

## Introduction

Low syndrome (LS), also known as Lowe oculocerebrorenal syndrome and oculocerebrorenal syndrome, is an uncommon condition that affects the brain, kidneys, and eyes and occurs almost exclusively in male individuals. Its estimated prevalence is 1 in 500,000 people. Mutations in the OCRL gene cause Lowe syndrome. The OCRL gene, which is responsible for the OCRL enzyme, is present throughout the body and helps control levels of specific membrane phospholipids. The OCRL is also responsible for the following functions: regulation of the transport of substances to and from the cell membrane; regulation of the actin cytoskeleton, which is responsible for cell shape and allowing cells to move.

There is currently a gap in the research regarding individuals with Lowe syndrome. In the last 10 years, a PubMed Central search revealed that there has been just one article regarding Lowe syndrome published in a dental journal: “Orthodontic treatment of a patient with Lowe Syndrome” (Carlos de Oliveira Ruellas et al., 2011). Overall, there have been just nine dental articles on PubMed Central regarding individuals with Lowe syndrome.

## Objective

To assess the dental needs, conditions, and attitudes amongst individuals with Lowe syndrome in comparison to healthy individuals. The hypothesis was that individuals with LS would have more access to care issues and more dental needs than healthy individuals.

## Methods

The research was conducted via two surveys: one to LSA (Lowe Syndrome Association) individuals and families with children with Lowe syndrome and one to TUSDM (Tufts University School of Dental Medicine) families with healthy children under the age of 18 and age 18+ TUSDM patients. One parent/guardian per child was asked to complete the survey if they were completing it about their child. LSA and healthy individuals 18 and older were also recruited and were asked to complete the survey themselves. Survey responses from similar age groups were compared. The survey was distributed via electronic format using Qualtrics (email/iPad). The research was conducted by sending a survey via email to all LSA families/individuals.

## Results

One hundred and eight responses were collected: 58 from the LSA group and 50 from the TUSDM (healthy) group. The healthy group reported significantly greater willingness to accept brushing and flossing at home ( $p<.001$ ) as well as dental treatment at the office ( $p<.001$ ) than the LSA group. Age ranges were 1 to 42 for the LSA group and 2 to 17 for the TUSDM group.

