

## Salutogenesis: A New Approach toward Oral Health Promotion

### Abstract

**Introduction:** Sense of coherence (SOC) is hypothesized to be an important psychological factor that enables people to cope with stressors and successfully maintain and improve health. Very few publications report on the relationship between “salutogenesis,” as measured by the concept of SOC and oral health status. However, little is known about the relationship between the mother’s SOC and dental caries of their children. **Aims and Objectives:** The aim of the present study was to explore the impact of mother’s SOC level on dental caries status of their children. **Materials and Methods:** A school-based cross-sectional study was conducted with the children aged 4–8 years attending public school ( $n = 200$ ). Questionnaires were applied to mothers to obtain level of SOC. Dental caries status in children was assessed using decayed, missing, filled tooth surfaces (DMFS) and/or dmfs index. One-way analysis of variance *F*-test and *post hoc* Tukey test were used to assess the effect of mother’s SOC level on their children’s caries dmfs index. **Results:** Mean of dmfs and/or DMFS in children showed statistically significant relation with their mother’s SOC level ( $P < 0.01$ ). On intergroup comparison, significant ( $P < 0.01$ ) difference was found when mean of dmfs and/or DMFS with mothers having low SOC and high SOC was compared. However, there was no significant relation when mean was compared to mothers with medium and low SOC. **Conclusion:** Dental caries of children gets influenced by mother’s SOC level. There was an inverse relationship between mother’s SOC level and their children dental caries status.

**Keywords:** Decayed, missing, filled tooth surfaces, oral health promotion, sense of coherence, stress

### Introduction

Oral health is a standard of health of the oral and related tissues, which enables an individual to eat, speak, or socialize without active disease, discomfort, or embarrassment and which contributes to general well-being.<sup>[1]</sup> One goal for dental professionals is to achieve oral health for the individual through prevention and promotion,<sup>[2]</sup> and the global goals for oral health in 2020 include the “development of oral health programs that will empower people to control determinants of health” and “integrate oral health promotion and care with other sectors that influence health, using the common risk factor.”<sup>[3]</sup> The Ottawa Charter is the key policy document of the international health promotion movement and it has recently been applied to salutogenic theory as it focuses on developing the determinants of health and the way health is created.<sup>[4]</sup>

Cognitive, behavioral, and motivational factors are important when working with

oral health promotion.<sup>[5]</sup> Working with health care, focusing on positive factors, i.e., resources, rather than negative factors, has been shown to be a better way to attain health and a salutogenic approach means focusing on the individual’s resources instead of risk factors.<sup>[6]</sup>

The concept of salutogenesis (saluto = health; genesis = origin) was proposed in 1979 by Antonovsky.<sup>[7]</sup> A fundamental thought of the salutogenic theory concerns the sense of coherence (SOC). SOC reflects a person’s life view and capacity to respond to stressful situations.<sup>[8]</sup> It has been suggested that the salutogenic theory and the concept of SOC is a useful psychosocial framework in oral health promotion<sup>[9]</sup> as it focuses on the ability to use resources in spite of different stressors and a problem-orientated approach.<sup>[10]</sup> The theory can also be useful as a guide to understand different life choices that people make and the pathways they pursue. Using the salutogenic approach in oral health promotion also contributes to strengthening community actions, re-orienting health

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services, building healthy public policies, and creating supportive environments.<sup>[5,11]</sup> Dental professionals could act as a catalyst to empower their patients not only by increasing internal and external resources but also by being active in creating new external resources within society, aiming to increase the opportunity for the individual to make healthy choices.<sup>[11]</sup>

Dental caries has been described as a social disease as their formation is associated with biological, dietary, behavioral, and socioeconomic factors, as well as access to consumer goods and health services.<sup>[12]</sup> Although numerous studies have showed correlation between oral health and social factors such as family income, mother’s education, number of children in family, and other variables.<sup>[13]</sup> Moreover, it has been proved that social changes ultimately lead to changes within the family and women are considered as the reference person in the family. In this scenario, the mother assumes a central role in the formation, transmission, and environmental conservation and social development of other family members, especially her children. It is therefore likely that the health of both the mother and child is similar or is linked to social determinants, given that they live in the same social context. However, little is known about the relationship between the mother’s SOC and dental caries of their children. Many publications reported on relationship between salutogenesis as measured by the concept of SOC and individual overall health. Cross-sectional studies in Finland,<sup>[14]</sup> Sweden,<sup>[15]</sup> and Canada<sup>[16]</sup> showed a positive association between strong SOC and good self-perception of health. An association between SOC and oral health has also been found where strong SOC in adolescents was associated with lower odds of experiencing caries in anterior teeth.<sup>[17]</sup> However, most of these studies have been done in western and industrialized countries, and hence, a new approach assessing impact of mother’s SOC level on their children’s dental caries status has been attempted to be done to promote oral health in children.

