The Research of Medical Science Review
ISSN: 3007-1208 & 3007-1216 Volume 4, Issue 6, 2026

THE CORRELATION BETWEEN SOCIOECONOMIC STATUS AND CHILDREN DENTAL CARIES KHOST AFGHANISTAN

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DOI: https://doi.org/10.5281/zenodo.20960911

Keywords
Dental caries, socioeconomic, health, children, Khost

Article History
Received: 24 April 2026
Accepted: 06 June 2026
Published: 21 June 2026

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Abstract

Dental caries is one of the most common diseases around the world. Socio-economic factor significantly effects dental health particularly in children. The article aims to investigate correlation between socioeconomic status and dental caries in children in Khost province of Afghanistan. Cross-sectional research design is adopted to the study, while the data is collected through interviews from two categories of the research sample. The population of the study is divided in to two categories based on Decayed, Missing, and Filled Teeth (DMFT) measurement which carries the low- and high-level socio-economic status. The result of the study demonstrate that the two categories of the research population have different dental carries. Parents' education and occupation, good housing, instructions for children about oral hygiene and accessibility of heath facility are the main factors that can prevent children from dental caries. The finding of the research will help health practitioners and professionals to decrease carries incidence in children. It will assist the health administrative to make dental caries preventive plans and policies for long-term health care in the province and in general in the country.

INTRODUCTION

Dental caries is one of the most common diseases worldwide; children are particularly affected. According to World Health Organization (WHO), dental caries is a chronic infectious, multifactorial disease that causes demineralisation of the tooth's mineral tissue and destruction of the tooth's soft tissue. It's more likely to happen gradually in low- and middle-income countries. Dental caries does not only affect children's oral and dental health, but also their feeding, socio-psychological status, and education.

Researches show that 53% of children have caries in their secondary teeth and 46% in their primary teeth. In low income countries more than 89% of dental cares cases are reported to remain untreated due to limited access to dental health facilities. The global health study ranks untreated dental caries as one of the more common health condition worldwide. The primary dental caries cause and impact a significant proportion of children under six years of age in low income countries.

Furthermore, in Afghanistan, a country that has been affected by poverty and security for several decades, sufficient actions to address this problem has not been taken yet. This disease is spreading so fast and rising day by day around the country. In Afghanistan children caries is currently one of the most common disease that affected their oral and dental health and untreated primary dental caries can affect their secondary teeth and may cause a lot of oral health problems in the future. Limited access to dental services is one of the most important factors to contributing the increasing prevalence of children carries especially rural areas

of Afghanistan that children are completely deprived from dental care services.

Socioeconomic status is a factor that depend to environment, therefore it will be investigated according to the specific environment. In this article, the correlation between SES and children's dental caries in the targeted population is examined. Here, people's SES affects oral and dental health; this finding is similar to the findings mentioned in the international research.

Aims and significant of the study:

This article aims to clarify that the several decade civilian war and insecurity, and a low economic situation in Afghanistan, have caused inadequate attention to dental-related issues. Besides this, dental related field of stomatology is in its primary stage and health practitioners don't have adequate information about this field and dental caries. To reduce this crisis, nobody or nowhere applies research or investigation activities. In this article, children's caries and SES status have been investigated, as SES is a common risk factor of dental caries. This research explains that good SES has a key role in healthy teeth in children. This research finding will help healthcare professionals, especially oral health practitioners, in decreasing caries incidence in children. And health administrative personnel can make plans based on this finding for upcoming caries preventive strategies.

Literature review

We mentioned that dental caries is a multifactorial disease, and some international researchers have found that socioeconomic status affects dental health(Costa et al., 2012), and this correlation is evident. Retrospective study conducted of nationwide dental records of school going children over 8 years in 2021 in Singapore to identify childhood factors to associated with dental caries incidence in their teeth, study find that both clinical and socio demographic factors associated with dental caries incidence in children(Tan et al., 2021).A study has demonstrated in Brazil in 2003 about to investigate the association between children dental caries and town level indices of socioeconomic development, study found that town level indices of SES are significantly correlated with dental caries indices(Aurélio Peres et al., 2003). A study investigate various mental disorders and SES are discussed as risk factor for children caries in Austria in 2019 they examine tow category of children caries group and non caries group, study found that SES is the strongest influencing factor that mediates this association. difficult SES might predispose for both dental caries and mental illness(Knoblauch et al., 2019). As Above mention studies discussed the correlation, this article result also emphasize that SES is significantly associated to children dental caries.

