

Introduction

Fluoride is a natural mineral that has been used for many years to prevent cavities by aiding in remineralization of tooth enamel. Fluoride varnish is a highly concentrated form of fluoride that is applied to the tooth's surface by a dentist or other healthcare professional as a type of topical fluoride therapy. [1] Compared to other fluoride application methods, varnishes are advantageous because they are adhesive and maximize fluoride contact with the tooth surface, becoming a dental treatment that involves applying a concentrated fluoride solution to the teeth's surface to strengthen the enamel and help prevent tooth decay. This is achieved by reducing the enamel's solubility in acid and converting hydroxyapatite into less soluble fluorapatite.[5] Most fluoride varnishes consist of 5% sodium fluoride (2.26% fluoride ion) and are, therefore, more concentrated than most other professionally applied fluoride products. Fluoride varnish has been widely used in Western Europe, Canada, and the Scandinavian countries since the 1980s as a dental caries prevention therapy.[3] Fluoride varnishes first became available in the United States in 1991 when the US Food and Drug Administration approved its use as a cavity varnish. [2] Although approved for use as a cavity varnish and for the management of hypersensitivity, the most common use of fluoride varnish is to prevent tooth decay. [4] The therapeutic use of fluoride varnish for caries prevention in the United States is termed “off-label” use. Fluoride varnishes are a dental treatment that can prevent dental decay in children. They are recommended by the American Academy of Pediatric Dentistry. However, many parents are not aware of the benefits of fluoride varnish application, and they may refuse its application during their children's dental visits. Given the diverse backgrounds of our population, it is crucial to understand the level of knowledge parents have about fluoride varnish. This knowledge can impact their child's dental health. To explore the level of knowledge of parents with children under 5 years old about fluoride varnish applications in South Jersey, we are conducting a study. This study may help dentists find different strategies to educate parents about the knowledge and benefits of topical fluoride varnish application in the dental office.

Objective

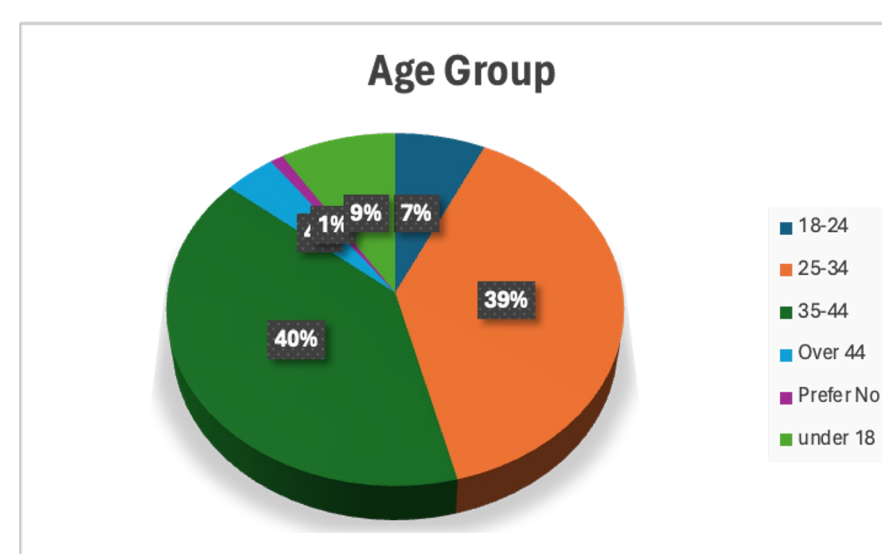
The study aims to explore the level of knowledge about fluoride varnish application in South Jersey parents with children under 5 years old.

Methods

In this cross-sectional study, A group of 100 parents who attended the dental clinic completed a questionnaire of 15 demographics and fluoride varnish questions. Descriptive and inferential statistical analysis will be performed using percentage and chi-square tests for possible association of variables/questions answers and age, biological sex, education, and ethnicity. This study was approved by Cooper University of Health protocol number: C2023-03

Results

Graphic 1. How old are you?



