

Parents and/or Guardians' Satisfaction Towards the Use of Silver Diamine Fluoride as an Alternative Treatment Approach to Carious Lesions After Application



Carly Cotten*, DMD, MS, Jennifer Chung, PhD, Maria A. Levi-Minzi, PhD, Romer Ocampo, DDS, MS, Marilyn Taylor, BA

INTRODUCTION

- Silver diamine fluoride (SDF) is an alternative method for treating carious lesions.
- This technique allows for the delay in the progression in the carious process.
- The application is easy to use, the procedure is quick, only requiring application for 1-3 minutes, the solution is cost-effective, and the health professional does not require complex training.^{1,2}
- The major side effect of SDF is the black staining of teeth.⁴
- Silver diamine fluoride is becoming a popular treatment option for children who are uncooperative or unable to sit for conventional treatment options in not only the United States but in other countries.⁵
- The American Academy of Pediatric Dentistry supports the use of SDF as a caries arresting medication for patients who are unable to receive conventional treatment.

OBJECTIVES

- The goal of this study is to determine the satisfaction of silver diamine fluoride (SDF) after use.
- Parents and guardians were educated on the uses of silver diamine fluoride, its benefits, and its side effects before treatment was rendered.

METHODS

- Parents and guardians (N=82) of children treated with silver diamine fluoride at Nova Southeastern Universities Dental Clinics at KID Clinic, Joe DiMaggio Children's Hospital, Mailman Segal were given information about the uses of SDF.
- This study used a non-randomized convenience sample.
- Descriptive statistics were calculated to describe the sample (N=82) in terms of demographic and patient characteristics, as well as SDF treatment characteristics.
- Mean levels of SDF satisfaction were calculated based on scores from an SDF satisfaction question, using Likert scale responses from 1 (not at all satisfied) to 5 (extremely satisfied).
 - Higher scores indicated higher levels of satisfaction.
- Regression models were constructed and analyzed to predict the primary outcome variable (satisfaction with SDF) by patient characteristics and specific aspects of SDF treatment (i.e., tooth location, reason for using SDF).
- T-tests were also conducted to examine mean differences in SDF satisfaction based on these characteristics. Significance level was set at $p < .05$ for all comparisons.



Crystal YO, Jamal MN, Hamilton DS, Niederman R. (2017)

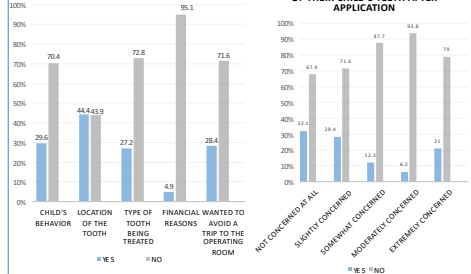
METHODS

- Parents or guardians of patients (≤ 18 years old) attending appointments at NSU Pediatric Dental Clinics from January 5th to April 5th, 2023, were recruited to complete a survey.
- The 24-question survey, offered in both English and Spanish, collected the following information using Likert scale responses (ranging from 1 to 5), yes/no answers and fill in the blank.
 - Parent/Guardian demographics (relationship to the patient, age, marital status, education level, gender, race/ethnicity and income).
 - Patient demographics (age, gender)
 - Data related to attitudes towards dental visits and the use of silver diamine fluoride.
- Data related to the factors that played into treatment decisions (the child's behavior, location of the tooth, financial concerns, type of tooth treated, avoiding a trip to the operating room).
- Data related to the timing and location of treatment.