Study methodology:

This is a cross-sectional study that same time, examines SES observation and dental caries incidence in schoolchildren. The article data was collected from tow difference way. The first hand data is collected from the targeted population in the southeast province of Afghanistan (Khost city) this population between (3-12) year old children was categorised into two parts: the first one is private schoolchildren that has high fees for their school, and usually high SES children are presented here. Among these schoolchildren, 50 students were examined and interweaved face to face. The general oral examination procedure is enforced in a normal temperature and good light system room of the school. This oral examination procedure was carried out by the Afghanistan medical council registered professional's stomatolog doctors. The second category population is examined and interviewed in a village enclosure area in Khost city, a community where people face various challenges in receiving the first health aid and facilities. This village was built in a government area, and people life was very simple; their house building was limited and irregular. This category of people had a low SES from this category; 70 children were examined and interviewed face-to-face. In this data collection, the general oral examination procedure, we use dental-examination instruments (mouth mirror, explorer/sound and light). The interview was organised following the questionnaire.

For better understanding and investigation we also use secondary data it was international studies. For this data related to the subject we seek in

difference websites and authentic journals. SES and their correlation to children's dental caries are defined based on parents' education level, occupations, housing, accessibility to health facilities, food and water source system and children's knowledge about health equipment. Caries measurement performed by the DMFT international index. This index use according WHO standards, and exclusion or inclusion criteria are defined based this standards. For the analysis of this data, SPSS software use and analyse with the best methods.

Research ethics:

For the collection of data from the mentioned two categories, a formal written manner suggestion to the relevant authority is made by explaining the title of the article. After the agreement, we start data collection.

Result of the study:

In this study a total of 112 participants were included in the study the main age was 3-12 year old schoolchildren. Both male and female investigated 70% of this population was male and 30% was the female. The two categories of this population have different dental caries. The first category examined and interviewed schoolchildren who have a high SES, with a dental caries level of 1.5, based on DMFT measurement. The second category, who have low SES the dental caries level of 2.5 based on DMFT. For calculation of DMFT we collect each group DMFT score and then we divide this score to related group participants. The difference the main DMFT score among the tow group was statistically significant ($p<0.05$). Based on findings from international studies and our own observations, socioeconomic status is one of the most important factors affecting children's dental health that has not been investigated in Afghanistan. In this article, the socioeconomic status investigate similar way to Afghanistan currently situations and study difference and essential dimensions of SES using a clear questionnaire that specify in methodology. According to the result, the SES in Afghanistan correlates with children's dental caries, and SES status is one of the risk factors for dental caries in children.

Mashal private high school

number	School	Parents education	Parents occupations	Crowding per room	Sugar consumption	Tooth brushing	Frequency of dental visits	DMFT
1)	Private	Higher	Self-employed	<5	1<daily	Once daily	Only pain	0
2)	Private	Secondary	Self-employed	<5	Daily	Twice day	Never	1
3)	Private	Higher	employed	<5	Rarely	Twice day	Only pain	0
4)	Private	NO	Self-employed	<5	1-3 /week	Once daily	Only pain	1
5)	Private	Higher	employed	<5	Daily	Twice day	Never	0
6)	Private	Higher	Self-employed	<5	1<daily	Twice day	Only pain	1
7)	Private	Intermediated	Self-employed	<5	Daily	Twice day	Only pain	2
8)	Private	Intermediated	Self-employed	<5	1-3 /week	Twice day	Only pain	0
9)	Private	Higher	Self-employed	<5	1-3 /week	Twice day	Never	1

10)	Private	Intermediated	Self-employed	<5	1-3 /week	Twice day	Never	0
11)	Private	Higher	Self-employed	<5	1-3 /week	Twice day	Never	3
12)	Private	Higher	employed	<5	1<daily	Once daily	Never	3
13)	Private	NO	Self-employed	<5	Daily	Twice week	Never	0
14)	Private	Intermediated	Self-employed	<5	Daily	Twice week	Only pain	0
15)	Private	Higher	Self-employed	<5	1<daily	Never	Only pain	1
16)	Private	Higher	Self-employed	<5	Daily	Never	Never	4
17)	Private	Higher	Self-employed	<5	1<daily	Twice week	Only pain	2
18)	Private	Higher	Self-employed	<5	Daily	Twice week	Never	0
19)	Private	Higher	Self-employed	<5	1<daily	Twice daily	Never	3
20)	Private	Higher	Self-employed	<5	1-3 /week	Never	Never	9
21)	Private	Higher	Self-employed	<5	Daily	Twice week	Never	5
22)	Private	Higher	Self-employed	<5	Daily	Twice week	Never	0
23)	Private	Secondary	Self-employed	<5	1<daily	Twice week	Never	0
24)	Private	NO	Self-employed	<5	1-3 /week	Never	Never	2
25)	Private	Higher	Self-employed	<5	daily	Twice week	Never	2
26)	Private	Secondary	Self-employed	<5	1-3 /week	Never	Never	0
27)	Private	Higher	Self-employed	<5	1<daily	Twice daily	Never	2
28)	Private	Intermediated	Self-employed	<5	1-3 /week	Twice daily	Only pain	0
29)	Private	Secondary	Self-employed	<5	1-3 /week	Once daily	Only pain	1
30)	Private	Secondary	Self-employed	<5	1-3 /week	Once daily	Never	0
31)	Private	NO	Self-employed	5-8	Rarely	Once daily	Only pain	2
32)	Private	NO	Self-employed	<5	daily	Twice daily	Only pain	2
33)	Private	NO	Self-employed	5-8	Rarely	Once daily	Only pain	0

