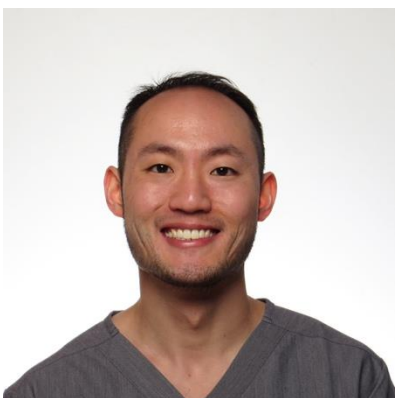


Parental Acceptance of Dental Radiographs without Lead Shielding

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Introduction

- Patient shielding was introduced in the 1950s to protect patients from the risks associated with exposure to ionizing radiation during diagnostic imaging.
- Abdominal and thyroid shielding is no longer recommended for intraoral, panoramic, cephalometric, and CBCT imaging as of February 1, 2024.
- The new American Dental Association (ADA) recommendation on patient shielding has not been implemented at the federal, state, and local dental component currently.
- The new recommendation applies to all age groups, including pediatric patients.
- There are currently no published studies on parental perception of the new ADA recommendation.
- There is a need to assess parental perception on discontinuing lead shields while taking dental radiographs for their children.

Objective

To evaluate perception of parental/legal guardians of the new ADA recommendation for the discontinuation of shielding during dental radiographic imaging for pediatric patients.

Materials and Methods

- Parents/legal guardians from Tufts University School of Dental Medicine (TUSDM) Department of Pediatrics were recruited for this survey study.
- Survey consisted of 25 questions and was completed using Qualtrics (Provo, UT). Parent/legal guardian completed questions (#1-17).
- At which point, the survey prompted the participant to read the educational brochure, providing background information about dental radiographs and supporting information for the new ADA recommendation regarding the discontinuation of shielding.
- Subsequently, participants completed the remaining questions (#18-25).
- The questions assessed parental attitude, behavior, and knowledge before and after reading the educational brochure.
- The three areas that were investigated in this survey about shielding and dental radiographic imaging included attitude, behavior, and knowledge.
- Nonparametric Wilcoxon-signed rank and Kruskal-Wallis tests were used to compare before and after reading the educational brochure.
- Quantitative analysis was completed using Stata 18.0 software (StataCorp, College Station, Texas, USA).
- Statistical analysis were completed using SPSS 29 software (IBM Corp., Armonok, N.Y., USA).



Survey



Brochure

Results

Seventy-four parents/legal guardians completed the survey. There was a statistically significant difference in perception to the new recommendation after reading the educational brochure. Responses to the majority (6/7) of questions had a statistically significant difference in perception with a positive and accepting stance of the new recommendation ($p < .05$) after reading the educational brochure. There was no association between educational level and parental perception of shielding after reading the educational brochure ($p > .05$).