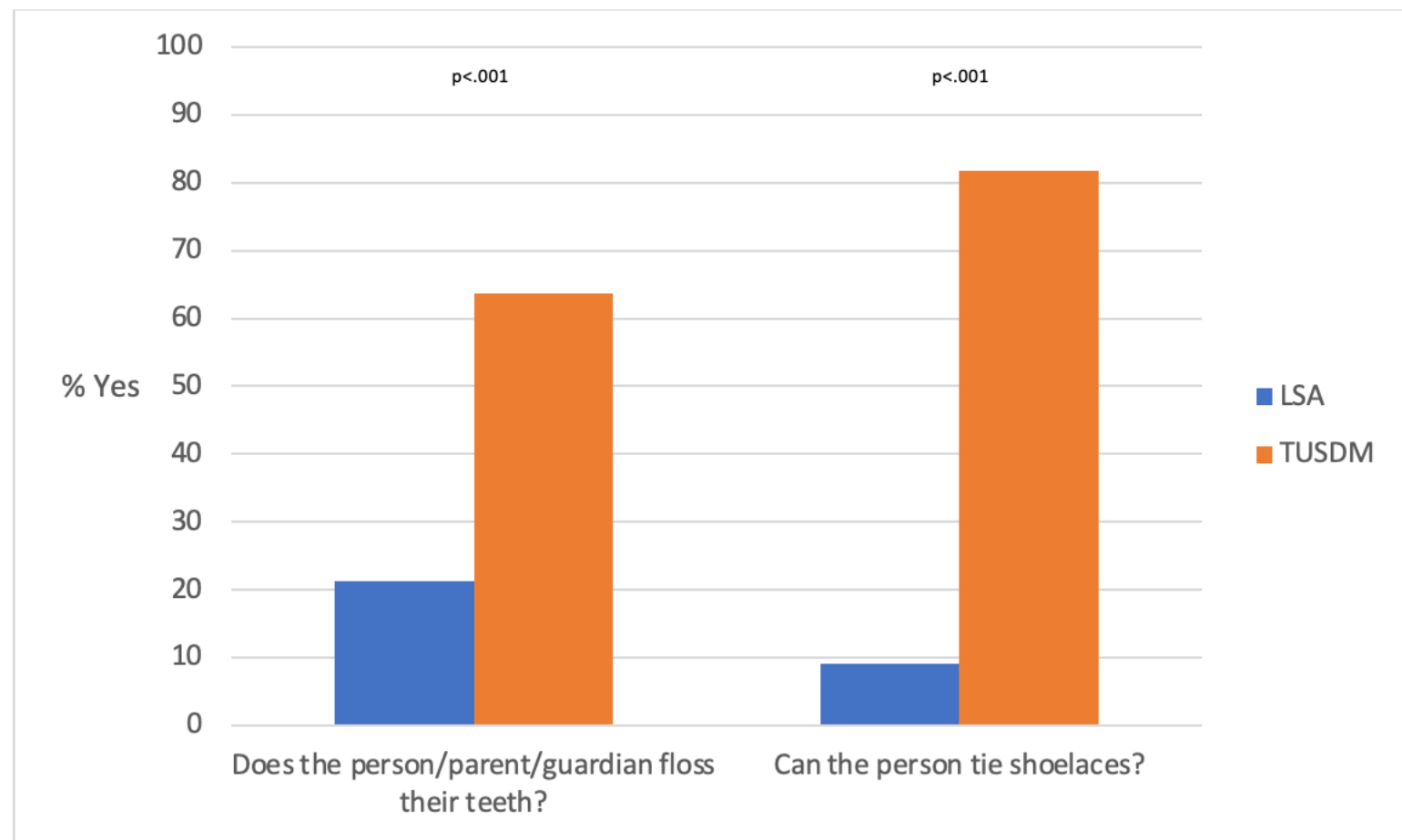


Figure 1: Frequency of Flossing and Tying Shoelaces

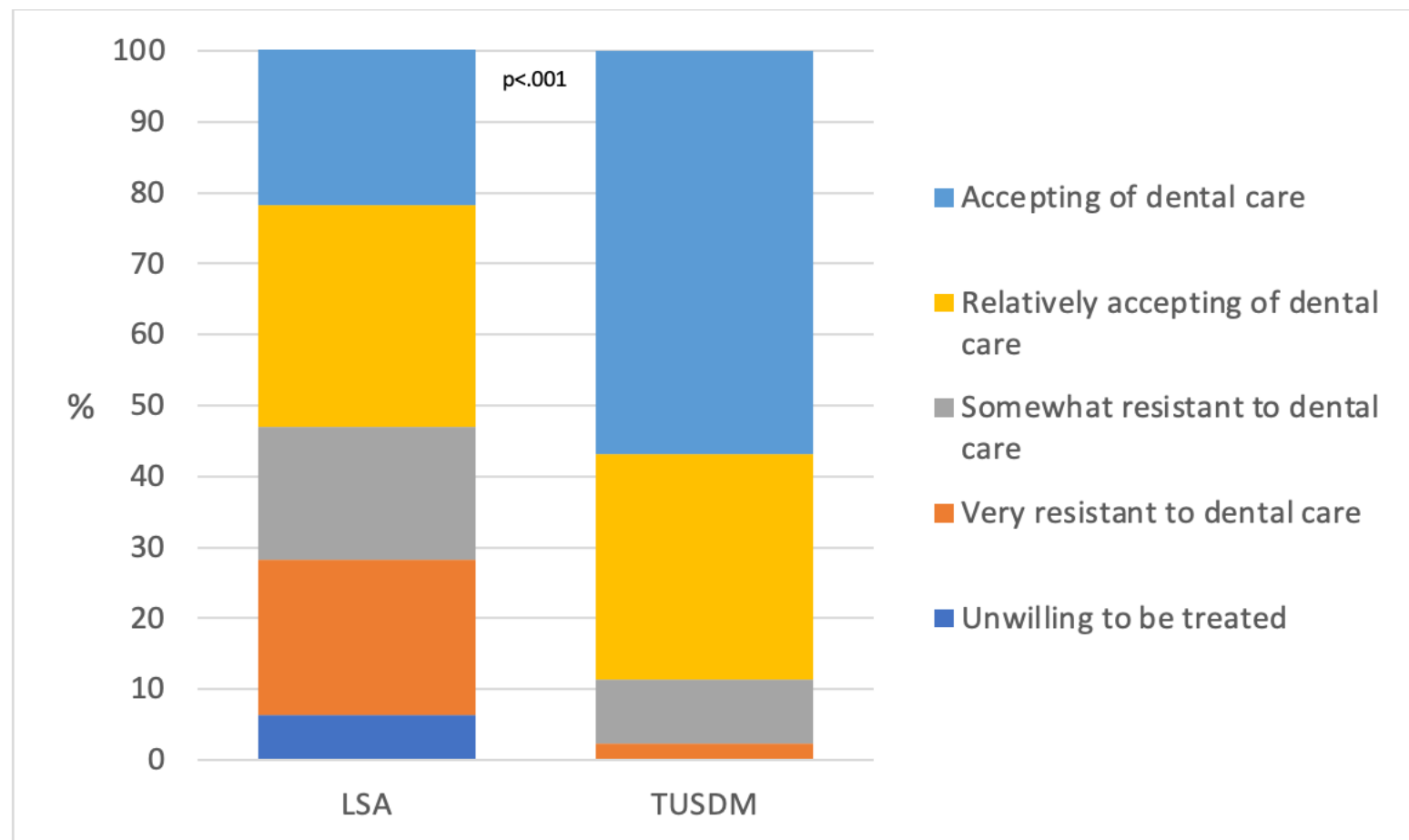