34)	Private	NO	Self-employed	<5	Rarely	Once daily	Every 6 months	0
35)	Private	Secondary	Self-employed	<5	1<daily	Once daily	Only pain	0
36)	Private	NO	Self-employed	<5	daily	Twice daily	Only pain	0
37)	Private	NO	Self-employed	<5	1-3 /week	Twice daily	Only pain	1
38)	Private	NO	Self-employed	<5	daily	Once daily	Only pain	1
39)	Private	NO	Self-employed	<5	daily	Once daily	Only pain	0
40)	Private	Intermediated	Self-employed	<5	Rarely	Twice daily	Only pain	0
41)	Private	Intermediated	Self-employed	<5	Daily	Once daily	Only pain	2
Total	51=1.2439							

Wacha khora village

number	School	Parents education	Parents occupations	Crowding per room	Sugar consumption	Tooth brushing	Frequency of dental visits	DMFT
42)	Public	NO	Self-employed	<5	1<daily	Never	Never	5
43)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
44)	Public	NO	Self-employed	>8	1<daily	Never	Never	3
45)	Public	NO	Self-employed	>8	1<daily	Never	Never	6
46)	Public	NO	Self-employed	>8	1<daily	Never	Never	4
47)	Public	NO	Self-employed	<5	1<daily	Never	Never	0
48)	Public	NO	Self-employed	<5	Daily	Never	Never	2
49)	Public	NO	Self-employed	5-8	1-3 /week	Never	Never	1
50)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
51)	Public	NO	Self-employed	5-8	1<daily	Never	Never	4
52)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
53)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
54)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2

55)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
56)	Public	NO	Non-employed	>8	1<daily	Never	Never	4
57)	Public	NO	Self-employed	5-8	1<daily	Never	Never	4
58)	Public	NO	Self-employed	>8	1<daily	Never	Never	2
59)	Public	NO	Non-employed	>8	Daily	Never	Never	0
60)	Public	NO	Self-employed	>8	1<daily	Never	Never	2
61)	Public	NO	Non-employed	5-8	Daily	Never	Never	4
62)	Public	NO	Non-employed	>8	1<daily	Never	Never	6
63)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
64)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
65)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
66)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
67)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
68)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
69)	Public	NO	Self-employed	5-8	Daily	Never	Never	1
70)	Public	NO	Self-employed	5-8	1<daily	Never	Never	6
71)	Public	NO	Self-employed	>8	1<daily	Never	Never	0
72)	Public	NO	Self-employed	<5	1<daily	Never	Never	0
73)	Public	NO	Self-employed	<5	1<daily	Never	Never	0
74)	Public	NO	Self-employed	5-8	1<daily	Never	Never	3
75)	Public	NO	Self-employed	>8	1<daily	Never	Never	0
76)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
77)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
78)	Public	NO	Self-employed	>8	1<daily	Never	Never	2

79)	Public	NO	Self-employed	>8	1<daily	Never	Never	5
80)	Public	NO	Self-employed	5-8	1<daily	Never	Never	4
81)	Public	NO	Self-employed	>8	1<daily	Never	Never	2
82)	Public	NO	Self-employed	<5	1<daily	Never	Never	4
83)	Public	NO	Self-employed	<5	1<daily	Never	Never	4
84)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
85)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
86)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
87)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
88)	Public	NO	Self-employed	>8	1<daily	Never	Never	1
89)	Public	NO	Self-employed	>8	1<daily	Never	Never	3
90)	Public	NO	Self-employed	>8	1<daily	Never	Never	4
91)	Public	NO	Self-employed	5-8	1<daily	Never	Never	7
92)	Public	NO	Self-employed	5-8	1<daily	Never	Never	4
93)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
94)	Public	NO	Self-employed	5-8	1<daily	Never	Never	0
95)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
96)	Public	NO	Self-employed	5-8	daily	Never	Never	2
97)	Public	NO	Self-employed	>8	1<daily	Never	Never	3
98)	Public	NO	Self-employed	>8	daily	Never	Never	2
99)	Public	NO	Self-employed	5-8	1<daily	Never	Never	7
100)	Public	NO	Self-employed	>8	1<daily	Never	Never	2
101)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
102)	Public	NO	Self-employed	5-8	1<daily	Never	Never	3

