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To what extent do patients' racial characteristics affect our clinical decisions?

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To what extent does patient's race affect our clinical decisions?

Plessas A.

A commentary on

Patel N, Patel S, Cotti E, Bardini G, Mannocci F.

Unconscious Racial Bias May Affect Dentists' Clinical Decisions on Tooth Restorability: A Randomized Clinical Trial. JDR Clin Trans Res. 2019 Jan;4(1):19-28. doi: 10.1177/2380084418812886.

Abstract

Design: The study employed a randomised controlled trial methodology and it was delivered electronically as a survey.

Intervention: Fifty-seven primary and secondary care dentists were randomised to two experimental groups. The participants in both groups assessed a vignette (clinical scenario, clinical photograph and radiograph) with the only difference between the vignettes in the two groups being the patient's race (skin colour: Black or White). The scenario was a case of a severely carious first lower molar with signs and symptoms of irreversible pulpitis.

Outcome measures: Dentist's treatment clinical decision (recommendation of root canal treatment or extraction) was recorded. A previously validated Brief Implicit Association Test (BIAT) was used to measure implicit racial bias.

Results: A statistically significant difference in dentist's recommendations was observed. Recommendation of root canal treatment was stronger in the White patient condition (86.21%) compared to the Black patient condition (60.71%) and dentists were far more likely to recommend extraction in the Black patient group. The BIAT scores also indicated that pro-White unconscious racial bias was prevalent amongst the participants.

Conclusion: The patient's race may influence a dentist's decision whether to extract or retain a decayed tooth.

Commentary

Decision-making in healthcare is undoubtedly a complex, dynamic, problem solving process, which is frequently associated with uncertainty and risk (1). Large variations occur amongst dentists in their diagnoses, restorative decisions and treatment plans irrespective of whether patients, extracted teeth or bitewing radiographs are examined (2). Variations in treatment decisions could stem from the clinician's judgment, patients' desires, and other factors (2). In an attempt to conceptualise dentists' clinical decision-making, different models of dental decision-making have been described. According to the Bader and Shugars(3) and Kay and Nattall(4) models, factors that influence dentists' decision can be dentist related (dentists characteristics, education and dentists' biases), patient related (patients' values and beliefs as well as their health status) or environmental factors (stemming from the system or the environment that a dentist is working in)(3,4). This carefully designed study examined the role of dentist's racial bias on their clinical decision-making.

This randomised controlled study was conducted in a methodologically appropriate and robust manner. The study was judged to have low risk of selection bias due to the randomisation (computer-generated randomisation) and allocation concealment procedures employed. The participants were partially informed about the true intent of the study, as knowledge of the hypothesis being studied could bias the results. Concealing the research hypothesis or deceiving the participants about the precise purpose of the study can be permissible in this type of decision-making research whilst counterbalances the lack of direct blinding (5). The design of the vignette ensured that the only difference between the two conditions was the patient's skin colour. The patient image used in the experiment was created based on the image of a mixed-race female, who was made up by a professional make-up artist to look either "White" or "Black" and manipulated by photoshop to enhance the racial facial characteristics for each condition. The Brief Implicit Association Test (BIAT) was used to evaluate implicit bias related to race preference and race dental cooperativeness. The race preference BIAT measured participants' implicit association of race with likable and unlikable terms, while the race dental cooperativeness BIAT measured implicit associations between patient's race (skin colour) and cooperativeness and adherence to dental recommendations.

In the present study, the difference between treatment recommendations based solely on the patient's race was striking. A statistically significant difference in dentist's recommendations was observed with the recommendation of root canal treatment being significantly stronger in the White patient condition (86.21%) compared to the Black patient condition (60.71%). Interestingly 89.65% of participants would "definitely" or "probably" not recommend extraction to a white patient compared to 50% for the black patient. The BIAT scores also showed a pro-White bias amongst the study participants in both groups. These findings are consistent with a study by Dantas et al. (6), although the authors claimed that no similar studies have been conducted in the field of dentistry. In that crossover trial, when 297 dentists were presented with a clinical scenario of a severely decayed molar with the only difference being the colour of the patient's skin (black vs white) over two occasions, an extraction rather than retention of the tooth with restorative treatment was more frequently proposed for the black patient (6). However, the latter study did not explicitly assess unconscious/implicit racial bias.

The simulated nature of this study has its own limitations which may hinder the generalisability of its findings. However, examining dental decision-making in an attempt to assess the effect of a particular factor is almost impossible in real-clinical settings. The vignette used in this trial, was based on a successfully treated clinical case, which enhances the applicability of the findings to real-life clinical scenarios and practice. The study was conducted in Italy, where according to the authors, Black citizens only account for a small percentage of the population, which in turn possibly limits the applicability of the findings to countries with similar less diverse population demographics.

It will be interesting to repeat this study recruiting dentists working in a city or country where the population is more diverse, and their patient base is of different cultural and racial backgrounds. Since the patient used in this study was female, future studies could further examine the interplay of gender and racial bias on dentists' decision-making by using counterbalanced experimental groups.

To conclude this study highlights that racial bias can affect the decisions we make for our patients. According to the existing evidence dentists are more likely to offer an extraction than restore a grossly carious molar for a Black patient. Therefore, this

study should possibly make us think more carefully about whether we consciously or unconsciously prejudice people and hence exclude certain groups of patients from the opportunity to retain their teeth.

References

1. Flach JM, Feufel MA, Reynolds PL, et al. Decision-making in practice: The dynamics of muddling through. *Appl Ergon* 2017;63:133-41.
2. Bader JD, Shugars DA. Variation in dentists' clinical decisions. *J Public Health Dent* 1995;55(3):181-88
3. Bader JD, Shugars DA. Understanding dentists' restorative treatment decisions. *J Public Health Dent* 1992;52(2):102-10.
4. Kay E, Nuttall N. Clinical decision making--an art or a science? Part II: Making sense of treatment decisions. *Br Dent J* 1995;178(3):113-16.
5. Wilson AT. Counterfactual consent and the use of deception in research. *Bioethics*. 2015;29:470-477
6. Dantas Cabral E, de França Caldas A, Jr., Moreira Cabral HA. Influence of the patient's race on the dentist's decision to extract or retain a decayed tooth. *Community Dent Oral Epidemiol* 2005;33(6):461-66

Practice point

This study showed that dentists' clinical decision-making may be affected by the patients' racial background. The differences in restorative decisions observed in this study can be explained by unconscious racial bias held by the participating dentists.

Grade: Moderate/ Medium

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