بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / حسام الدين محمد مغربي

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات : لا يوجد

"Comparison of Silver Modified and Conventional Atraumatic Restorative Treatment Modalities in Primary Molars in a Group of Egyptian School Children.

A Randomized Controlled Trial"

Thesis

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Dedication

To my family

My Dear Mom & Dad

Thank you for everything, I am here now because of you

To My lovely Sister,

My supportive husband

& Adorable Son

You are my backbone

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
GA	General anesthesia
MID	Minimal intervention dentistry
ART	Atraumatic restorative treatment
SDF	Silver diamine fluoride
SMART	Silver modified atraumatic restorative treatment
GIC	Glass ionomer cements
ECC	Early childhood caries
AAPD	American Academy of Pediatric Dentistry
GBD	*Global burden of disease*
USA	United States of America
YLDs	Years of healthy life lost due to disability
DMF	Decayed, missing, and filled
UAE	United Arab Emirates
SDH	Social determinants of health
FDI	World Dental Federation
DALYs	Disability-adjusted life years
FDA	The Food and Drug Administration
DFA	Dental fear and anxiety
RCT	Randomized controlled trial
NaF	Sodium fluoride

Abbreviation	Meaning
ADA	American Dental Association
DNA	Deoxyribonucleic acid
IRT	Interim restorative treatment
CONSORT	Consolidated Standards of Reporting Trials
ICMJE	International Committee of Medical Journal Editors
REC	Research Ethics Committee
FDASU	Faculty of Dentistry, Ain Shams University
UNESCO	United Nations Educational, Scientific and Cultural Organization
WBFPS	Wong-Baker Faces Pain Scale
USPHS	United States Public Health Services
CPI probe	Community periodontal index probe
FS	Faces Scale
SD	Standard deviation
COVID	The Coronavirus disease
WHO	World Health Organization

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INTRODUCTION

Oral diseases affect 3.5 billion people around the globe. It has been estimated that 2 billion people suffer from caries in the permanent dentition, while 520 million children have carious lesions in their primary dentition. [1] Epidemiological studies show that dental caries is still prevalent, especially in children from low socioeconomic communities. [2]

Consequences of untreated caries in children include increased risk of future decay in the primary and permanent dentitions in addition to pain and infections. Moreover, highly expensive emergency room visits, and extensive treatment costs are often required because of the potential need for general anesthesia (GA). Untreated dental caries may also cause a delay in development and growth; added to school and parental work absenteeism. [3,4]

Traditionally, carious lesions are managed using the conventional approach which requires sophisticated instruments including electrically driven handpieces and syringes for administration of local anesthesia. [5,6] Pharmacological interventions using sedation and GA are, also, a common practice when dealing with children having behavioral, psychological, or developmental disorders. However, as dental treatment under GA is not cost-saving and the risks of postoperative morbidities are relatively high [7], using alternative approaches that reduce the need for hospital admissions and GA is strongly recommended. [8]

Precisely, more accessible, effective, safe and affordable modalities that could be easily implemented in different settings to improve access to dental care for vulnerable populations should be tested in clinical trials.[9] The introduction of Minimal Intervention Dentistry (MID) has caused a revolution in dental caries management, particularly in young children. [10] Atraumatic

restorative treatment (ART) and Silver diamine fluoride (SDF) come under the umbrella of MID as they aim to maximize conservation of tooth structure with the least psychological impact on the child.[11]

SDF is described as a "silver- fluoride bullet" due to its ability to arrest tooth decay and simultaneously prevent the formation of new carious lesions. SDF is highly effective due to the combined benefits of bactericidal activity of silver nitrate, along with the remineralization efficacy of fluorides. [12] SDF is a non-surgical affordable approach, suitable for use in dental clinics as well as field settings. In addition, it could be a highly convenient treatment option for dental caries in children with behavioral challenges. However, SDF treatment causes a black unesthetic discoloration of the arrested lesion. Besides, it does not restore tooth form or function. [13,14]

On the other hand, while ART is a cost-effective minimally invasive procedure that is universally accepted by children, [15,16] the technique might be difficult to perform in cavities with limited accessibility and might cause hand fatigue when used for long periods. Besides, the survival of ART restorations in multi-surface cavities in primary teeth was found to be relatively unsatisfactory. [16] Also, it was found to be a time consuming technique, as cavity preparations using ART take twice as long as when using conventional rotary tools. [17]

Silver modified atraumatic restorative treatment (SMART) is a new technique which combines the use of SDF and glass ionomer cements (GIC) restorations. This novel approach brings together the capacity of SDF to kill bacteria with GIC's ability to seal the tooth and cut off nutrition needed for bacterial growth. Using SMART may promote caries arrest and enhance remineralization of tooth structure while maintaining pulp vitality.

Furthermore, the placement of GIC over SDF treated teeth can relatively mask the unesthetic discoloration caused by SDF.[18,19]

Against this background, the aim of the current study was to test the effectiveness of using SMART as a cost-effective minimally invasive alternative treatment approach for managing dental caries in primary molars.