Figure 2: Acceptance of Brushing and Flossing at Home

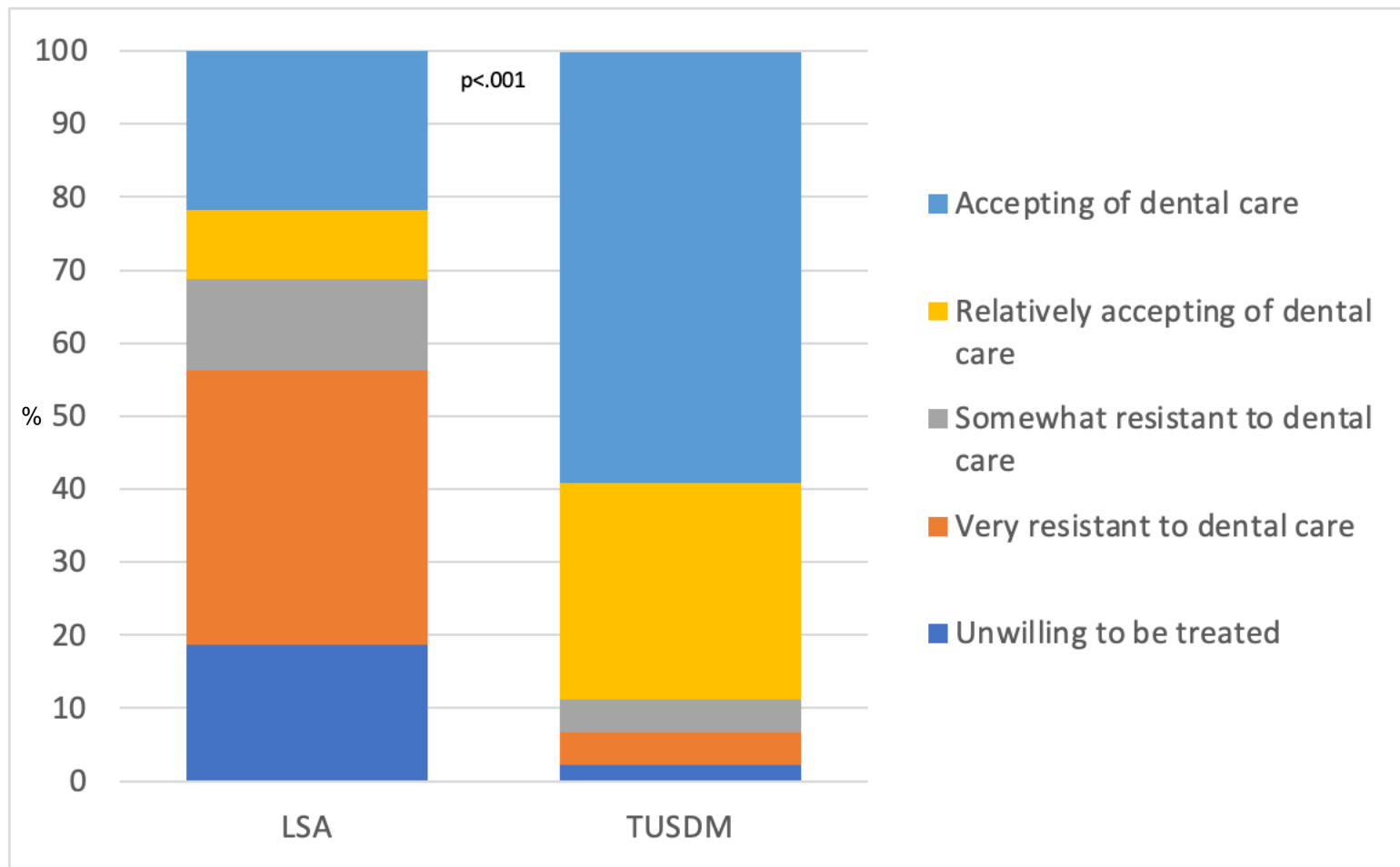


