

Keywords

( silver fluoride, fillings reached, crowns reached, quality of life, sensitivity, caries prevention)

Authors

Athraa Hussein madhat<sup>1\*</sup>

College of dentistry, university of Diyala, Ministry of Higher Education and Scientific Research (athraa.hussein@uodiyala.edu.iq)

Sumaya Hussein Ali<sup>2</sup>

College of dentistry, university of Diyala, Ministry of Higher Education and Scientific Research (sumaya.hussein@uodiyala.edu.iq)

Wedyan Abbas Ahmed<sup>3</sup>

College of Dentistry, University of Bilad Alrafidain, Diyala, 32001, Iraq (Wedainabbas94@gmail.com)

Haider dawood Abdalnabi<sup>4</sup>

Specialized Dental Center in Baqubah, Diyala Health Directorate, Iraqi Ministry of Health (hadier.dawodabd@al-yarmok.edu.iq)

# Silver Diamine Fluoride (SDF) in Pediatric Dentistry Efficacy and Long-Term Outcomes

## Abstract

### Objectives:

The study aims to determine the long-term effect of using silver fluoride in dental treatment for children from five to 12 years of age and compare this method with other treatment methods for treating children's baby teeth, such as fillings. Resulting from caries after removing the damaged part of the tooth. And installing dental crowns to align the damaged teeth but cannot be repaired with fillings.

### Inclusion Criteria:

Children from five to 12 years old have dental problems such as tooth decay or inflammation of the roots of the teeth

### Exclusion Criteria:

Children who are allergic to silver fluoride and who have concomitant diseases such as kidney disease and late-stage caries, in addition to children under five years old and older than 12 years old.

### Design

Through this comparative analytical study, which aims to evaluate the effect of using silver fluoride for dental treatment in children from 5 to 12 years of age, a sample of 100 children with tooth decay and root inflammation was used. They were filtered to 60 children according to the inclusion and exclusion criteria, and the children were divided into three groups. The first group numbered 20 children who were treated using methods by installing fillings, and the second group of 20 children were treated with crowns, and the third group was children treated with long-term silver fluoride.

### Results

The results indicate that treatment with silver fluoride does not cause any harm in the long or short term, and that the effectiveness of treatment with silver fluoride is better than the effectiveness of treatment with traditional methods. The quality-of-life index for children who were treated with silver fluoride reached 80%, while the quality of life index for children who were treated with fillings reached 87%, and the quality-of-life index for children who were fitted with crowns reached 83% in front of one hand. Cost: The results indicated that the use of silver fluoride was better in terms of cost by 75% for children who were treated with fillings and 65% for children who were treated with crowns. As for the caries prevention index, it was reached in the case of children who were treated with long-term silver fluoride. 85%, and for children who were treated with crowns, 90%, and those treated with fillings, 98%. As for tooth and gum sensitivity, the silver vein treatment index reached 95%, fillings placement, 85%, and directional placement, 80%.

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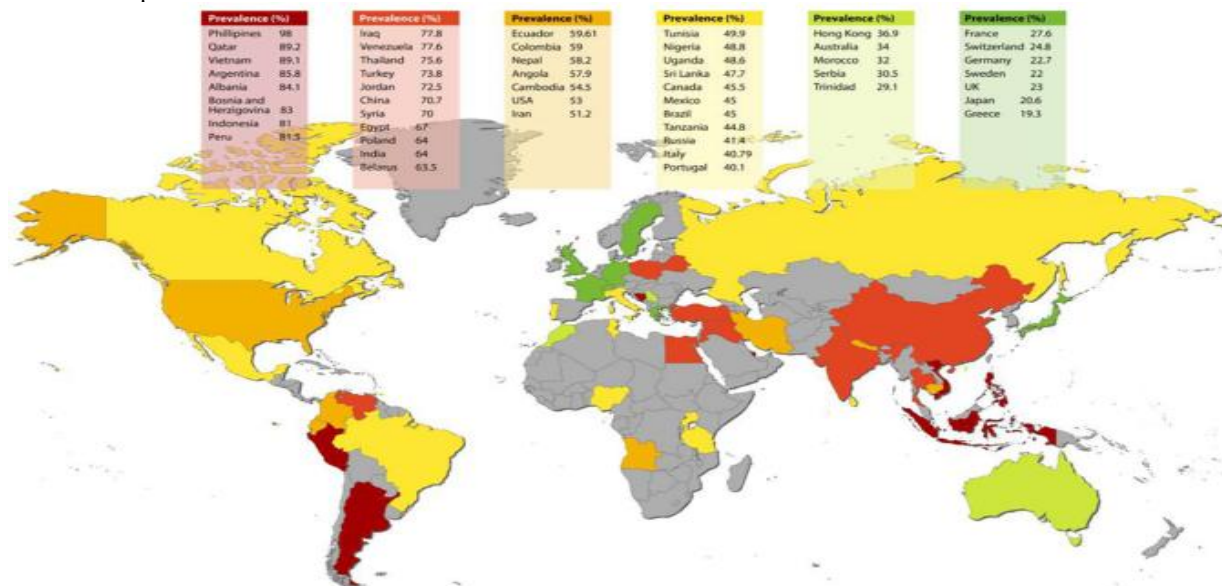
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## 1. Introduction

Diseases related to children's teeth, such as caries and radiculitis, are among the common diseases among the children of the world and have many negative effects, whether at the international or local level. Therefore, all research and studies in recent times are directed to research and development in the field of treating children's teeth and improving their quality of life through modern technologies such as treatment such as silver fluoride. Figure number one shows the extent of the spread of dental diseases in children in countries of the world.