Graphic 3. Relationship with the child/children

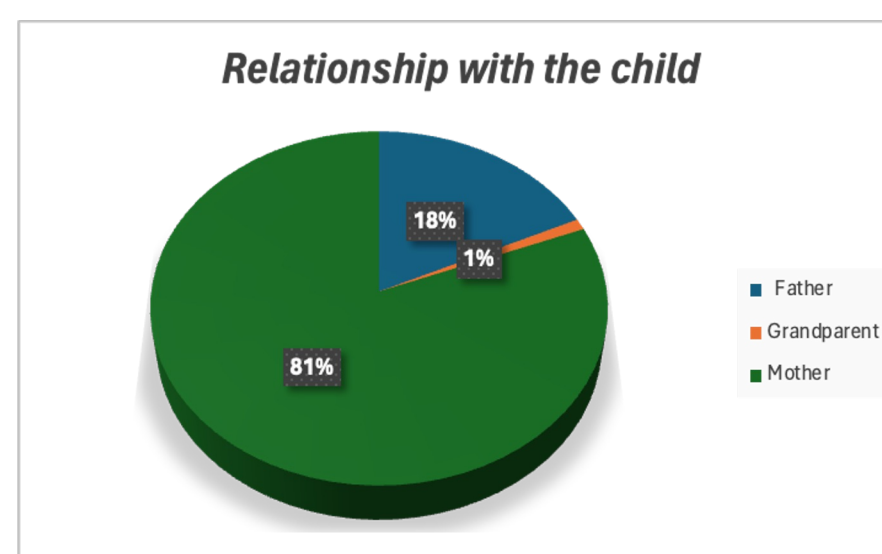


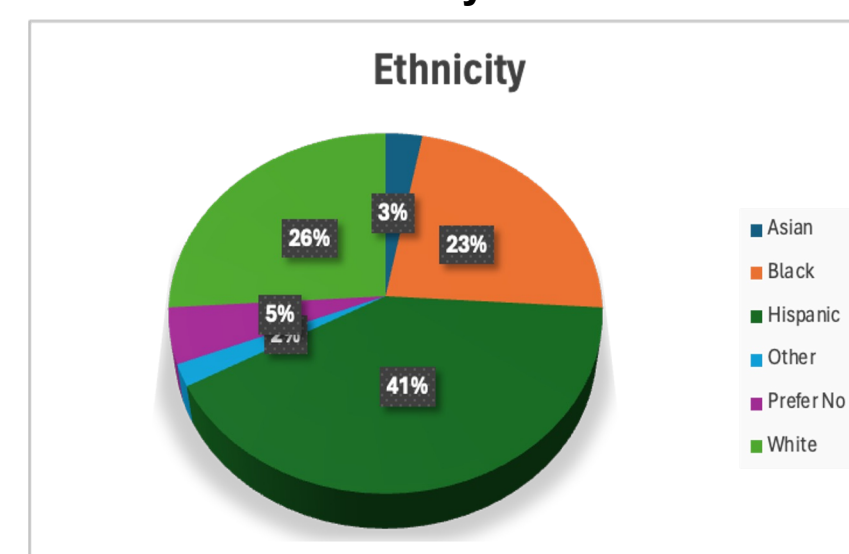
Table 1. Fluoride varnish application at a dental or medical office provides benefits for your child/children's teeth?

| Question 5 | Frequency | Percent |
|------------|-----------|---------|
| FALSE | 5 | 5.00 |
| IDK | 27 | 27.00 |
| TRUE | 68 | 68.00 |

Table 3. How many times per year can fluoride varnish be applied to your child's teeth?

| Question 7 | Frequency | Percent |
|------------|-----------|---------|
| Never | 6 | 6.00 |
| Once year | 20 | 20.00 |
| Three year | 4 | 4.00 |
| Twice year | 69 | 69.00 |
| Four times | 1 | 1.00 |

Graphic 2. Which of these options would best describe you?



Graphic 4. What is the highest degree or level of school you have completed?

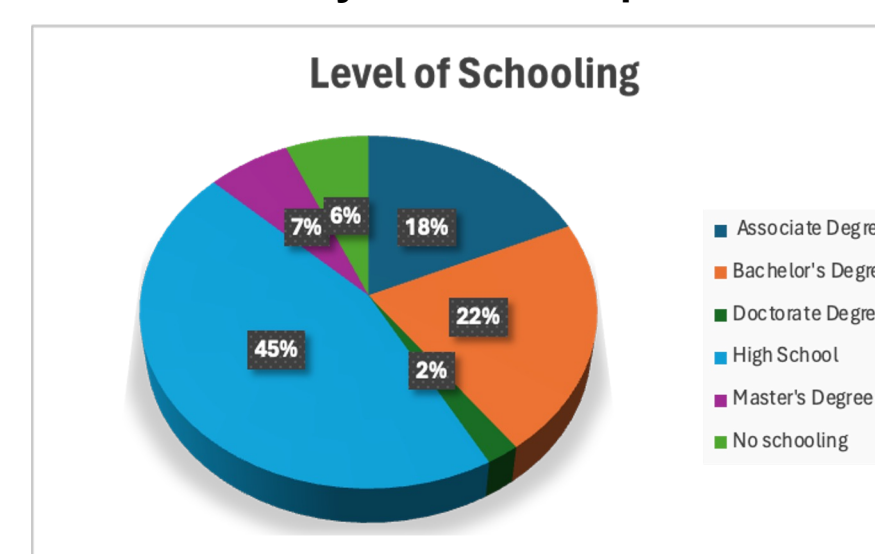


Table 2. At what age do dentists start applying fluoride varnish on children?

| Question 6 | Frequency | Percent |
|------------|-----------|---------|
| 1st-2 y | 41 | 42.26 |
| 3-6 y | 44 | 45.36 |
| 6-9 y | 7 | 7.22 |
| 9-12 y | 3 | 3.09 |
| 12-17 y | 2 | 2.06 |

