tested and safe, effective treatment for replacement of missing teeth" with an agreement frequency of 90.2%.

3. "Dental implants look as nice as natural teeth" with an agreement frequency of 82.7%.

There were 4 statements in the survey where the frequency of disagreement between the respondents exceeded that of agreement (termed "dangerous misperceptions" by authors):

1. "Dental implants require less care than natural teeth" with a disagreement frequency of 65%.

2. "Treatment with dental implants is appropriate for all patients with missing teeth" with a disagreement frequency of 64.6%.

3. "Dental implants last longer than natural teeth" with a disagreement frequency of 62.5%. This item was also significantly different between genders (female disagreement frequency was 47.7%; male disagreement frequency was 35.5%; $P = .042$).

4. "Treatment with dental implants has no risks or complications" with a disagreement frequency of 53.1%.

Expectations from treatment outcomes were commonly high, whereas there was a significant correlation between overall mean of perception scores and outcome expectation scores ($r = 0.32$, $P < .001$). Overall, younger subjects (<45 years) and those with higher education levels (bachelor and postgraduate) tended to have more realistic perceptions and lower outcome expectations.

Conclusions

The majority of the subjects in this study presented relatively realistic perceptions surrounding dental implant therapy. However, about a third of the sample also presented with inaccurate perceptions and unrealistic expectations, which the dental team would need to address before initiating implant therapy.

COMMENTARY AND ANALYSIS

Dental implant therapy is now a commonly used and viable treatment option for patients who are missing a single tooth or multiple teeth, as many clinical trials have shown that implant therapy can be highly successful.[1,2] Because information related to implant therapy is very accessible from various sources such as the internet and social media as well as the traditional social network of patients (friends and family), it is important that clinicians recognize the ease with which information can be misconstrued or misunderstood when this information is not being conveyed by the oral health care expert. This study attempts to decipher and capture the patients' perceptions, expectations, and misconceptions in terms of dental implant therapy within a multicenter environment.

A 34-item questionnaire survey was administered to a predetermined patient pool who had demonstrated interest in receiving implant therapy at 4 different hospitals. This survey instrument was developed by using many of the relevant patient-centered questions regarding perceptions, expectations, and misconceptions. The study was depicted as a cross-sectional study by the authors; however, it can more accurately be labeled as a survey study (qualitative research) simply because in qualitative research, the utilization of a survey instrument is by definition a cross-sectional study.

The advantage of a multicenter study is that the study population can be subanalyzed further with respect to common sociodemographic parameters such as age, gender, ethnicity, culture, race, income, and educational levels. In this particular study, since it was undertaken at several hospitals in Hong Kong and mainland China, there were similarities in the sociodemographic variables within the study population so the data were understandably combined between similar (demographic) sites. However, the authors used unconventional social science (qualitative) research methods in developing their survey instrument

Figure 1. Example of a Likert scale.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
(1)	(2)	(3)	(4)	(5)

scale, which affected the data collection as well as their data analysis.

Typically in qualitative research, the degree of "agreement" or "disagreement" with a concept or statement is measured by a psychometric scale that involves questionnaires. Of note, this particular scale is named after the creator of the scale who by profession was a psychologist named Rensis Likert, hence the term "Likert scale."[3] When responding to a Likert item, respondents specify their level of agreement or disagreement on a symmetric agree-disagree scale for a series of statements. Thus, the range captures the intensity of their feelings for a given item. The Likert scale is usually depicted as a 3-item scale, but Likert scales can extend to 5-, 7-, 10-item, or even larger answer scales[4] (see Figure 1).

In this study, the authors described their measurement and based their statistical analysis on the results obtained by providing patients with a visual analog scale indicating on one side of their linear scale with one extreme indicator such as "agree" and on the other end of the scale with the opposite indicator such as "disagree." The patients were then asked to "mark" on the line indicating their desired extent of agreement or disagreement. In other words, any mark to the right of the center of the line would indicate a level of agreement and any mark to the left of the center would indicate a certain level of disagreement about that sentence.

The degree of agreement or disagreement was then measured, as described in their article, with a centimeter ruler and recorded as individual scores by the researchers. This unorthodox method of data collection and scale conversion lends itself to obvious inaccuracies and guess work when a study participant/subject has clearly demarcated a response yet the researchers have to reinterpret and convert that response to a noncalibrated calculation score and/or scale. This simple error in design, calculation, and methodology undermines the integrity of the research project and places study participants in a compromised position whereby they have to devise a scale of their own in their mind and make it fit the 2-item scale (agree or disagree) that was provided. In other words, the burden of the proper design of the survey instrument was passed to the study participants instead of the authors/researchers designing the survey scale. Other obvious issues also arise when statistical measures such as confidence intervals or P values cannot be determined in the study because of these shortcomings.

Because of this major shortcoming in the design and assessment of the survey instrument, the results of this study have to be interpreted guardedly and the extent to which this study can be deemed to be representative to other populations–let alone to this study population—must be very limited. A study with low internal validity cannot by definition be externally valid. However, this is not to say that the authors did not do an admirable job of at least attempting to explore the very important and timely topic of understanding patient perceptions and expectations with regard to dental implants.

Even without the results of this study, clinicians should assume that patients have access to all types and levels of information especially on implant therapy. Some of the data are scientific, some unscientific, and some even anecdotal, yet the result is an environment where there is a high probability that the patient will use inaccurate information on which to base decisions. It then becomes the clinician's responsibility to assess the patient's knowledge, expectation, and perception of implant therapy before beginning any treatment and to offer further explanations that will properly educate the patient as needed.

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REVIEWER

Paul S. Farsai, DMD, MPH
Department of General Dentistry, Boston University Henry M. Goldman School of Dental Medicine, Boston, MA, USA, pfarsai@bu.edu