**Figure 1: Worldwide ECC prevalence map. Prevalence was color coded as following: (a) <29% - low prevalence (dark green), (b) 29.1–39% - medium low prevalence (light green), (c) 40–49.9% - medium prevalence (yellow), (d) 50–60% - medium high prevalence (orange), 60–80% - high prevalence (light red), (e) >80% - very high prevalence (dark red) (https://data.worldbank.org).**

Dental caries is still among the most prevalent chronic diseases of childhood globally with profound implications for health, nutrition, and general well-being. In pediatric dentistry, treatment for early childhood caries has long been based on restorative care consisting of composite resins, stainless steel crowns, and pulpotomies. These traditional approaches, although effective, are often dependent on sophisticated clinical facilities, specialized apparatus, and cooperation from young patients — conditions that may not always be possible, particularly in low-resource settings [1].

Even more recently, the use of silver diamine fluoride (SDF) has been advocated as a cost-saving, noninvasive caries management option. SDF has been linked to high arrest of caries with ease of application, holding potential to offer an easy answer to carious lesion treatment in children without requiring the use of the drill or anesthetics. However, its cosmetic flaws, which predominantly blackened discoloration of arrested lesions — have instigated fears on the part of parents and clinicians regarding its ultimate acceptability [2].

This study will compare the outcomes of routine restorative care with SDF in pediatric patients, according to four key parameters: quality of life, cost-effectiveness, clinical improvement, and caries arrest rate. Through the analysis of these indicators during a six-semester school duration, the study will provide evidence-based recommendations regarding the most

effective and efficient way of treating dental caries in children [3].

## 2. Theoretical background

In this section, the theoretical background of the study will be presented, in addition to some basic concepts and terminology, so that the reader can form an insightful point of view about the objectives of the study, its importance, its methodology, and the most important results that it indicated, in addition to some previous studies that dealt with the subject, identifying the weaknesses and strengths of these studies, and the extent of their compatibility with this study.

### 2.1. Tooth decay

Tooth decay is damage to the hard enamel layer that covers the teeth, and may develop to reach the inner layers. Treatment of traditional tooth decay in dentistry usually can be defined as an interventional, restorative process such as resin fillings, stainless steel crowns, or even new crowns made of zirconium or modern materials, in addition to pulp and dental defect procedures. Although these methods are traditional methods, they achieve success rates. Very large [4]. Especially with regard to restoring the function and beauty of the teeth, despite this, it requires a clinical infrastructure, a requirement for analgesia and appreciation in some cases, and cooperation from the patient, who is essentially a child who can sometimes lose control. All of these factors pose challenges in the

community and public health environments of pediatric dentistry.

### 2.2. Infections of gums and tooth roots

Infections of the gums and tooth roots in children are also common problems, but they are treatable and preventable. The causes of infections of the gums and tooth roots are due to accumulation that accumulates on the teeth and gums, if not removed, leading to inflammation of the gums and tooth roots. Its most important symptoms are swelling and redness of the gums, which may develop into bleeding in the gums. Some diseases, such as hormonal changes, and some genetic diseases may increase the risk. Gum infections are also common, and one of the common symptoms of gingivitis is bad breath in children [5].

### 2.3. Traditional methods of treating children’s dental diseases

There are many traditional methods for treating dental diseases, whether caries or gingivitis. These traditional methods include fillings, which are used to fill the cavity resulting from caries after removing the damaged parts, as well as the installation of crowns,

which are used to plan damaged teeth that cannot be repaired with fillings, in addition to root canal treatment in order to remove the affected nerves in the severely damaged tooth. As for gum problems and their treatment, one of the most important techniques is cleaning. Regular dental care by dentists and antibiotic treatment, in addition to gum surgery, which may be necessary in some cases.[6].

In addition to some other methods, such as using jaw expanders and using some functional devices to correct jaw growth problems, in addition to gargling with water and salt to relieve tooth and gum pain, and using cold compresses, which also lead to alleviating diseases and swelling of the gums.