Table 4. Do you know how long your child will have to wait to eat/drink after topical fluoride varnish is applied?

| Question 8 | Frequency | Percent |
|---------------------|-----------|---------|
| 1 Hour | 17 | 17.17 |
| 2 hours | 10 | 10.10 |
| 30 min | 49 | 49.49 |
| No wait time needed | 23 | 23.23 |

Results

Table 5. Do you know the application method for delivering fluoride varnish?

| Question 9 | Frequency | Percent |
|-------------------------------|-----------|---------|
| Delivered in a tray | 17 | 19.10 |
| Delivered with a finger | 22 | 24.72 |
| Nightly on child's toothbrush | 26 | 29.21 |
| Delivered in a tray | 24 | 26.97 |

Table 7. How does fluoride varnish reduce dental decay?

| Question 11 | Frequency | Percent |
|--------------------------------------|-----------|---------|
| Promotes bacterial growth. | 7 | 7.22 |
| Hardens tooth enamel | 35 | 36.08 |
| Seal the outer surface of the tooth. | 50 | 51.55 |
| Helps the tooth fall out early. | 5 | 5.15 |

Table 9. Where would you look or ask for info about fluoride varnish application?

| Question 13 | Frequency | Percent |
|--------------|-----------|---------|
| Book Store | 2 | 2.00 |
| Dentist | 81 | 81.00 |
| Internet | 8 | 8.00 |
| Pediatrician | 9 | 9.00 |

Table 11. Have you ever refused the application of fluoride varnishes to the teeth of your child?

| Question 15 | Frequency | Percent |
|-------------|-----------|---------|
| No | 94 | 94.00 |
| Yes | 5 | 6.00 |

Table 6. Which teeth can benefit from fluoride varnish application?

| Question 10 | Frequency | Percent |
|-----------------------------|-----------|---------|
| Only teeth with cavities | 7 | 7.07 |
| Only teeth without cavities | 6 | 6.06 |
| Only teeth with white spots | 1 | 1.01 |
| Only teeth with brown spots | 0 | 0 |
| All of the above | 85 | 85.86 |

Table 8. How much can fluoride varnish application decrease decay risk in a child?

| Question 12 | Frequency | Percent |
|------------------------------|-----------|---------|
| 10-30% | 14 | 15.05 |
| 30-40% | 33 | 35.48 |
| 40-60% | 34 | 36.56 |
| It doesn't reduce decay risk | 12 | 12.90 |

Table 10. Have you ever received fluoride varnish application at pediatrician or another dentist?

| Question 14 | Frequency | Percent |
|-------------|-----------|---------|
| No | 66 | 66.00 |
| Yes | 34 | 34.00 |

Results

- A total of 100 parents completed the questionnaire, out of which 81% were mothers, 18% were fathers, and 1% were a grandfather.
- 39% of the parents were between the ages of 25-35 years, 40% were between 35-44 years old, and 41% were described as of Hispanic population.
- The highest percentage of schooling degrees was in High school with 42%.
- 68% of parents agreed that Fluoride varnish provides benefits to children's teeth.
- Parents consider that the age at which a dentist should start applying fluoride varnish is between 3-6 years with a 45.36% majority.
- The frequency of applying fluoride varnish should be twice a year according to 69% of the parents and waiting to eat or drink for 30 min is necessary according to 49.49%.
- The method of fluoride varnish application is with the toothbrush, as per most parents with 29.29%. Most parents think that fluoride varnishes reduce dental decay by sealing the outer surface of the tooth with 50% and hardening the tooth enamel with 35%.
- 40-60% of parents responded that fluoride varnish application decreases decay risk in a child, and 90% of them never refused it.

Discussion

There were significant differences observed between the age and ethnicity of the participants, p-value= 0.003. Most of the participants belonging to the age groups of 25-34 years and under 18 years were Hispanic. Additionally, a significant difference was observed between the age and educational level of the participants (p=0.003). Most participants belonging to the age groups of 25-34 and 35-44 had completed high school or had a bachelor's degree. Another significant difference was observed between the age groups of 25-34 and 35-44, where the participants believed that fluoride varnish or fluoride is mostly used for sealing and secondly for hardening tooth enamel, p-value=0.005. Most participants who brought the child or had a relationship with the patient were Hispanic mothers, p=0.004. When ethnicity was evaluated by educational level, many participants were Hispanic mothers with a high school degree, p= 0.0009.

Conclusion

It is crucial to raise awareness among parents about the use of fluoride, its benefits, and how fluoride varnish can help reduce dental decay. This is especially important for Hispanic mothers aged between 25 and 44, as most of them are unaware of the advantages of fluoride varnish in preventing tooth decay. There is a need to develop preventive strategies to reinforce knowledge and awareness about fluoride varnish prevention of dental decay to help these mothers with the tools they need to ensure optimal oral health for their children. Further research is needed to investigate the level of parental involvement in preventing dental decay and how to improve their understanding of fluoride varnish application.

References

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