Therefore, the present study was aimed to correlate mother’s SOC with dental caries status of their children from Punjab and to discuss the salutogenic theory and its application to oral health promotion.

**Material and Methods**

The present study comprised 200 children between age groups of 4–8 years belonging to a public school and their mothers from Punjab. Ethical approval was obtained from the respective Ethical Committee, and informed consent was obtained from each subject. The survey included dental examination of children, and the decayed, missing, filled tooth surfaces index (dmfs/DMFS) was assessed for each child by a single examiner using disposable mouth mirror and probe under natural lighting in their respective school.

In addition to clinical examination, SOC was measured with Punjabi version of Antonovsky’s SOC scale comprising 13

items. The SOC questionnaire consists of three dimensions: comprehensibility (five items), manageability (four items), and meaningfulness (four items). Every item was scored on a Likert scale ranging from 1 to 7. Before calculating the total score, the scores from questions number 1–3, 7, and 10 must be changed to a reverse ranking, i.e., from 7 to 1. The sum of the scores for SOC is 13–91.<sup>[18]</sup>

The questionnaire for measuring SOC was given to the children on the same day and was instructed to get them filled by their mothers. On the next day, questionnaire was collected from them and scoring was done by another examiner. The collected data were then correlated statistically with one-way analysis of variance *F*-test and *post hoc* Tukey test.

**Results**

To compare individuals with high and low SOC scores, the individuals’ total SOC scores which can be from 13 to 91 were divided into tertiles, (*t*) with *t*<sub>1</sub>/low <66 (*n* = 78), *t*<sub>2</sub>/medium = 67–75 (*n* = 49), and *t*<sub>3</sub>/high >76 (*n* = 73).

Of total 200 sample sizes, 78 children had primary dentition and 122 children were of mixed dentition; therefore, dmfs and DMFS were applied accordingly. It was seen that with increasing levels of mother’s SOC, children’s dmfs/DMFS score decreases [Tables 1 and 2]. On intergroup comparison, a significant difference was found between *t*<sub>1</sub> and *t*<sub>2</sub> and between *t*<sub>1</sub> and *t*<sub>3</sub>, but no significant difference was seen between *t*<sub>2</sub> and *t*<sub>3</sub>, i.e., mothers having low and high SOC on comparison gave significant difference (<0.05) when their children’s mean dmfs/DMFS was compared

**Table 1: Comparison of the means of decayed, missing, filled tooth surfaces score of all children in different levels of their mother’s sense of coherence**

Mother’s SOC level	Number of children	Children’s mean dmfs
1.00	78	22.70±16.38
2.00	49	3.75±6.76
3.00	73	0.89±2.67
Total	200	10.10±14.86

dmfs: Decayed, missing, filled tooth surfaces; SOC: Sense of coherence

**Table 2: Comparison of the mean of decayed, missing, filled tooth surfaces score of children in different levels of their mother’s sense of coherence level**

Mother’s SOC level	Number of children	Children’s mean DMFS
1.00	48	3.70±2.93
2.00	31	1.16±1.15
3.00	43	0.39±0.58
Total	122	1.89±2.45

SOC: Sense of coherence; DMFS: Decayed, missing, filled tooth surfaces

**Table 3: Intergroup comparison between means of decayed, missing, filled tooth surfaces score of all children in different levels of their mother’s sense of coherence**

Mother’s SOC level	Level of significance
1.00	
2.00	0.000*
3.00	0.000*
2.00	
1.00	0.000*
3.00	0.331
3.00	
1.00	0.000*
2.00	0.331

\*The mean difference is significant at the 0.05 level. SOC: Sense of coherence

**Table 4: Intergroup comparison between means of decayed, missing, filled tooth surfaces score of children in different levels of their mother’s sense of coherence**

Levels of SOC	Level of significance
1.00 (r1)	
2.00	0.000*
3.00	0.000*
2.00 (r2)	
1.00	0.000*
3.00	0.228
3.00 (r3)	
1.00	0.000*
2.00	0.228

\*The mean difference is significant at the 0.05 level. SOC: Sense of coherence

[Tables 3 and 4]. However, there was no significant relation on comparison of dmfs/DMFS between mothers with medium and high SOC.