### 2.4. Silver fluoride

Silver fluoride, or what is known as silver diamine (SDF), has gained great importance as a non-surgical, economical and effective treatment method for stopping tooth decay, thanks to its antimicrobial properties and its ability to remineralizer the tooth structure. It is considered a promising alternative, especially for low-income groups [7]

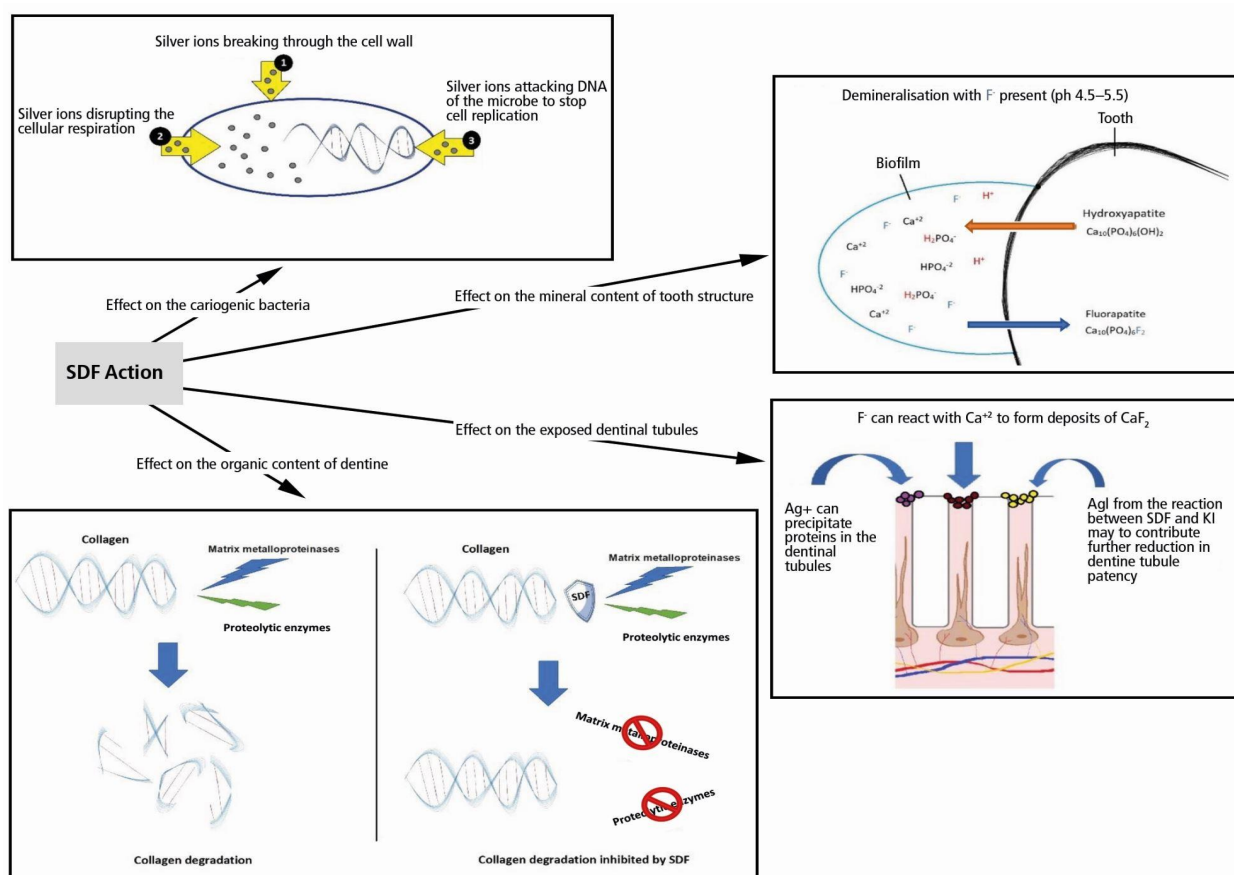


Figure 2: Mechanism of action and use of silver fluoride

#### 2.4.1. How SDF works

As for the mechanism of action of silver difluoride, it works to stop caries, as silver ions act as a powerful antibiotic against bacteria, killing bacteria that cause caries, such as bacteria .Streptococcus mutans, according to the addition that silver ions renew the vitality of the enamel layer, in addition to that fluorides interact with calcium and phosphate present in the

teeth to form mineral compounds that are more solid and resistant to acids, in addition to that they accumulate inside the microtubules, which reduces sensitivity to pain and prevents the progression of caries, as they do not slow down the activity of dentin lytic enzymes [8].

#### 2.4.2. treatment mechanism

As for the treatment mechanism and the use of silver fluoride, it is done through several steps, which are as follows

1. Ensure that the caries is not deep and does not cause severe pulpitis or severe pain through a clinical examination and diagnosis of caries.
2. Cleaning the tooth from food residue, tartar, and accumulated plaque
3. Isolate the tooth using cotton or simple isolation materials to protect the surrounding tissue[9].
4. Using a brush or a saturated piece of cotton, the solution is placed on the decayed areas for about a minute and left to dry in the air. These steps are often repeated and repeated at equal intervals, whether a week or a month, for a period ranging from six months to 18 months [10].

### 3. Methodology

The methodology in this study was based on a group of different methodologies, including a descriptive methodology to describe data, variables, and implicit and non-implicit relationships in children’s dental treatment techniques, in addition to a quantitative methodology in collecting data and procedures for applying traditional treatment methods and the silver fluoride treatment method. In addition to the analytical methodology to analyze the results and the comparative methodology to compare the different results of the three techniques: the silver fluoride treatment technique, nerve fillings, and the installation of crowns.

