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Assessment of School-age Children in the Gaza Strip  
Using Fissure Sealant  
In Reducing Dental Caries

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## **Dedication**

I would like to dedicate this work with deep love to my wife and children who endured a lot during the time of this study.

## Abstract

It is of particular interest that dental caries is largely a disease of pits and fissures of the teeth as opposed to lesions in smooth surface. The great need in the young population is to reduce or eliminate the carious process occurring in pits and fissures. Those areas include the occlusal or chewing surface of primary, permanent molars, and premolars.

Dental fissure sealant is important material in dealing with dental cavities and necessary because depression and groove on occlusal surface is smaller than the size of single bristle of tooth brush. This will not keep teeth so clean and become easy for plaque and food to be caught in pits and fissures. Applying sealant in a thin coated form covering occlusal surface makes it impossible for plaque and food to collect and therefore helps in decreasing the chance of decay. It maintains healthy mouth, which could last for twenty years and preventing the first attack of dental burs on tooth enamel and dentine.

The aim of this study was to assess school-age children using fissure sealant program to reduce dental cavities.

This was a case control study designed to assess the effectiveness of fissure sealant in reducing dental caries among 8 year-old children. Two hundred and nine (209) children had been treated with fissure sealant and compared with a similar number of children who did not have treatment with fissure sealant as a control group, in primary governmental school in the Gaza city.

There was a significant difference in all teeth treated with fissure sealant and those, which were not treated. The results showed that treated teeth had less decay than non-treated teeth. It has been a successful preventive method against teeth decay. Among treated children 5.5% had decay compared to 35% among those children who were not treated with fissure sealant. Dental caries was reduced by 84.3% among children who had applied fissure sealant. The sealant was fully retained in 75.1% of teeth after one year of sealant application, 2.5% retained it partially and 22.4% had a complete loss of sealant. Further studies are needed for future evaluation of fissure sealant to improve dental health service for school children in Palestine, and promote sealant use in schools.

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## Chapter 1 INTRODUCTION

### 1.1 Demographic Characteristics

The Gaza strip is a narrow zone of land, located on the south of Palestine, constituting the coastal zone of the Palestine territory along the Mediterranean Sea between Israel and Egypt. It is 50 kilometers long and 5-12 kilometers wide with an area of 362 square kilometers and an altitude of 0-40 meters above sea level (Appendix I).

There are five districts in Gaza strip: North, Gaza, Mid-zone, Khan Younis, and Rafah. In these five districts, there are four towns, eight refugee camps, and fourteen villages. The population in the Gaza strip has been estimated at 1,000,175 inhabitants in 1997. More than 17 percent of the population reside in the North of Gaza, 51 percent in the central area and 32 percent in the southern area (Palestinian MOH, 1997).

The population pyramid in Palestine has a wide base with 47% of the total Population is children under 15 years old, only 5.2% of the population are over 60 years. (Appendix II Population Pyramid).

Density rate varies; it is estimated at 3000 people per one square kilometer.

It was estimated that the natural increase dropped remarkably in Palestine from 5.2% 1994 to 3.1 % 1997 due to the decrease in birth rate.

The crude birth rate in Palestine was 34.4 per thousand in 1997. It was slightly decreased during the years (1995-1997) compared to the years (1987-1994) due to instability of the policies in the area and the previous absence of relevant intervention policies. 105 live births are born daily (about 10-11 per hour) in the Gaza Strip.

In 1997 the total fertility rate (TFR) has been estimated at 6.01 births per woman compared with 7.4 birth per woman in 1993. Woman of child bearing age (15-49 years) comprise 21% of the total population (Palestinian MOH Annual Report, 1997).