

Clinical Significance

Pulpotomy appears to be a possible substitute for root canal treatment for patients whose permanent teeth have carious pulp exposures. MTA is also a promising medicament for pulpotomy in permanent teeth, although newer medicaments are being developed to overcome some of the drawbacks of MTA. Several ongoing trials are testing these newer materials. Future studies should include a cost-effectiveness analysis based on treatment outcome alone so that alternative methods can be more completely analyzed, showing which choice offers maximum health benefits without cost restrictions.

mature permanent teeth, and to triple antibiotic paste and abcess remedy in immature permanent teeth. The data from these

trials were subjected to intention-to-treat analysis and showed no difference in any outcome of pulpotomy in immature or mature permanent teeth. Cost-effectiveness was not analyzed.

DISCUSSION

Comparisons of pulpotomy and other treatment modalities tend to favor pulpotomy. When MTA was compared to other medicaments, it was shown to increase clinical and overall success rates at 24 months in mature permanent teeth, with other outcomes also often favoring MTA.

Li Y, Sui B, Dahl C, et al: Pulpotomy for carious pulp exposures in permanent teeth: A systematic review and meta-analysis. *J Dent* 84:1-8, 2019

Reprints available from FR Tay, The Dental College of Georgia, Augusta Univ, 1430 John Wesley Gilbert Dr, Augusta, GA 30912-1129; e-mail: ftay@augusta.edu

RACIAL BIAS

Unconscious bias in clinical decision-making



BACKGROUND

Bias is one's inclination to favor or not favor a person or group, allowing one's personal opinion to influence judgments. It can be explicit bias, which is expressed openly with an awareness that indicates the view is a reflection of the individual's attitudes and beliefs. Implicit bias is the result of subconscious thoughts or beliefs that can alter one's understanding, approach, or decision-making processes. Persons often aren't aware of their implicit biases. Although explicit bias has markedly declined, implicit bias persists. It has been suggested that race-associated differences in health outcomes may be attributable to racism. There are significant disparities in the outcome of health care between Black and White patients, with Black patients faring worse in treatment outcomes in nearly every category. Project Implicit was set up to permit people to take implicit association tests (IATs) to assess unconscious racial bias. Endodontic treatment is an effective treatment option for irreversible pulpitis and apical periodontitis in teeth with severe loss of tooth structure. An alternative is extraction, but the loss of a tooth can result in reduced occlusal stability, compromised esthetics, and damage to adjacent teeth related to replacement options. A study was undertaken to determine if explicit or implicit racial bias predicts the clinician's recommendation for root canal therapy or extraction for patients with irreversible pulpitis.

METHODS

Fifty-seven dentists working in the endodontic department of a hospital setting at the University of Cagliari, Italy, participated in the cross-sectional survey. They were randomly assigned by computer to review a clinical vignette depicting either a Black or White patient. The vignette indicated a diagnosis of irreversible pulpitis for which root canal treatment would be a valid treatment option (Figure 1). The same clinical case was included with either a Black or a White patient assigned to it. The examiners were asked to rate the likelihood that the patient's symptoms were caused by irreversible pulpitis and whether they would advise root canal treatment or extraction, along with the strength of their recommendation. Further questions were asked on the examiners' perception of the patient, whether they preferred treating Black or White patients, their feelings toward them, and their perceptions on how cooperative each group was. Demographic questions were also posed, as well as a set of pretest and posttest questions regarding their opinions regarding unconscious bias and IATs. Two Brief Implicit Association Tests (BIATs) were also administered.

RESULTS

Twenty-nine dentists were assigned to the Black patient and 28 to the White patient. The diagnosis of irreversible pulpitis was



Figure 1. Case presented in vignette. The bottom 4 figures show the images that accompanied the clinical scenario. The top 2 images show those used according to the Black patient and White patient condition. (Courtesy of Patel N, Patel S, Cotti E, et al: Unconscious racial bias may affect dentists' clinical decisions on tooth restorability: A randomized clinical trial. *JDR Clin Translational Res* 4:19-28, 2018.)

nearly equal between the 2 groups. However, the recommendation of root canal therapy was stronger for the White patient (86.21%) than for the Black patient (60.71%). The difference was significant.