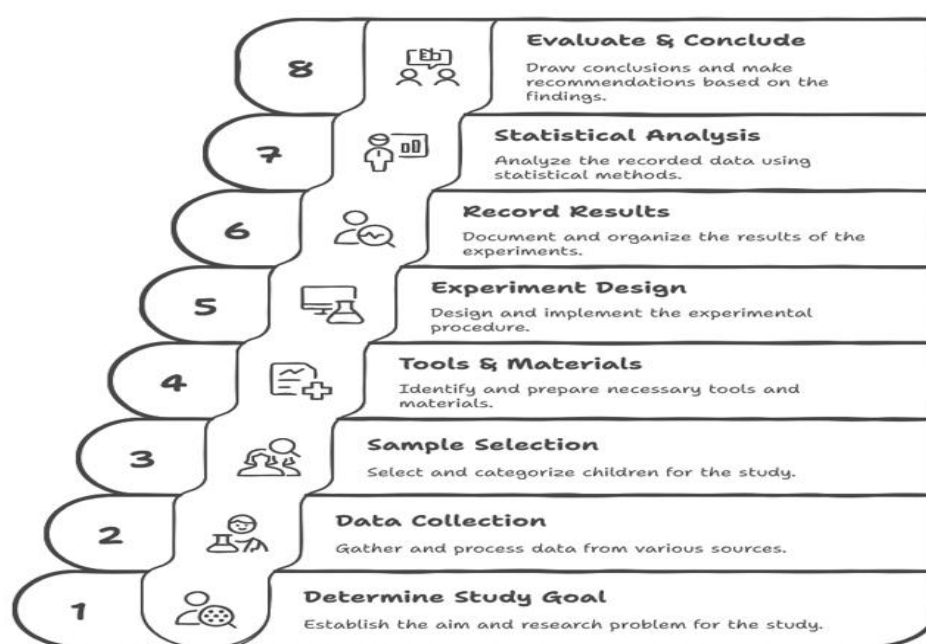


Figure 3: shows the applied framework of the study.

Figure No. 3 shows the applied framework of the study. Starting from defining the goal and formulating the research problem, through collecting data, selecting sample members, conducting experiments, laboratory and statistical tests, and ending with extracting and evaluating the results to provide conclusions and recommendations [11].

#### 3.1. procedures

1. Determine the goal of the study.  
The aim of the study was set, which was to evaluate the use of silver fluoride in treating children’s teeth and compare it with traditional techniques such as filling techniques and installation techniques, the direction and formulation of the research problem related to the use of this technique and the effect left by the black pigments of silver fluoride, in addition to the type of children, especially since there are some children who may not accept this method of treatment.
2. Data collection and processing  
Data were collected from a group of local clinics and hospitals, their databases, and patient records. The data

was cleaned and anomalous data and inaccurate data were excluded, in addition to relying on books, previous studies, and Internet databases to collect data related to testing methods and traditional and modern treatment techniques, and examining the strengths and weaknesses of these studies to compare them with the goals, weaknesses, and strengths of this study.

#### 3. Sample selection

60 children were selected in the final stage from among 100 children in the primary stage after applying the inclusion criteria and exclusion criteria and dividing them into three groups. The first group was the group that was treated, and the number was 20 children. The second group was treated with the traditional method of nerve filling, and their number reached 20 children. The third group, which was treated using crowns and prostheses, and the number reached 20 children and the procedure. Statistical, descriptive and demographic tests for these groups and extracting the averages and standard deviation of these data.

#### 4. Selection of tools and materials

The study relied on a set of tools and materials, including a set of descriptive data, patient data, condition diagnoses, results of hardness tests for the teeth, and when decay stopped, in addition to a set of medical diagnoses and x-ray images of the teeth, as well as a set of software such as the Python program and some statistical programs such as the SPSS program.

5. Experiment design

Which included dividing the children into three groups: one group was treated with nerve fillings, one group was treated with crowns, and the other group was treated with silver fluoride. Laboratory and clinical tests were conducted to determine the strength and solidity of the teeth and when the decay and gum infections stopped, taking into account taking all consents from the participating individuals in accordance with the ethics of scientific research and not publishing any private data about them.

6. Recording the results, where the variables were as follows:

- **Incomes :**
- **Outcomes as follows:**
- 
- Child's age
- The sex of the child

- Treatment method
- The area where the child resides
- Diagnosis of dental disease in children
- Number of times fluoride treatment
- Doses used
- An indicator of tooth hardness
- An indicator of the quality of life for children
- An indicator of the extent of improvement in stopping caries or gum disease
- Cost indicator

7. Statistical analysis of the results using the Anova test to determine the importance of the data, as well as calculating descriptive and qualitative measures, averages for all variables, and standard deviations.

