U.S. Dental School Deans’ Views on the Value of Patient- Reported Outcome Measures in Dentistry

Evan B. Rosen, DMD, MPH; R. Bruce Donoff, DMD, MD; Christine A. Riedy, PhD, MPH

Abstract: There has historically been limited development and utilization of patient-reported outcome measures (PROMs) in clinical dentistry. However, in recent years PROMs have been recognized by other health care fields as valuable in the comprehensive assessment of patient outcomes. The aim of this study was to survey deans of U.S. dental schools to better understand their vision for the role of PROMs in the field of dentistry. A 13-question online survey was emailed to the deans of the 64 accredited U.S. dental schools at the time to gather their opinions about the value of patient-reported outcomes in dentistry. The survey consisted of questions in 12 domains such as treatment planning, perceived success/complications of surgery, identification/management of dental pain, psychological and oral function, and insurance payment/reimbursement. Of the 64 deans, 33 responses were received (51.5% response rate), but three surveys were excluded due to incomplete answers, resulting in a final response rate of 46.8%. All respondents reported there was value in utilization of PROMs for understanding a patient’s satisfaction of a procedure, a patient’s perceived success of dental surgery, identifying dental pain, and managing dental pain. However, there was disagreement among the respondents about utilization of PROMs for the purpose of determining insurance payment and/or reimbursement. Additional steps should be taken to develop clinically appropriate PROMs for dentistry and to determine the appropriate situations in which to use dental PROMs. This study suggests that PROMs should be incorporated into dental school curricula as they will likely play a role in future comprehensive treatment assessment.

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The utilization of patient-reported outcomes in health care is an emerging metric that is becoming increasingly important in medicine.1,2 Traditional methods of evaluating patient outcomes, such as tracking morbidities and mortality, are no longer being viewed as a comprehensive assessment of a patient’s treatment outcome.1 A patient-reported outcome (PRO) is an assessment of health status that is patient-reported as compared to health-related quality of life data that are observer-reported.3 A patient-reported outcome measure (PROM) is an instrument (usually a questionnaire) used to “quantify health-related quality of life and/or other significant outcome variables from the patient’s perspective.”2

Inglehart has suggested that patient-reported factors should be of critical importance to dental professionals during the entire course of a long-term patient relationship.4 Patient-related factors may impact a patient’s decision making during treatment plan presentations and may also impact the manner in which a provider manages patient complications. Ultimately, PROMs may help the provider foster positive long-term treatment satisfaction. Furthermore, PROMs are essential to dental research. Capturing PROs in dental research allows an investigator to understand a clinical endpoint in relation to a patient’s perception of the intervention.

Although dentistry has taken steps to report health-related quality of life data, there has been little progress in development and utilization of standardized PROMs in dentistry.3 The overall goal of our research was to identify whether inclusion of PROMs in dental curricula is indicated and, if so, in what capacity, based on the prevailing philosophy of our educational leaders. The aim of this study was to examine whether deans of U.S. dental schools valued the role of PROMs in dentistry.

Materials and Methods

The Institutional Review Board of the Harvard University Faculty of Medicine determined this study to be exempt (IRB15-0795). Participants invited to
take part in the study were the deans of the 64 accredited dental schools in the U.S. at the time; the only inclusion criterion was that the respondent be the current dean.

We created an online survey using Qualtrics software (Provo, UT, USA). The survey questions were constructed based on standard clinical situations in the following domains: treatment planning, future dental surgery, perceived success and complications of surgery, identifying and managing dental pain, patient satisfaction, monitoring psychological and oral function, selecting a future dental provider, and insurance reimbursement. The final set of questions was reviewed and assessed for face and content validity by faculty members with clinical and survey expertise.

The survey consisted of 13 questions. Questions 1-12 used response options on a five-point scale: not valuable=1, limited value=2, average value=3, valuable=4, and very valuable=5. The final survey question, an open-ended response item, asked the respondent to comment on the role, if any, of a patient’s self-reported outcome metrics in dentistry. Additionally, a screening question was asked prior to the beginning of the survey. The screening question, used for verification purposes, asked for the academic title of the person completing the survey.