Figure 3: Acceptance of Brushing and Flossing at Office

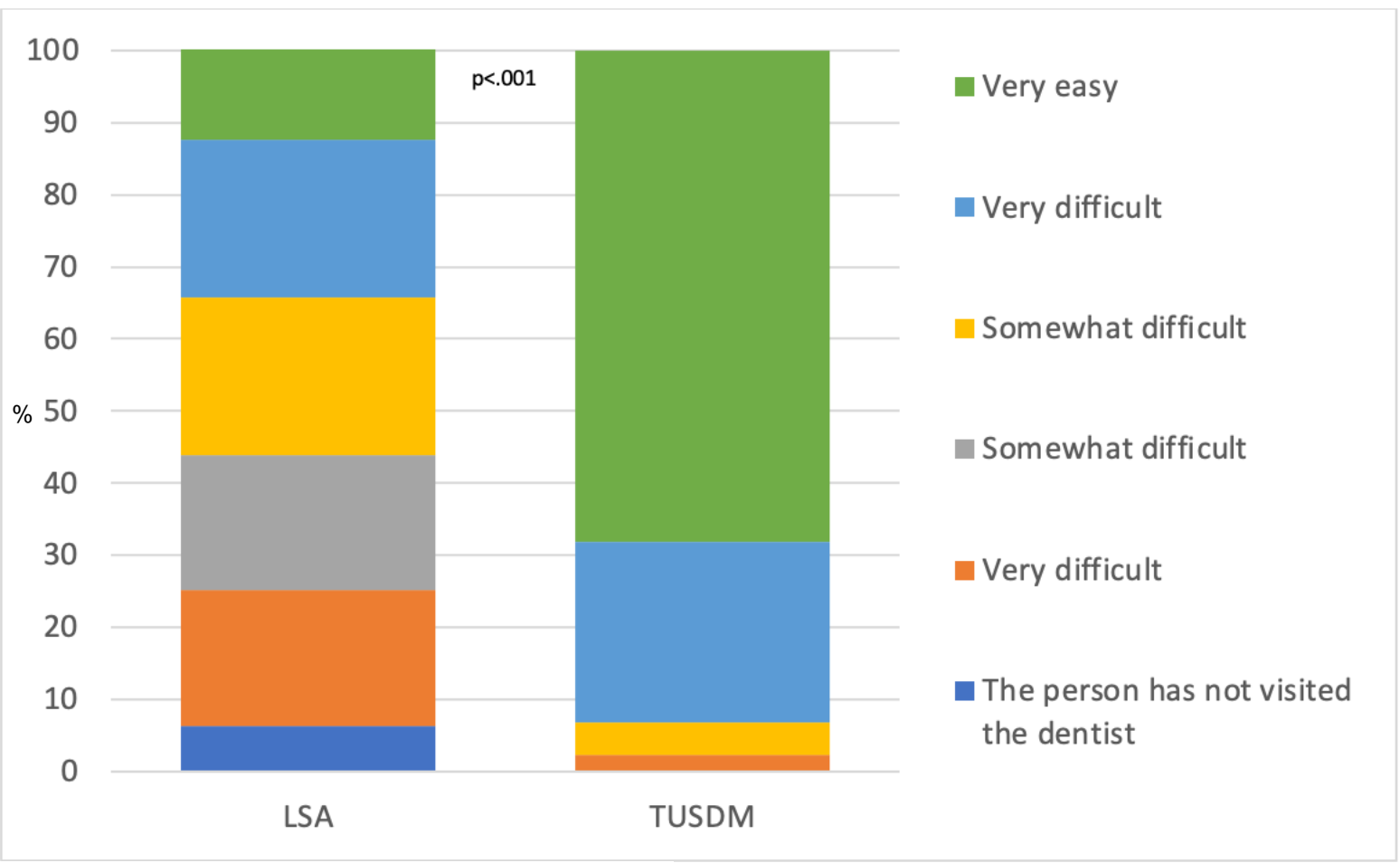


Figure 4: Ability to Locate a Dentist