8. Evaluate the results and extract recommendations and conclusions.

**4. Results and discussion**

In this section, the results related to the demographic analysis of the test sample will be presented, in addition to the descriptive results of the laboratory results through which the extent of improvement in the children's condition and the extent of the quality of life index and the cost index were determined using the three methods and techniques, and then comparing the results for the three techniques.

**4.1. Demographic analysis results**

**Table 1: Demographic Characteristics**

Characteristics	TOTAL (N=60)	G 1(N=20)	G2(N=20)	G3(N20)	f	*P value
age mean± SD	8.6± 2.54	8.8 ±2.15	8.5 ±2.2	8.4 ±2.32	7.8	0.02
male %	35(58%)	12(60%)	11(55%)	12(60%)	6.9	0.0025
female%	25(42%)	8(40%)	9(45%)	8(40%)	9.1	0.001
Residence						
Urban	22 (41.5%)	8(40%)	7(35%)	7(35%)	12.3	<0.001
Rural	35(58%)	11(%55)	12(60%)	12(60%)	10.5	<0.001
Desert	3(5%)	1(5%)	1(5%)	1(5%)	11.3	<0.001

G1: Silver fluoride treatment G2: Nerve filling treatment G3: Crown treatment  
 Mean : mean value SD : Standard Deviation F: Coefficient of Variation P-Value: Significance.

The previous table shows the results of the demographic analysis of the sample of participants in the tests, where the number of participants reached 60 participants, 20 children in each group, the first group that received fluoride treatment and the third group that had crowns installed. It is noted that the percentage of females is close to the percentage of males in three groups. In the total number of participants, the percentage of people is 42% and the percentage of males is 58%. This is not statistically significant. As for those residing in urban areas, their evidence was less. Of those residing in rural areas, meaning that children in rural areas are more susceptible to dental

diseases. The average age of the participating children ranged from 8.6 years, with a standard deviation of 2.45. The total age of the participants was 8.5 in the first group. The second group was 8.5. In the third group, 8.4, that is, there was a great convergence in the average age. The table also shows that the p-value, which expresses the degree of importance of the data, and whose marginal value is 5%, all values were less than 5%, which means that the data is on point. The coefficient of variation was also large, as it ranged between 6.9 and 9.1, which means that the data is clear, has differences, and is statistically significant.

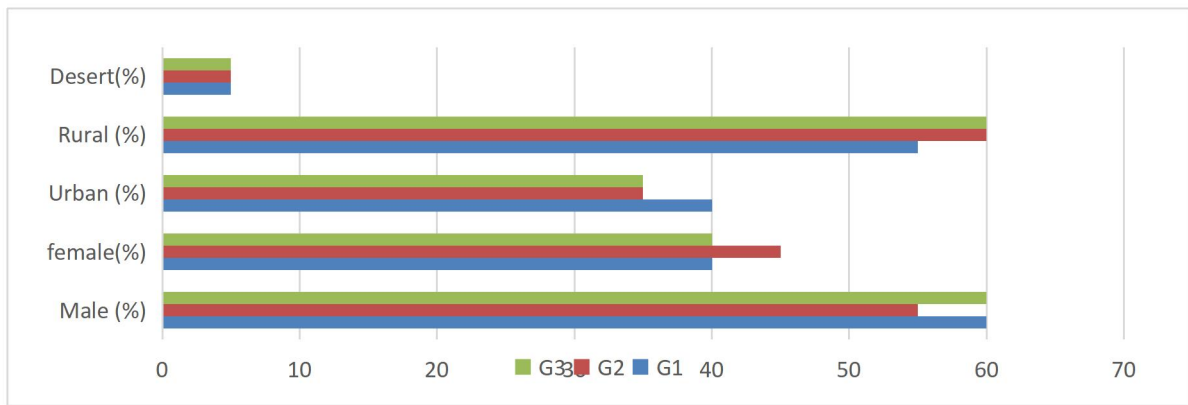


Figure 4: shows Demographic Characteristics

The previous figure shows the demographic characteristics of the sample of participants in the three groups, where the ratio of females to males was 40%: 60% in the first group, which was the group that was treated with silver fluoride, and in the second group, which was treated with nerve fillings instead of the ratio of females to males, 45%: 55%, and in the third group, which was treated with the installation of crowns, the ratio of females to males was 40%: 60%.

As for residence, the percentage of those residing in urban areas in the first group reached 40%, in the second group 35%, and in the third group 35%. As for those residing in rural areas, the percentage in the first group reached 55%, in the second group 60%, and in the third group 60%. As for those residing in the desert outskirts, their percentage in the first group reached 5%. The second group is 5% and the third group is 5%.