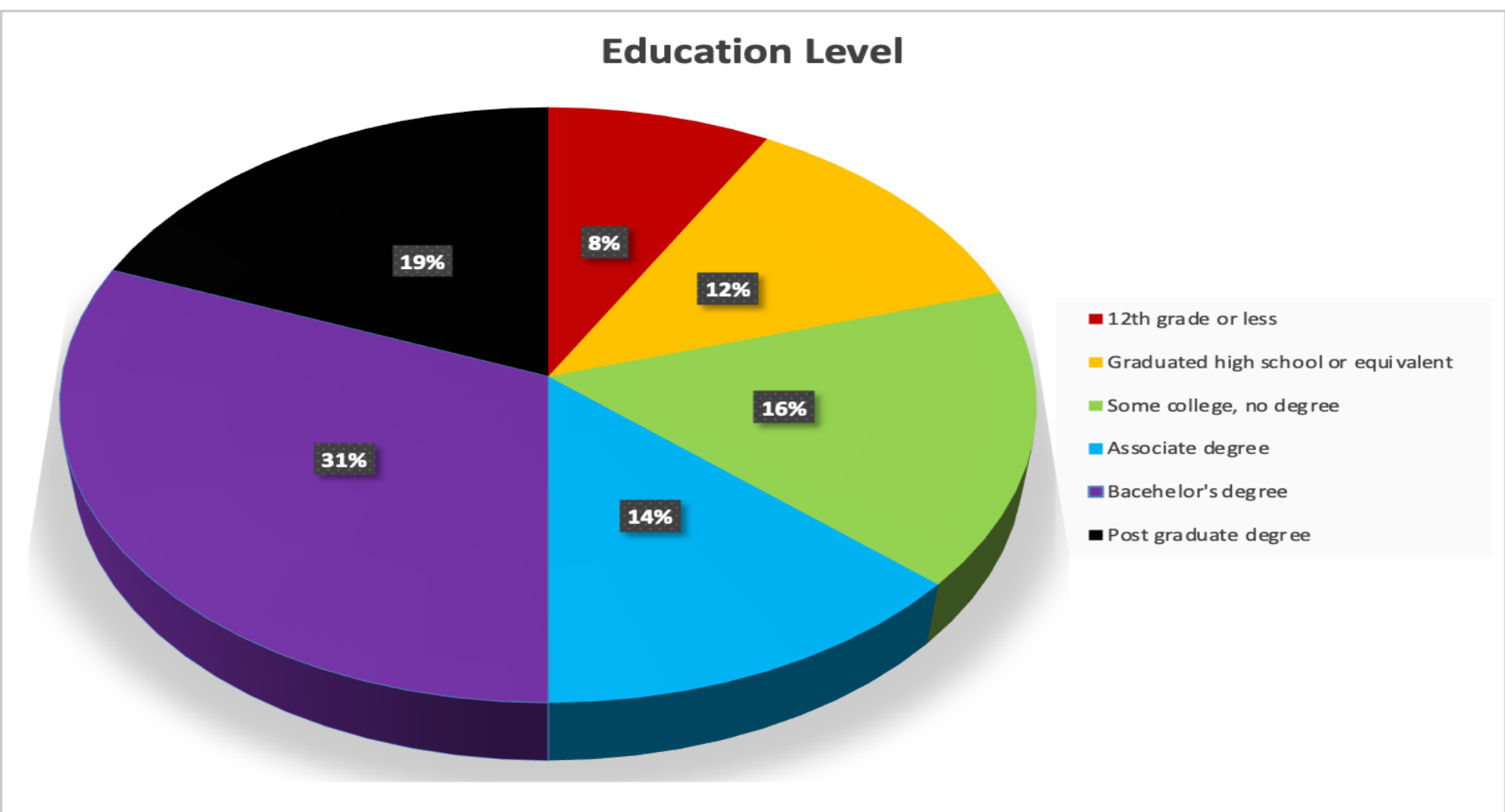


Fig. 1 Educational level distribution of parents and legal guardians

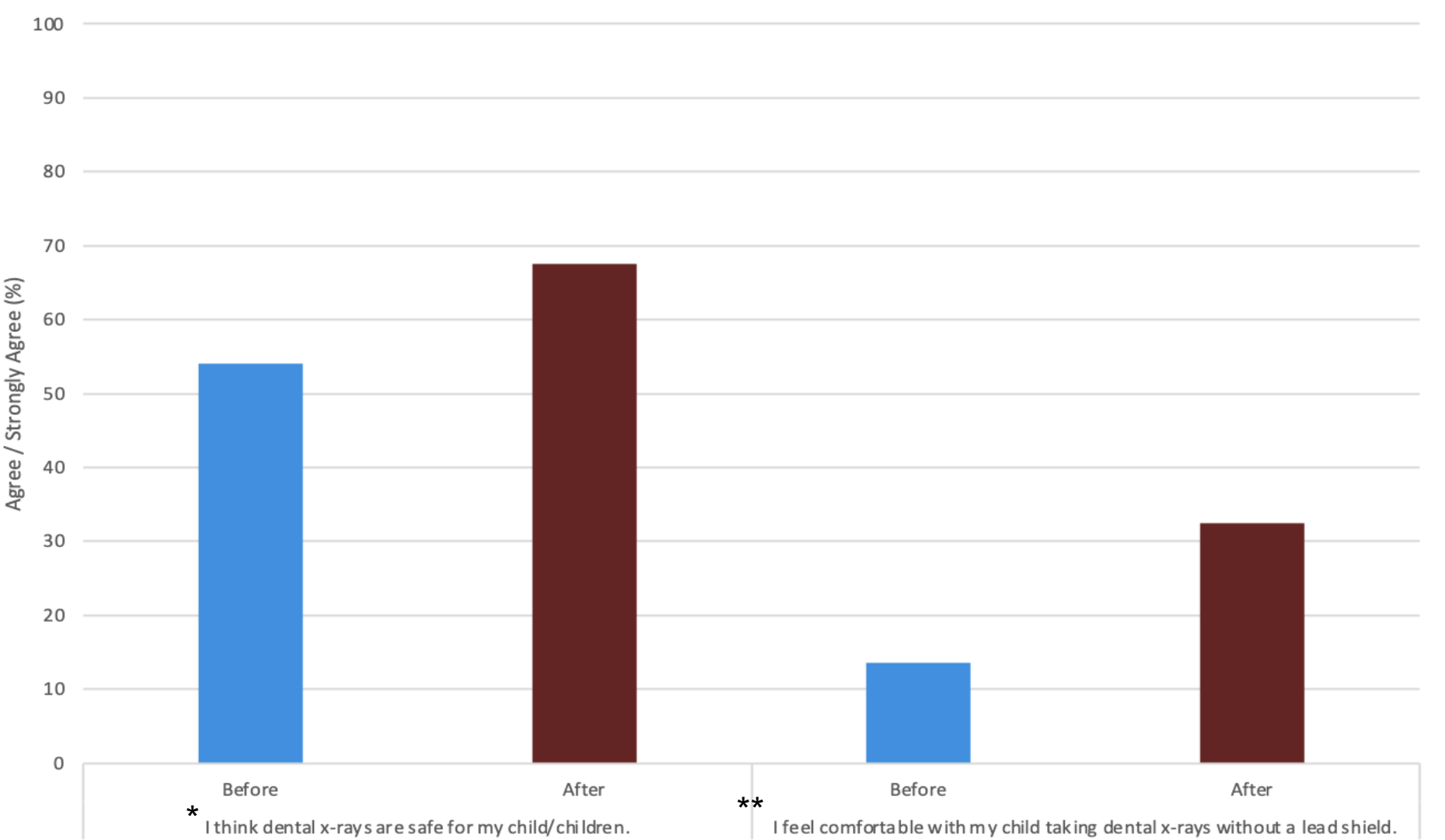


Fig. 2 Response before and after reading educational brochure (n=74)

* $p = .047$, indicating statistically significant difference with the Wilcoxon-signed rank test
 ** $p < .001$, indicating statistically significant difference with the Wilcoxon-signed rank test