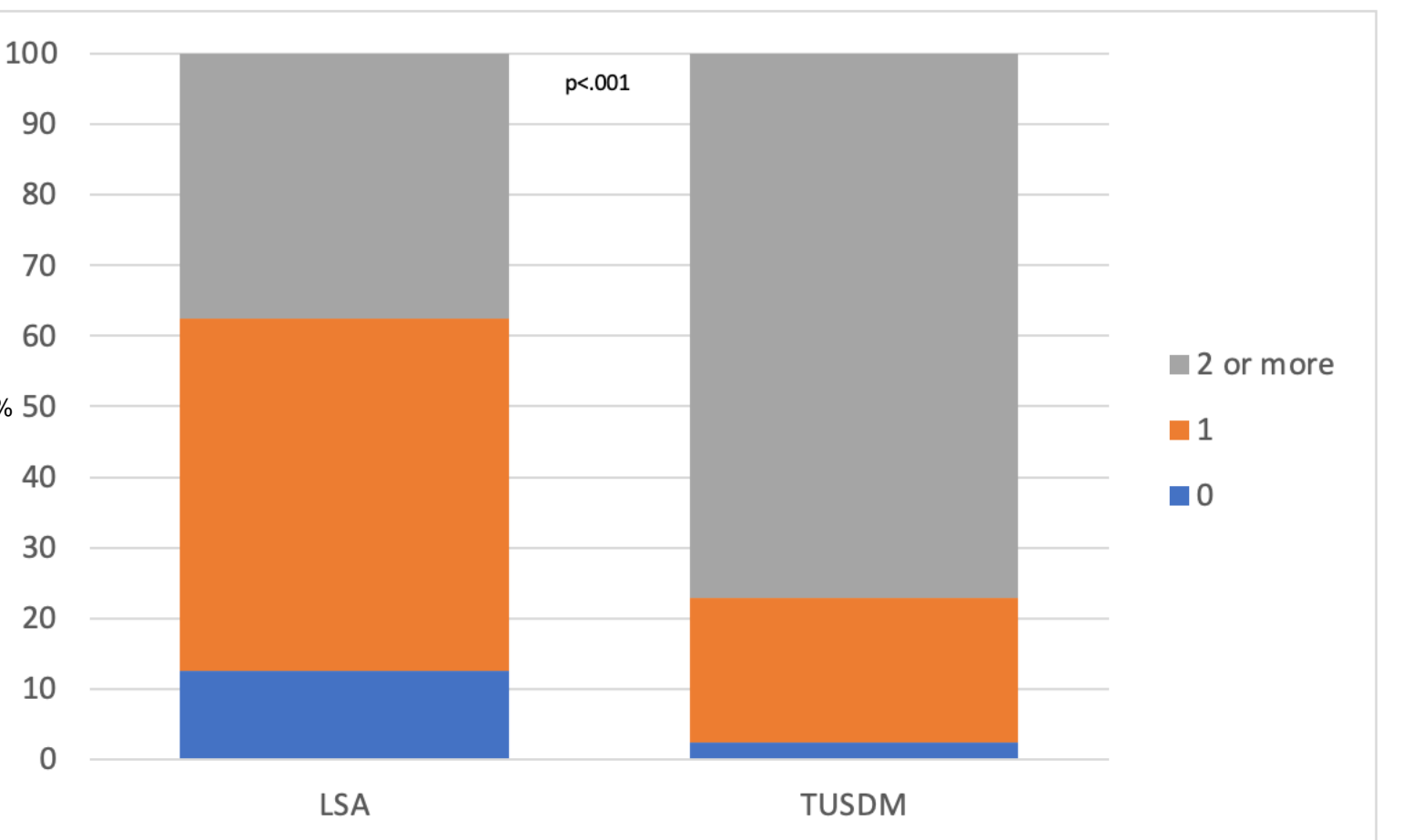


Figure 5: Frequency of Times Brushing Per Day (LSA N = 58; TUSDM N = 50)