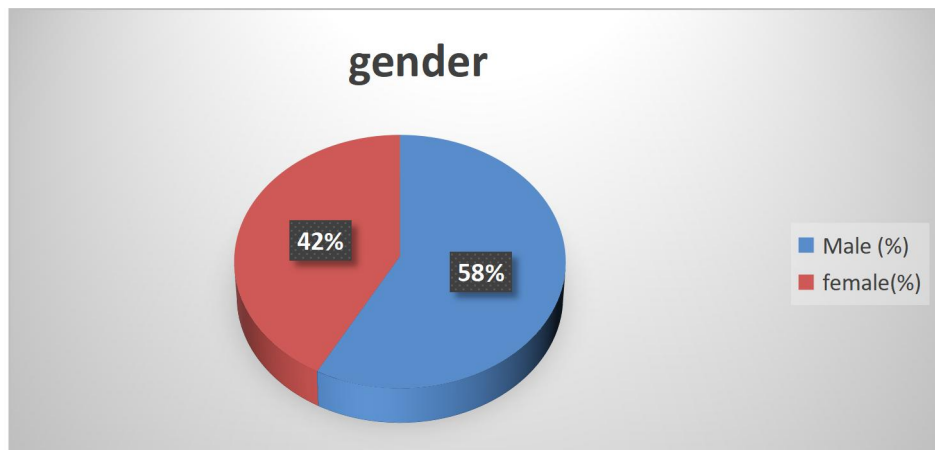


Figure 5: shows The sample's totals by gender .

The previous figure shows the ratios of males to females out of the total children participating in the experiment, where the percentage of males was 58% and the percentage of females was 42%.

**4.2. Laboratory test results and quality of life index**

As for the estimates related to the hardness of the teeth, the level of caries, the level of gingivitis, and the quality of life index, the numerical estimates were converted on a scale from one to 10 by simulating real clinical data, where standards such as ICDAS (International Caries Detection and Data on “level of caries” Use a scale such as the Gingival Index (GI) from Loe and Silness to determine the level of gingivitis. Numerical ratings from 1 to 10, generated by simulating real-life clinical research data. The caries scale reflects the extent of tooth decay, with values of 1–3 indicating mild cases, 4–6 indicating moderate caries, and 7–10 indicating advanced cases

reaching the dental pulp. The gingivitis scale is based on clinical indicators such as the intensity of redness. and bleeding, with values of 1–3 representing healthy gums or mild inflammation, 4–6 representing moderate inflammation, and 7–10 representing severe inflammation that may include swelling or spontaneous bleeding[12].

As for the quality of life index, it was evaluated according to the point of view of the parents and children using two approved scales: ECOHIS scale (Early Childhood Oral Health Impact Scale) for parents' perspective, and COHIP scale Child Oral Health Impact Profile from the perspective of children themselves. ECOHIS is used to evaluate the impact of oral and dental problems on children’s lives, behavior, and temperament in the same way, where the index was graded from one to 10, where the index from 1-3 means poor quality, from 4-6 means moderate quality, and from 7-10 means high quality[13].

Table 2: Laboratory test results and quality of life index

	Arterial blood gas	G1: Silver fluoride treatment (n = 20)	Nerve treatment filling (n = 20)	Crown treatment (n = 20)	F	p
Tooth Hardness	<b>Pre</b> Min. – Max. Mean ± SD. Median (IQR)	3 – 8 6.35 ± 2.02 5(4 – 6)	3 – 8 6.34 ± 2.41 5(4 – 6)	3 – 8 6.44 ± 2.32 5(4 – 6)	13.2	<0.001*
	<b>Sig. bet. Grps.</b>	p <sub>1</sub> =0.991, p <sub>2</sub> <0.001*, p <sub>3</sub> <0.001*				
	<b>Post</b> Min. – Max. Mean ± SD. Median (IQR)	4 – 9 7.60 ± 2.66 7(6 – 8)	4 – 9 7.4 ± 1.92 6(5 – 7)	4 – 9 8.1 ± 2.56 7(6 – 8)	11.4	0.021
	<b>t(p)</b>	6.217* (<0.001*)	4.930* (0.001*)	4.811* (0.001*)		
Decay Level	<b>Pre</b> Min. – Max. Mean ± SD. Median (IQR)	5 – 9 5.55 ± 2.23 6(5 – 8)	5 – 9 5.43 ± 2.33 6(5 – 7)	5 – 9 5.45 ± 2.3 6(5 – 8)	12.6	<0.001*
	<b>Post</b> Min. – Max. Mean ± SD. Median (IQR)	3 – 7 4.68 ± 2.01 4(3 – 5)	3 – 8 4.35 ± 2.33 3(2 – 5)	3 – 9 4.45 ± 2.3 3(3 – 5)	10.8	0.001
	<b>Sig. bet. Grps.</b>	p <sub>1</sub> =0.019, p <sub>2</sub> <0.001*, p <sub>3</sub> <0.001*				
	<b>t(p)</b>	5.679* (<0.001*)	3.874* (0.004*)	0.361 (0.726)		
Gum Inflammation	<b>Pre</b> Min. – Max. Mean ± SD. Median (IQR)	4 – 9 5.05 ± 2.16 6(5 – 8)	4 – 9 4.8 ± 2.63 6(5 – 8)	4 – 9 4.9 ± 2.65 6(5 – 8)	8.3	<0.001*
	<b>Post</b> Min. – Max. Mean ± SD. Median (IQR)	3 – 6 4.1 ± 1.87 3(2 – 5)	4 – 6 4.5 ± 1.89 4(3 – 6)	4 – 7 4.6 ± 1.45 4(3 – 6)	2.3	0.0025
	<b>t(p)</b>	4.611* (0.001*)	2.661* (0.026*)	9.0* (<0.001*)		
quality of life	<b>Pre</b> Min. – Max. Mean ± SD. Median (IQR)	3 – 7 4.41 ± 0.02 3(2 – 5)	3 – 7 4.38 ± 0.04 3(2 – 5)	3 – 7 4.36 ± 0.03 3(2 – 5)	13.5	<0.001*
	<b>Sig. bet. Grps.</b>	p <sub>1</sub> =0.013, p <sub>2</sub> <0.001*, p <sub>3</sub> <0.001*				
	<b>Post</b> Min. – Max. Mean ± SD. Median (IQR)	4 – 9 5.41 ± 0.02 6(5 – 7)	4 – 9 5.38 ± 0.04 7(6 – 8)	4 – 9 5.86 ± 0.03 6(5 – 7)	7.2	0.003
	<b>Sig. bet. Grps.</b>	p <sub>1</sub> =0.018, p <sub>2</sub> =0.002*, p <sub>3</sub> =0.011				
	<b>t(p)</b>	8.510* (<0.001*)	3.360* (0.008*)	0.000 (1.000)		