Results

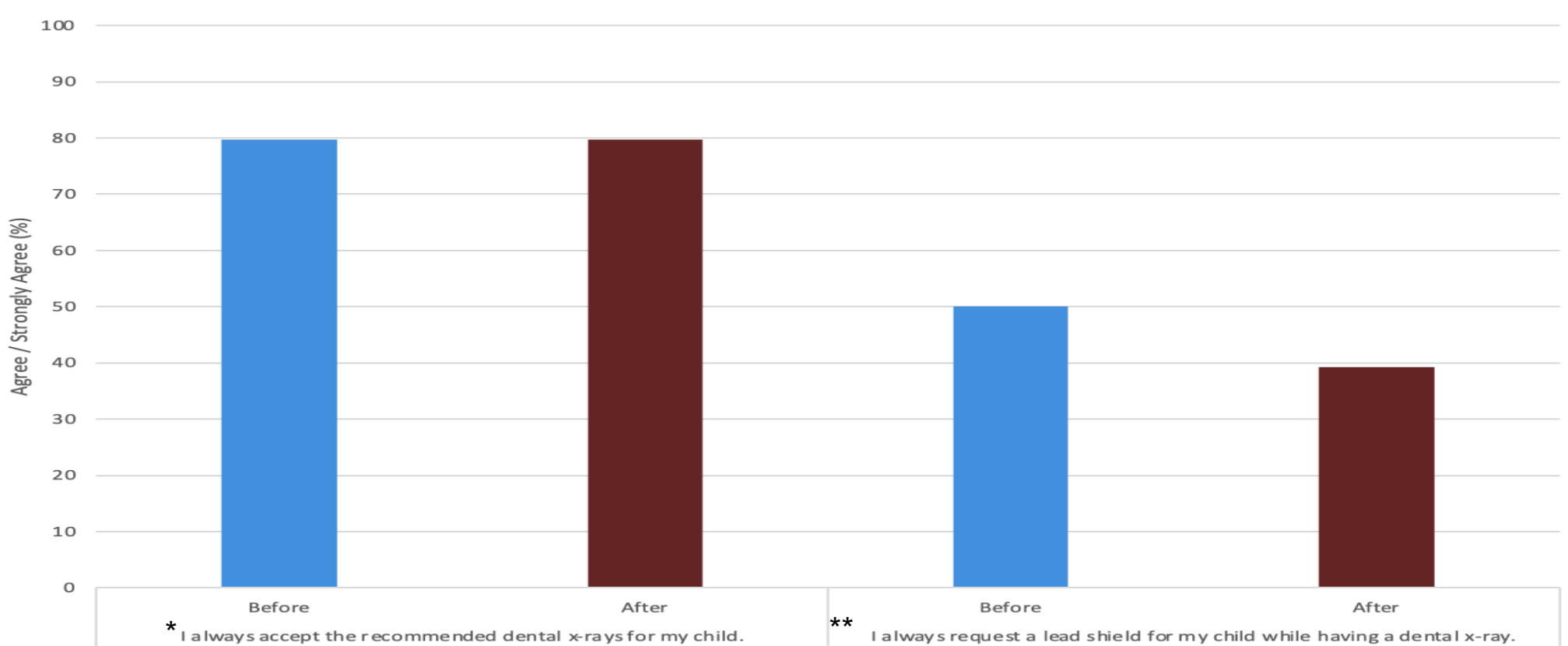


Fig. 3 Response before and after reading educational brochure (n=74)

* $p = .623$, indicating not statistically significant difference with the Wilcoxon-signed rank test
 ** $p = .004$, indicating statistically significant difference with the Wilcoxon-signed rank test