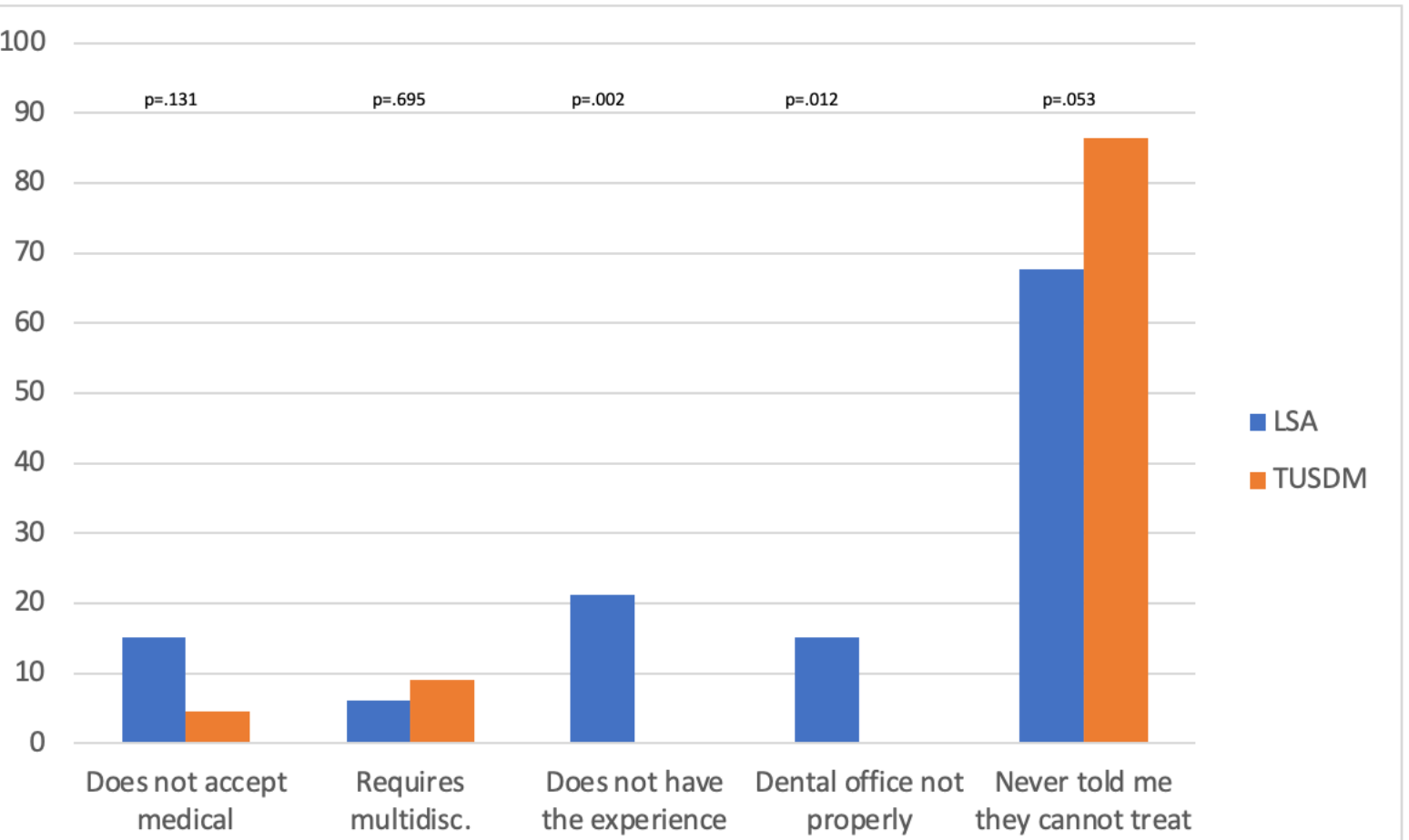


Figure 6: Frequency of Reasons Dentists Unable to Treat