IQR: Inter quartile range deviation

SD: Standard deviation  
t: Paired t-test

F: F for One way ANOVA test, Pairwise comparison bet. each 2 groups was done using Post Hoc Test (Tukey)

p: p value for comparing between the three studied groups

p0: p value for comparing between **Pre** and **Post**

p1: p value for comparing between **G1** and **G2**

p2: p value for comparing between **G1** and **G3**

p3: p value for comparing between **G2** and **G3**

The previous table shows the laboratory results of the treatment with the three techniques before and after the six-month treatment period. The results showed that there were statistically significant differences between the three groups after applying the different treatments on the children in terms of tooth hardness, the extent of caries, gingivitis, and the quality of life index. The treatment group recorded the highest hardness trend and the highest average quality, while the filling group achieved the best results in reducing the level of caries, and the fluoride group achieved the best results in reducing the level of caries. Silver has advanced results in reducing gingivitis and improving the hardness of

teeth, which indicates its comprehensive effectiveness in improving oral health[14].

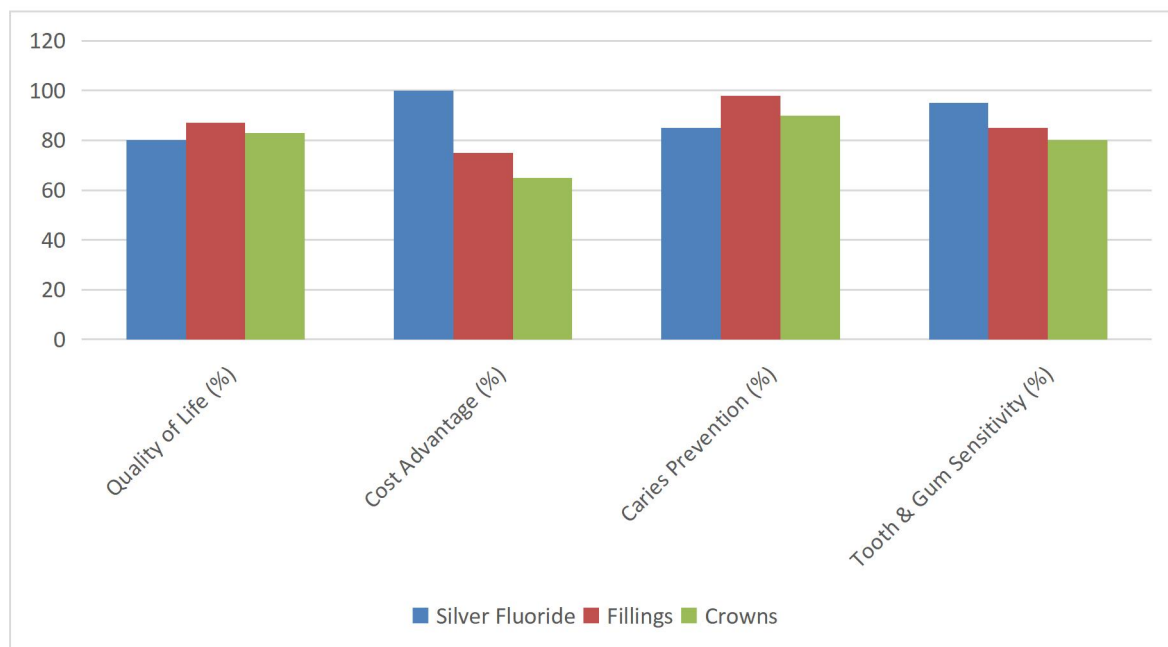
Before treatment, there were no significant differences between the three groups in all indicators, which indicates the equality of cases before the intervention operations. However, after the intervention operations, the four indicators improved significantly within each group, which determines and confirms the effectiveness of treatment with each type, to varying degrees. Significant within each group separately, which confirms the effectiveness of each type of treatment to varying degrees. The differences between treatment after treatment indicate that the type of treatment clearly affects the results, and the use of silver fluoride is recommended as an effective and balanced option, especially in cases where it is difficult to perform more invasive treatments such as crowns or fillings[15].