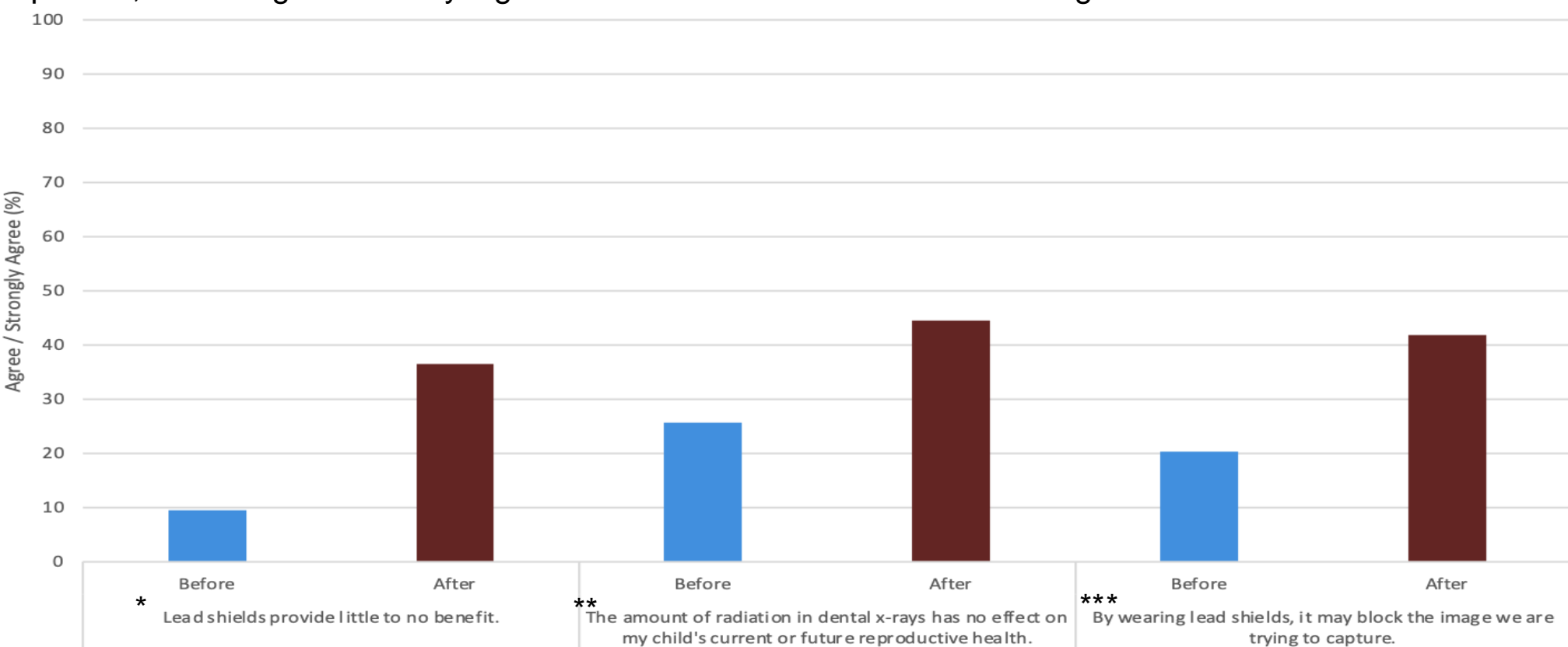


Fig. 4 Response before and after reading educational brochure (n=74)

* $p < .001$, indicating statistically significant difference with the Wilcoxon-signed rank test
 ** $p < .001$, indicating statistically significant difference with the Wilcoxon-signed rank test
 *** $p < .001$, indicating statistically significant difference with the Wilcoxon-signed rank test

Conclusion

After reading the educational brochure there was an increased acceptance for the discontinuation of shielding during dental radiographic imaging. Having an educational brochure was effective in improving parental acceptance of discontinuing lead shields while taking dental radiographs on pediatric patients and was not dependent on parental educational level.

Acknowledgments and References

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2. Bowe MJ, Ziegler KM, Lipman RD. Optimizing radiation safety in dentistry: Clinical recommendations and regulatory considerations. J Am Dent Assoc. 2024 Apr;155(4):280-293.e4.

3. Chiri R, Awan S, Archibald S, Abbott PV. Parental knowledge and attitudes towards dental radiography for children. Aust Dent J. 2013 Jun;58(2):163-9.

4. Birant S, Ilisulu SC, Özcan H. Parents' perspective towards dental radiography for children. J Dent Sci. 2023 Oct;18(4):1778-1785.

5. Kose TE, Gunacar DN, Arslan I, Peker K. Factors affecting the parental knowledge, beliefs, and attitudes towards pediatric dental X-rays. Clin Oral Invest. 2022 Nov;26(11):6539-6549.