### Discussion

Oral diseases are public health problems because of their extensive prevalence and the high costs of providing oral health services. General health also gets affected by oral health which in turn has impact on quality of life. A recent shift has taken place in public health and oral health promotion approaches, focusing on social and environmental determinants of health that are likely to improve oral health of individuals and populations. These broader approaches use information from social capital and the salutogenic model. Salutogenesis searches for “the origin of health” rather than focusing on the cause of disease. This philosophical “salutogenic” question of what creates health was raised by a sociologist Aaron Antonovsky (1923–1994)<sup>[7]</sup> and is considered as a key term in public health promotion. since mothers are front line of health care, the future of healthy society depends on health of children and their mothers. For centuries, care for childbirth

and young children was regarded as a domestic affair, the realm of mothers and midwives. In the 20<sup>th</sup> century, the health of mothers and children was transformed from a purely domestic concern into a public health priority with corresponding responsibilities for the state. One of the core functions assigned to the World Health Organization in its Constitution of 1948 was “to promote maternal and child health and welfare.”<sup>[19]</sup> In this more politicized view, women’s relative lack of decision-making power and their unequal access to employment, finances, education, basic health care, and other resources are considered to be the root causes of their ill health and that of their children. The health of mothers is a major determinant of that of their children and thus indirectly affects the formation of human capital. Motherless children die more frequently, are more at risk of becoming malnourished and less likely to enroll at school.<sup>[20]</sup> Healthy children are at the core of the formation of human capital. Hence, it can be suggested that there can be relationship between mothers’ SOC and oral health-related quality of life also.

A varied literature show positive association between strong SOC and good self-perception of health and stronger SOC correlated with fewer subjective complaints and symptoms of illness. However, most of these studies had been conducted in developed or industrialized countries. Hence, this study was performed to see the correlation between mother’s SOC and dmfs/DMFS of their children in Indian population of north region.

The present study was conducted in a school where dmfs/DMFS of children was assessed along with their mother’s SOC with the help of questionnaire. The results showed an inverse relation between mother’s SOC levels and their children’s oral health status (dmfs/DMFS). The results were in parallel with other studies which have confirmed that strong SOC in adolescents was associated with lower odds of experiencing caries in anterior teeth.<sup>[21]</sup> Significant inverse associations were also found between mothers’ SOC and children’s levels of dental caries and gingival bleeding.<sup>[22]</sup> Other studies have shown a positive relationship between strong SOC and oral health-related quality of life,<sup>[23]</sup> frequency of tooth brushing,<sup>[24]</sup> as well as pattern and frequency of dental attendance,<sup>[25]</sup> dental anxiety, and dental caries.<sup>[26]</sup> Therefore, it is essential to strengthen the available general resistance resources, to create better ones, and to enable people to identify and benefit from them. Although salutogenesis is focused on resources and people’s capacity to tap solutions in their lives and under adversity, it does not mean that material deprivation and divisions are irrelevant. A more egalitarian society is one that maximizes the resources and capabilities of all citizens.

### Conclusion

Intervention designed to improve or maintain the oral health of young people/children should take into consideration the

family environment which significantly influences their tooth brushing behavior.

It may be possible to strengthen SOC by early life interventions. Therefore, dental education for children should be started at early ages so that children would not develop negative relationship (low SOC) toward dental procedures and to deliver a good dental care. Further, more preventive aspects also could be taken to improve oral health status.

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### Conflicts of interest

There are no conflicts of interest.