103)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
104)	Public	NO	Self-employed	5-8	1<daily	Never	Never	4
105)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
106)	Public	NO	Self-employed	5-8	daily	Never	Never	2
107)	Public	NO	Self-employed	5-8	daily	Never	Never	7
108)	Public	NO	Self-employed	5-8	1<daily	Never	Never	9
109)	Public	NO	Self-employed	5-8	1<daily	Never	Never	2
110)	Public	NO	Self-employed	5-8	1<daily	Never	Never	4
111)	Public	NO	Self-employed	5-8	1<daily	Never	Never	12
112)	Public	NO	Self-employed	5-8	1<daily	Never	Never	1
Total	184=2.59							

Discussion:

The results of the study show that SES and children's dental caries have a clear correlation; this correlation is inverse. Other international research also shown that SES affect children's dental caries and shows that low SES is a risk factor for dental caries. High SES can prevent dental caries incidence. In the SES profile, parents' education is an important factor that educator parents prepare their children mentally for individual oral hygiene. They are the best supporter for their children, and they can transfer personal responsibility gradually to their children with kind communication(Perpelea et al., 2024). Educators' parents can design a food schedule for their daily food. According to this schedule, children can have access require food on right time. Though parents' occupation, especially the mother may cause inadequate care for their children, parents' occupation can support family income, and this is essential for better housing and enough food. Besides this, the occupied parent needs to take care of their oral hygiene before leaving the house, and this hygiene routine can affect children's oral hygiene practices. The type of school is another main factor in the SES profile. Despite other SES, the school type is another indicator of the SES study conducted that children of public schools presented significantly higher prevalence of dental caries, research conducted in brazil 2011 (Piovesan et al., 2011).In Afghanistan, private high schools have more facilities for schoolchildren than public high schools. Besides educational activities, they design multi-disciplinary programs relevant to oral hygiene and teeth. And a lot of instructional programs for children help to encourage children and actualise every morning. Schools' instruction programs also give information about healthy and better food and its components to schoolchildren to avoid dental caries. Finally, people's health facilities and accessibilities is another factor in SES, to avoid different oral and dental diseases every 6 month after should visit the dentist. A study conducted in Brazil found that residing in more affluent areas is associated with better oral health outcomes in 2025(Goulart et al., 2025), another study show in India that area of the residence appear to be very strong and significant determinates for and adolescent to be caries free in 2014(Mathur et al., 2014) People's limitation to health facilities can disturb the oral and dental health, and untreated

primary dental caries is a risk factor for permanent dental caries or other oral diseases, study in USA show SES disparities US adults persisted with consistently higher caries in disadvantage groups(Boyajyan et al., 2025). This article's findings show the second category population doesn't have access to health facilities like public hospitals, dental clinic and consulting centres, their dental caries DMFT was high.

Research limitation:

There are some limitations of study, first this article is cross-sectional that show the SES status has association and risk factors for dental caries, for finding of SES is cause of dental caries it should be apply case control studies. second limitation of the study the DMFT index, some children missing tooth ware confusion for cause of missing when that is missing due to caries or other factors.

Recommendation:

1 For solving this problem in children WHO and different countries actively participant and take some strategies for solving this problem they made health centres in schools and their living area and made easy access to health facilities they design difference educational programs to schoolchildren like oral hygiene, tooth brushing methods, how to use and accept health facilities, consulting centres for consulting health issues and children actively join this programs and take a part their oral hygiene practices for healthy teeth. Similarly this in Afghanistan health government will prepare the health facilities to children to avoid dental caries problems.

2 This correlation will be investigated in future by case control to clearly find that SES is one of the cause of dental caries.

3 Other researchers will investigate other sides or dimensions of SES.

4 Stakeholders will take this result for the upcoming dental caries preventive plans.

Conclusion:

Based study finding the Parents' education and occupation, good housing, instructive programs for children about oral hygiene and accessibility of heath facility factors that can prevent children from dental caries. Children require information and support from their parents to manage and care for their oral hygiene. Educated parents can easily manage this part. Children with good household income, health facilities, and good housing are another factor to cause best attention to children.

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