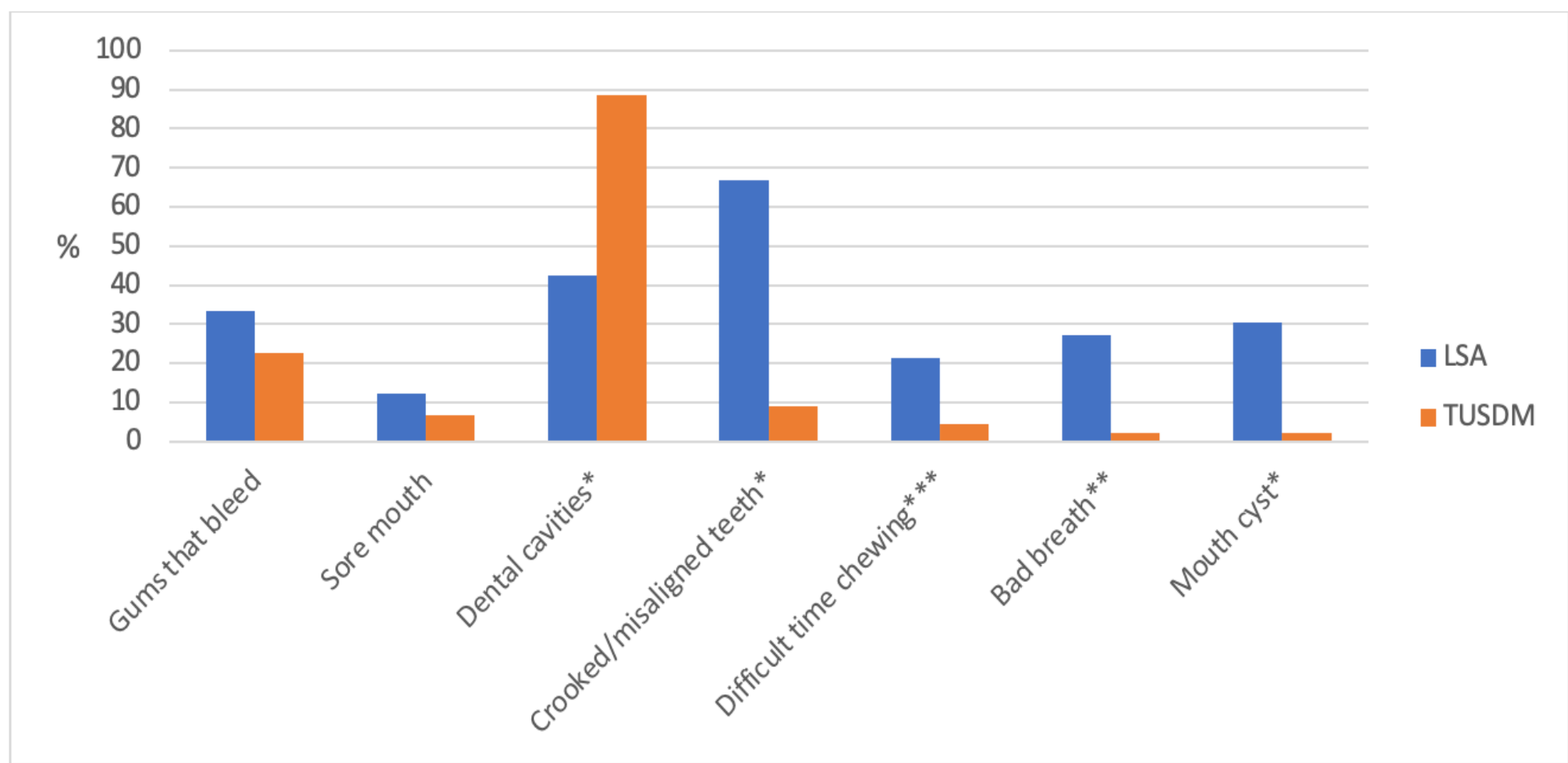


Figure 7: Frequency of Dental Conditions; \*  $p<.001$ ; \*\*  $p=.002$ ; \*\*\*  $p=.033$