**4.3. Comparison results between the three techniques**

**TABLE 3: Comparison results between the three techniques**

Treatment Method	Quality of Life (%)	Cost Advantage (%)	Caries Prevention (%)	Tooth & Gum Sensitivity (%)
Silver Fluoride	80	100	85	95
Fillings	87	75	98	85
Crowns	83	65	90	80

The previous table shows a comparison between the three techniques in terms of the quality of life index, the cost of treatment, and the extent of improvement in treating caries and tooth and gum sensitivity. The table shows the importance and effectiveness of three methods, and that fluoride treatment is the best in terms of cost and in terms of gum treatment, and that it achieves a high quality of life index, even if it comes in second place, and that it is very effective in treating cases of caries.



**Figure 6: shows Comparison results between the three techniques**

According to the previous table that treatment with silver diamine fluoride (SDF) is both safe and effective, with no observed adverse effects in either the short or long term. When compared to conventional restorative methods, such as pulp therapy and crown placement,

SDF treatment exhibited superior outcomes in several key areas[16].

The quality-of-life index among children treated with SDF reached 80%, compared to 87% for those treated with traditional fillings and 83% for those who

received crowns. Although fillings showed a slightly higher quality-of-life score, SDF treatment offered significant advantages in terms of cost-effectiveness. Specifically, the cost savings associated with SDF were 75% greater than those associated with fillings and 65% greater than those for crown placements.

Regarding caries prevention, SDF achieved a prevention index of 85%, compared to 98% in the fillings group and 90% in the crowns group. Although slightly lower, the prevention rate with SDF remains clinically significant, especially when considered alongside its lower cost and non-invasive application [17].

In terms of oral health sensitivity, children treated with SDF demonstrated a tooth and gum sensitivity index of 95%, compared to 85% for fillings and 80% for crowns. These results suggest that SDF not only prevents caries effectively but also enhances comfort and reduces sensitivity, contributing to improved overall treatment outcomes [18].

**Note:** Done Validity Cost of silver fluoride treatment as a basis (100%) In comparison, (considering that the cost savings using silver fluoride is 100%)

## 5. Conclusions

Among the most important conclusions that were drawn from the study are the following:

- The results indicate that treatment with silver fluoride does not cause any harm in the long or short term, and that the effectiveness of treatment with silver fluoride is better than the effectiveness of treatment with traditional methods. The quality-of-life index for children who were treated with silver fluoride reached 80%, while the quality-of-life index for children who were treated with fillings reached 87%, and the quality-of-life index for children who were fitted with crowns reached 83% in front of one hand. Cost: The results indicated that the use of silver fluoride was better in terms of cost by 75% for children who were treated with fillings and 65% for children who were treated with crowns. As for the caries prevention index, it was reached in the case of children who were treated with long-term silver fluoride, 85%, and for children who were treated with crowns, 90%, and those treated with fillings, 98%. As for tooth and gum sensitivity, the silver vein treatment index reached 95%, fillings placement, 85%, and directional placement, 80%[19].
- SDF technology has shown a similar - and in some cases superior - ability to stop tooth decay compared to traditional restorative treatments, especially in early lesions[20].
- The SDF technique was significantly more cost effective, as it required fewer resources, shorter clinical time, and fewer tools and was 60 to 75% less expensive than other traditional methods such as installing fillings or installing crowns[21].
- Quality of life: Using silver fluoride treatment, with regard to the quality-of-life index, the result was 80%, which is a good indicator, although it is lower than traditional methods. This may be due to the fact that the overall drawback of the SDF technique (black pigmentation) may have limited its acceptance among parents and caregivers.

- Ease of access to treatment: Using SDF technology is an effective solution, especially for groups with limited resources and for children who are uncooperative or who are medically at risk.
- It has proven to be an accessible solution in resource-limited or rural areas, especially for uncooperative or medically vulnerable children.

## 6. Recommendations

One of the most important recommendations that can be suggested

- Encouraging public health dental clinics to adopt SDF as a first choice for treating early childhood tooth decay, especially in underserved populations.
- Develop educational materials to help parents understand the benefits of SDF and address concerns about tooth staining, especially in the back teeth.
- Recommending the use of hybrid techniques by combining traditional techniques with modern techniques for treating children's teeth in order to benefit from the advantage of each technique.
- Integration of policies and concerted efforts in all medical and research fields in order to develop new strategies for dental treatment in children.
- Propose long-term studies to evaluate the psychosocial impact of SDF staining, and the effectiveness of combining SDF with cosmetic restorative materials (e.g. SDF + glass ionomer)

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