An introductory email was sent to each of the deans, describing the study and asking for their participation in the brief online survey regarding their opinions about the value of patient-reported outcomes in dentistry. After one week, a link to the online survey was emailed to all deans. A reminder email with the survey link was sent to all deans approximately two weeks later. The emails were sent in April and May 2015.

Prior to data analysis, the screening responses were stripped from the data set. Data analysis consisted of descriptive statistics using Microsoft Excel (2010; Redmond, WA, USA). Number and percentage were obtained for each of the 12 rating-scale response questions. The open-ended responses for the final question were categorized and reported by thematic grouping. Individual quotations were identified to illustrate the themes.

### Results

Of the 64 dental school deans invited to participate in the survey, 33 responses were received (51.5% response rate). Three of the surveys were excluded due to incomplete answers, resulting in a final response rate of 46.8% (N=30). All final respondents answered all 12 questions.

All respondents reported that a patient’s post-operative self-report has value in understanding the patient’s satisfaction with a dental procedure, the patient’s perceived success of dental surgery, and identifying and managing a patient’s dental pain (Table 1). Nearly all (94%) of the respondents reported that a patient’s post-operative self-report would be either valuable or very valuable when planning a future dental surgery. However, 56% reported that a patient’s post-operative self-report is either not valuable or has limited value in determining insurance payment and/or reimbursement.

In response to the open-ended final question, the respondents generally envisioned a role (present and/or future) for patient post-operative self-reports in dentistry. Some of the comments to this question included the following: “This information is essential

<table>
<thead>
<tr>
<th>Clinical Situation</th>
<th>Not Valuable</th>
<th>Limited Value</th>
<th>Average Value</th>
<th>Valuable</th>
<th>Very Valuable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment planning for that patient in the future</td>
<td>0</td>
<td>3%</td>
<td>3%</td>
<td>59%</td>
<td>34%</td>
</tr>
<tr>
<td>Treatment planning for other patients in the future</td>
<td>0</td>
<td>7%</td>
<td>30%</td>
<td>50%</td>
<td>13%</td>
</tr>
<tr>
<td>Future dental surgery</td>
<td>0</td>
<td>3%</td>
<td>3%</td>
<td>75%</td>
<td>19%</td>
</tr>
<tr>
<td>Patient’s perceived success of dental surgery</td>
<td>0</td>
<td>0</td>
<td>3%</td>
<td>47%</td>
<td>50%</td>
</tr>
<tr>
<td>Identifying complications of dental surgery</td>
<td>0</td>
<td>3%</td>
<td>13%</td>
<td>47%</td>
<td>38%</td>
</tr>
<tr>
<td>Identifying dental pain</td>
<td>0</td>
<td>0</td>
<td>7%</td>
<td>53%</td>
<td>40%</td>
</tr>
<tr>
<td>Managing dental pain</td>
<td>0</td>
<td>0</td>
<td>7%</td>
<td>60%</td>
<td>33%</td>
</tr>
<tr>
<td>Understanding patient’s satisfaction with a procedure</td>
<td>0</td>
<td>0</td>
<td>3%</td>
<td>50%</td>
<td>47%</td>
</tr>
<tr>
<td>Monitoring patient’s psychological status</td>
<td>0</td>
<td>10%</td>
<td>10%</td>
<td>57%</td>
<td>23%</td>
</tr>
<tr>
<td>Monitoring patient’s oral function</td>
<td>0</td>
<td>10%</td>
<td>31%</td>
<td>31%</td>
<td>28%</td>
</tr>
<tr>
<td>Future selection of dental provider</td>
<td>3%</td>
<td>13%</td>
<td>17%</td>
<td>50%</td>
<td>17%</td>
</tr>
<tr>
<td>Determining insurance payment and/or reimbursement</td>
<td>13%</td>
<td>43%</td>
<td>20%</td>
<td>20%</td>
<td>3%</td>
</tr>
</tbody>
</table>
to provide patient-centered care and is a metric that should be included when measuring quality of care and value of care and making decisions about reimbursement. It is really the most important outcome—the effect on the patient”; “Much of medicine and dentistry will become outcomes-based, and much of this is driven by patient satisfaction”; “Useful, but not a definitive measure of clinical quality assurance”; “It needs to be analyzed with extreme caution in light of the patient’s medical, mental, and psychological status”; and “For the purposes of evaluating objective features of a patient’s oral and overall health, [PROMs] are of limited value. But self-reports also reveal information about the patient’s perception of his or her own health and how it fits into his or her life. The extent to which dentistry values information on the patient’s mental states is the extent to which self-reports are valuable to the profession.”