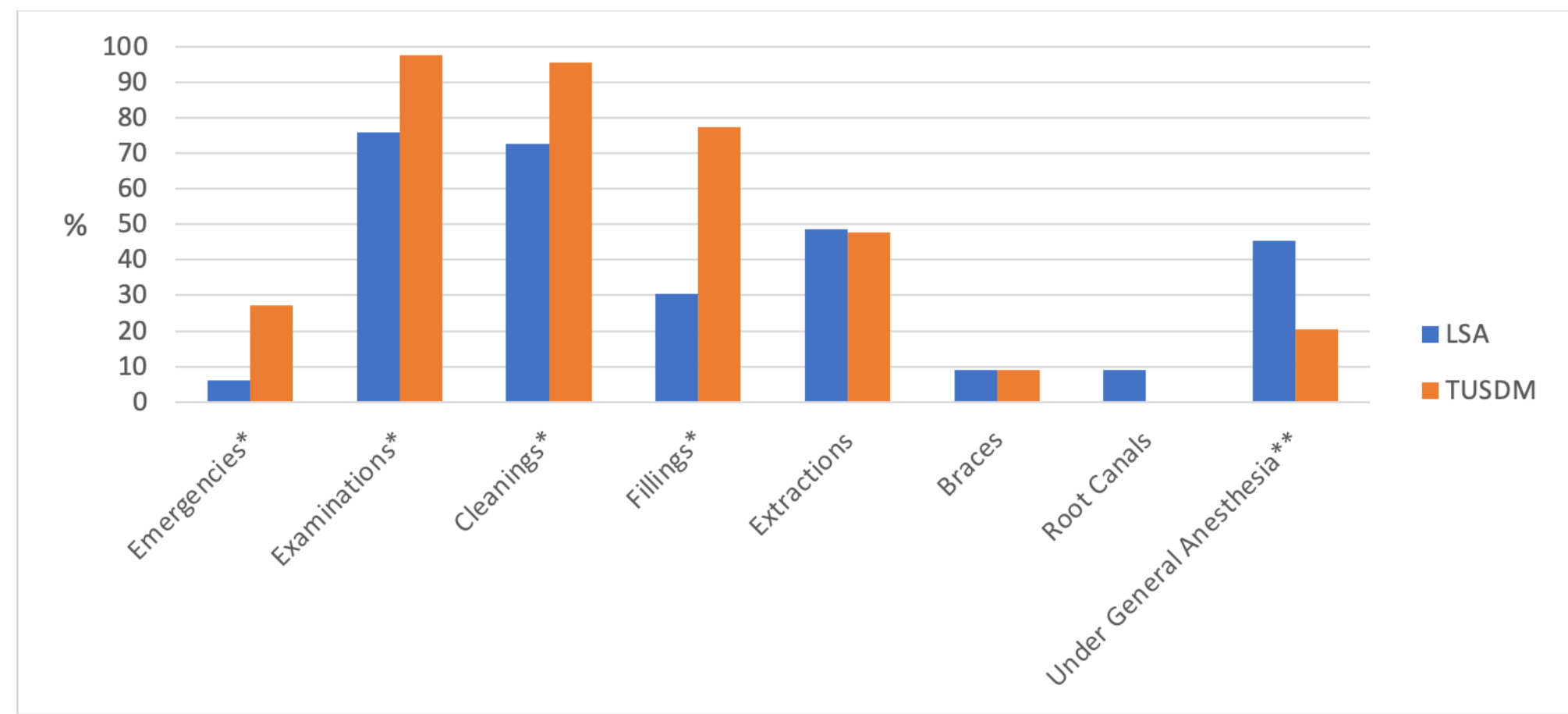


Figure 8: Frequency of Dental Treatments; \*  $p<.001$ ; \*\*  $p=.019$

## Conclusions

- The Lowe Syndrome Association (LSA) group reported a significantly higher number of several dental conditions, such as crooked teeth, difficult time chewing, bad breath, and mouth cysts, and therefore, they may be at risk for more dental conditions than healthy individuals.
- The LSA group reported a significantly lower number of dental treatments, such as emergencies, examinations, cleanings, and fillings.
- Individuals with LS may have more dental needs than healthy individuals. Individuals with LS may be less willing to accept oral care at home and some professional dental treatments at the office than healthy individuals.

## Acknowledgement

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## References

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