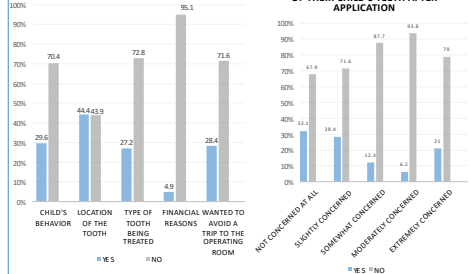
RESULTS

TABLE 1: PATIENT/GUARDIAN PATIENT CHARACTERISTICS			TABLE 2: SDF TREATMENT		
VARIABLE	N	%	VARIABLE	N	%
Patient Gender			Time of SDF Treatment		
Male	40	48.8%	0-6 months ago	38	46.9%
Female	42	51.2%	6 months - 1 year ago	16	19.8%
Patient with Special Health Care Needs			1-2 years ago	6	7.40%
Yes	50	61.0%	2-3 years ago	3	3.70%
No	32	39.0%	3+ years ago	5	6.10%
Patient Behavior			Anterior vs Permanent Tooth Treated		
Strongly Negative	5	6.10%	Anterior Tooth	7	8.50%
Negative	12	14.6%	Permanent Tooth	57	69.5%
Positive	27	32.9%	Both	18	22.0%
Strongly Positive	38	46.3%	Primary vs Permanent Tooth Treated		
Parent/Guardian Gender			Primary tooth	49	59.8%
Male	12	14.6%	Permanent tooth	25	30.5%
Female	70	85.4%	Not sure	8	9.80%
Parent/Guardian Race			How Well SDF Was Explained Prior to Treatment		
Caucasian	22	26.8%	Very Well	70	85.4%
Black or African American	28	34.1%	Good	11	13.4%
Hispanic or Latino	24	29.3%	Fair	1	1.20%
Asian	4	4.90%	Poor	0	0.00%
Other	4	4.90%	Example Photos Shown Prior to Treatment		
Parent/Guardian Education			Yes	75	91.5%
Did Not Complete High School	7	8.50%	No	7	8.50%
High School Diploma	18	22.0%	Understood Additional Treatment May Be Needed		
GED	9	11.0%	Yes	81	98.8%
College Degree	35	42.7%	No	1	1.20%
Post-Graduate	8	9.80%	Parent/Guardian Pleased with Appearance		
Doctorate	5	6.10%	Yes	76	92.7%
Yearly Family Household Income			No	6	7.30%
Less than \$20,000	9	11.0%	Child Had an Opinion About Tooth Appearance		
\$20,001 - \$30,000	16	19.5%	Yes	5	6.10%
\$30,001 - \$40,000	15	18.3%	No	65	79.3%
\$40,001 - \$50,000	12	14.6%	Not sure	12	14.6%
More than \$50,000	30	36.6%	Overall Satisfaction		
Clinic Location			Not Satisfied At All	0	0.00%
KID Clinic	44	53.7%	Slightly Satisfied	5	6.10%
Joe DiMaggio	26	31.7%	Moderately Satisfied	19	23.2%
Mailman Segal	12	14.6%	Very Satisfied	33	40.2%
			Extremely Satisfied	25	30.5%
			Would Choose SDF for Treatment Again		
			Yes	57	69.5%
			No	2	2.40%
			Depends on the Circumstances	23	28.0%

FACTORS THAT PLAYED INTO THE PARENT/GUARDIAN'S DECISION TO CHOOSE SDF AS A TREATMENT OPTION



PARENT/GUARDIAN'S CONCERN ABOUT THE APPEARANCE OF THEIR CHILD'S TEETH AFTER APPLICATION



RESULTS

- Mean SDF satisfaction score = 3.95 (SD=0.89).
- Regression results are displayed in Table 3. Patient characteristics, including gender, age, behavior in the dental office and whether the patient had SHCN did not significantly predict SDF satisfaction $F(4, 74) = 2.075, p = 0.09$ [95% CI 1.69, 3.66].
- In the model to test the relationship between SDF treatment characteristics and SDF satisfaction, a thorough SDF explanation, a willingness to repeat treatment, and being shown an SDF example photo significantly predicted SDF satisfaction, $F(7, 74) = 9.96, p < .001$ [95% CI 2.04, 3.77].
- Factors that played into choosing SDF treatment (i.e., child's behavior, location of the tooth, type of tooth, and wanting to avoid OR visit) did not significantly predict SDF satisfaction $F(4, 76) = 1.13, p = 0.35$ [95% CI 3.59, 4.45] (results not shown). Parent or guardian concern about the appearance of the child's tooth after application also did not significantly predict SDF satisfaction $F(3, 77) = 1.31, p = .28$ [95% CI 3.15, 4.05] (results not shown).