The strength of the prescription of extraction indicated a bias toward extraction for the Black patient compared to the White patient. For the White patient, 89.65% of the participants definitely or would probably not recommend extraction compared to just 50% for the Black patient.

Participants were more likely to accept the decision of a Black patient than a White patient and were more likely to say the White

patient would be fearful of dental procedures and well-educated. Participants expressed greater confidence in earning the patient's trust for Black patients.

A high BIAT race score of 91.23% was found for race. The BIAT score for cooperation was 78.95%. Both categories showed a pro-White bias irrespective of the patient's condition.

Those with a high IAT cooperation score were significantly more likely to strongly recommend root canal therapy. Those with a high IAT race score had similar findings. Participants who did not recommend root canal for the Black patient seemed to have a stronger opinion that tooth extraction was the correct

treatment. Those with a high IAT cooperation score were significantly more likely to strongly recommend extraction for Black patients, along with those with a high IAT race score.

When interactions between IAT and the root canal treatment recommendation were assessed, only the race IAT score was significantly different. Those who didn't recommend a root canal were more pro-White on IAT race determinations for White patients than Black patients. Thus not recommending root canal treatment may be the result of racial bias.

DISCUSSION

The decisions of the survey participants to recommend root canal treatment were affected by the patient's race, with a bias toward root canal therapy for White patients and extraction for Black patients. Clinicians tended to have a pro-White bias in both race and cooperation tests without reference to the patient's condition.

Clinical Significance

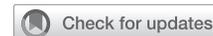
Racial bias may influence the decision of the clinician for dental care. Extractions were more likely to be recommended for Black patients, and root canal therapy was recommended for White patients.

Patel N, Patel S, Cotti E, et al: Unconscious racial bias may affect dentists' clinical decisions on tooth restorability: A randomized clinical trial. *JDR Clin Translational Res* 4:19-28, 2018

Reprints available from N Patel, Postgraduate Endodontic Unit, King's College Dental Inst, Guys Hosp, Flr 25 – Tower Wing, London SE1 9RT, UK; e-mail: nehanpatel1@gmail.com

REMOVABLE PROSTHODONTICS

Conventional versus simplified impression methods



BACKGROUND

Edentulous individuals are common throughout the world. The masticatory performance of these persons is poor compared to that of individuals who have a complete dentition. The poorer masticatory performance results in reduced maximum bite force; difficulties chewing several food types, especially fresh fruit and raw vegetables; illnesses such as obesity, diabetes, cardiovascular disease, and some cancers; and inadequate nutrient intake, leading to weight loss and an increased susceptibility to frailty. Providing complete dentures to these individuals requires several steps, but practitioners have taken measures to simplify the impression procedure, making it a 1-step rather than a 2-step process. The effects of conventional impression methods versus the simplified methods were investigated.

METHODS

Twenty-seven individuals who were edentulous in both arches and currently using dentures were in need of new dentures. They participated in this single blind randomized controlled crossover clinical trial, receiving either a conventional or a simplified denture for 1 arch, then the alternate denture for the other arch. The two groups were designated as C-S or S-C for conventional-simplified or simplified-conventional, and individuals were randomly assigned to each group.

The conventional method used alginate impression materials in a metal edentulous impression tray in the first step. The border of the denture was outlined on the study model, which was fabricated after the preliminary impression. Custom trays were made in an autopolymerizing resin, then a final impression was made using the custom tray border molded with 2 red and green stick impression compounds and silicone impression materials.

In the simplified method, master casts were made from the preliminary impression as the definitive impression only for the mandible. Although for the conventional method the master casts were made from the initial impression, for the simplified method, the clinician determined the border of the denture on the cast by referring to anatomical landmarks. Once the impressions were made, all the procedures for both methods were the same.

Patients received their new denture, then adjustments were made 4 times, after which assessments were made. A 1-month washout period was observed, when patients were instructed to use their old dentures, with adjustments as indicated. The new complete denture fabrication process was then begun using the alternate fabrication method. Participants continued to use their old dentures and were not to use their newly fabricated ones. The outcomes measured during the assessment were mixing ability, as indicated by color-changeable chewing gum;