Discussion

As suggested by our results, there are multiple clinical scenarios in which PROMs could contribute value to overall patient care. The domains involving pain (e.g., patient’s perceived success of dental surgery, identifying dental pain, managing dental pain, and planning a future surgery) were areas in which almost all respondents felt a PROM could contribute favorably. However, there are limited reports of PROMs that have been developed specifically for this purpose; one example is Tan et al.’s study.6 PROMs designed for oral surgeries and dental pain management require further development but would be helpful measures to better understand the treatment outcomes of these interventions.

The majority of respondents in our study reported that a patient’s post-operative report would be of value when treatment planning for other patients in the future. This finding is important because it shows that dentistry is embracing population-based outcomes in treatment planning. With the development of appropriate dental PROMs, PROs of patients in similar cohorts can be compared to evaluate and provide insight into patient experiences. Although it would be useful to use PROMs to screen patients and to predict individualized outcomes based on population data, there is currently limited evidence that PROMs can be useful in that context.7

Approximately a quarter of our respondents reported that a patient’s post-operative report would either be “not valuable” or of “limited value” in the future selection of a dental provider. From a practical perspective, patients are already using social media to report on their experiences with a specific provider. Undoubtedly, these reports, although non-validated and non-standardized, are affecting patient provider selection. From a health population perspective, PROMs are being utilized in medicine in the United Kingdom when patients select hospitals in which to undergo a specific procedure, and the National Health Service also utilizes this approach to determine the economics of health-related interventions and to establish cause for cost variation between hospitals.8

PROMs are already becoming an influencing factor in insurance payment and reimbursement in medicine.9,10 Although over half of our study respondents reported that a patient’s post-operative self-report is either “not valuable” or has “limited value” in determining insurance payment and/or reimbursement, it appears that medical insurance providers are influenced by PRO data. This trend in medicine should be a warning to the dental profession that the development of PROMs is indicated. When two interventions have the same outcome but the course to that outcome is different, dentists must be able to justify the value of that difference. It has been reported that linking patient payment or treatment reimbursement to PROs can be very complicated. First, these metrics can have low response rates, and as a result the data may be unreliable.11 Additionally, policymakers are unsure how incentivized payments based on PRO data will impact health care providers.12 It is not currently known if health care providers will modify their patient management or attempt to treat different patient populations in efforts at maximizing their reimbursement. Regardless of the financial implications, patient-centered care is a critical driver in health care, and dentistry requires data in this realm to confirm that current treatment paradigms have perceived benefit to patients. Additionally, PRO data will be helpful to justify insurance coverage benefits for patients. It is not enough to explain to policymakers that patients benefit from dental intervention. The PRO data provides evidence of a perceived benefit from the people obtaining the care.

One of the central difficulties with a PROM is that it should be used to assess the outcome that it was developed to measure. A PROM developed for one outcome measurement cannot be used to assess another patient-reported outcome.13 During the development of a PROM, a scale is created to interpret the PRO data. If the PROM is used to assess a different
Conclusion

As PROMs become an increasingly important outcome metric in medicine, the profession of dentistry needs to identify the value and appropriate uses of these PROMs. Our study results showed that the deans perceived value for PROMs in multiple clinical situations such as a patient’s satisfaction with a procedure, a patient’s perceived success of dental surgery, identifying dental pain, and managing dental pain. Additional steps need to be taken to develop clinically appropriate dental PROMs and to determine the appropriate situations for PROMs in the oral health field. Furthermore, PROMs should be incorporated into dental school curricula as these measures will likely play a role in future comprehensive treatment assessment.

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REFERENCES