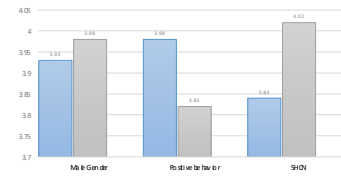
REGRESSION ANALYSIS TO PREDICT SDF SATISFACTION BASED ON PATIENT AND SDF CHARACTERISTICS

Model	Variable	95% CI for β		p value	ΔR^2
		LL	UL		
Patient Characteristics Model	Constant	1.69	3.66	.99	.05
	Male Gender	-.41	.41	.41	
	Child Age	-.03	.07	.01	
	Positive patient behavior in dental office	.07	.56	.57	
	Child has SHCN	-.32	.58	.99	
SDF Treatment Characteristics Model	Constant	2.04	3.77	.48	.44
	Past year SDF treatment	-.44	.21	.18	
	Pleased with SDF appearance	-.49	.85	.59	
	SDF on posterior tooth	-.03	.63	.08	
	SDF on primary tooth	-.56	.05	.09	
	SDF explained very well	.27	1.18	.01	
	Willing to repeat treatment	.48	1.10	.00	
	Shown SDF example photos	.22	1.45	.01	
	Child has SHCN	-.32	.58	.99	
	Child has SHCN	-.32	.58	.99	

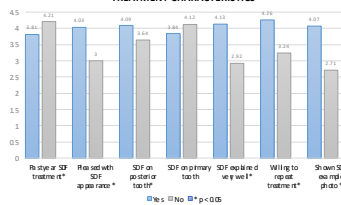
Note: Model^a = "Enter" method in SPSS; β = unstandardized regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; ΔR^2 = adjusted R^2 .

- T-test results revealed no significant differences in SDF satisfaction based on patient characteristics. In terms of treatment characteristics, those who had SDF more than a year ago had significantly higher SDF satisfaction scores (4.21 versus 3.81). In addition, those who had SDF on a posterior tooth had significantly higher mean SDF satisfaction scores (4.09 versus 3.64). Those who were explained SDF very well and those shown an example photo also had significantly higher mean SDF satisfaction scores (4.13 versus 2.92 and 4.07 versus 2.71, respectively).

MEAN DIFFERENCES IN SDF SATISFACTION BASED ON PATIENT CHARACTERISTICS



MEAN DIFFERENCES IN SDF SATISFACTION BASED ON SDF TREATMENT CHARACTERISTICS



CONCLUSIONS

- About half of the patients were female (51.2%), and more than half had special health care needs (61%). The parents and/or guardians most commonly (58.6%) had an education level of a college degree or higher.
- Most (70.7%) of the parents and/or guardians of the patients treated at with silver diamine fluoride at Nova Southeastern Universities Dental Clinics were either very satisfied or extremely satisfied with the treatment received.
- Nearly all (98.8%) parents and/or guardians understood that additional treatment may be needed in the future after application with SDF.
- Factors that did not have a significant impact on the overall parent and/or guardian's satisfaction of SDF treatment: patient characteristics, reasons for choosing SDF as a treatment option, and the parent or guardians concern about the appearance of the child's tooth after the application.
- Regression results indicate that those who were thoroughly explained SDF treatment and shown example photos were more satisfied ($p = .01$), suggesting that SDF satisfaction is related to parent's understanding of how the treatment is administered and the treatment consequences (black staining).
- If the child had treatment with SDF on a posterior tooth, the overall satisfaction with appearance was significantly higher than those treated with SDF on anterior teeth, likely because staining is less noticeable on a posterior tooth (4.09 vs 3.64).
- Those who had SDF more than a year ago had significantly higher SDF satisfaction scores (4.21 vs 3.81).
- The parents and/or guardians were pleased (4.03 vs 3) due to the use of visual aids given before the application with the appearance related to the use of treatment, likely because they knew what the treated sites would look like.
- Results illustrate that most parents and/or guardians were likely (69.5%) to choose SDF as a treatment option again for their child, suggesting that pediatric dentists should offer SDF as an option for treating carious lesions.
- Findings also highlight that SDF satisfaction is related to a thorough and detailed explanation of SDF treatment and its consequences prior to administration, thereby suggesting that pediatric dentists take extra time with parents and/or caregivers considering SDF treatment.

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