### References

- Department of Health. An Oral Health Strategy for England. London: DoH; 1994. Kent G, CR, editors. Achieving Oral Health: The Social Context of Dental Care. Edinburgh: Wright; 2001.
- Darby ML, Walsh MM. Dental Hygiene Theory and Practice. 2<sup>nd</sup> ed Missouri: Saunders; 2003.
- Hobdell M, Petersen PE, Clarkson J, Johnson N. Global goals for oral health 2020. *Int Dent J* 2003;53:285-8.
- WHO. The Ottawa Charter for Health Promotion: An International Conference on Health Promotion, the Move Towards a New Public Health; Geneva: WHO; 1986.
- Daly B, Watt R, Batchelor P, Treasure E. Essential Dental Public Health. Oxford: Oxford University Press; 2002.
- Eriksson M. Unravelling the Mystery of Salutogenesis. The evidence base of the salutogenic research as measured by Antonovsky's Sense of Coherence Scale. Doctoral thesis. Folkhälsan Research Centre, Health Promotion Research Programme, Research Report 2007:1Turku; 2007.
- Antonovsky A. Health, Stress and Coping. London: Jossey-Bass; 1979.
- Lindström B, Eriksson M. Salutogenesis. *J Epidemiol Community Health* 2005;59:440-2.
- Newton JT, Bower EJ. The social determinants of oral health: New approaches to conceptualizing and researching complex causal networks. *Community Dent Oral Epidemiol* 2005;33:25-34.
- Lalonde M. A New Perspective on the Health of Canadians. Ottawa: Health and Welfare; 1974.
- da Silva AN, de Mendonca MH, Vettore MV. A salutogenic approach to oral health promotion. *Cad Saude Publica* 2008;24:521-30.
- Frias AC, Antunes JL, Junqueira SR, Narvai PC. Individual and contextual determinants of the prevalence of untreated caries in Brazil. *Rev Panam Salud Publica* 2007;22:279-85.
- Fracasso Mde L, Rios D, Provenzano MG, Goya S. Efficacy of an oral health promotion program for infants in the public sector. *J Appl Oral Sci* 2005;13:372-6.
- Suominen S, Blomberg H, Helenius H, Koskenvuo M. Sense of coherence and health: Does the association depend on resistance resources? A study of 3115 adults in Finland. *Psychol Health* 1999;14:937-48.
- Nilsson B, Holmgren L, Westman G. Sense of coherence in different stages of health and disease in Northern Sweden – Gender and psychosocial differences. *Scand J Prim Health Care* 2000;18:14-20.
- Forbes DA. Enhancing mastery and sense of coherence: Important determinants of health in older adults. *Geriatr Nurs* 2001;22:29-32.
- Freire MC, Sheiham A, Hardy R. Adolescents' sense of coherence, oral health status, and oral health-related behaviours. *Community Dent Oral Epidemiol* 2001;29:204-12.
- Antonovsky A. Hälsans Mysterium. (Swedish translation of the original Unraveling the mystery of health: How people manage stress and stay well). Stockholm: Natur och Kultur, 1991
- World Health Organization. Constitution of the World Health Organization, Article 2. Geneva: World Health Organization; 1948.
- Strong MA. The Effects of Adult Mortality on Infant and Child Mortality. Unpublished Paper Presented at the Committee on Population Workshop on the Consequences of Pregnancy, Maternal Morbidity and Mortality for Women, their Families, and Society, Washington, DC; 19-20 October, 1998.
- Freire MC, Sheiham A, Hardy R. Adolescents' sense of coherence, oral health status, and oral health-related behaviours. *Community Dent Oral Epidemiol* 2001;29:204-12.
- Freire M, Hardy R, Sheiham A. Mothers' sense of coherence and their adolescent children's oral health status and behaviours. *Community Dent Health* 2002;19:24-31.
- Savolainen J, Suominen-Taipale AL, Hausen H, Harju P, Uutela A, Martelin T, *et al.* Sense of coherence as a determinant of the oral health-related quality of life: A national study in Finnish adults. *Eur J Oral Sci* 2005;113:121-7.
- Savolainen JJ, Suominen-Taipale AL, Uutela AK, Martelin TP, Niskanen MC, Knuutila ML, *et al.* Sense of coherence as a determinant of toothbrushing frequency and level of oral hygiene. *J Periodontol* 2005;76:1006-12.
- Savolainen J, Knuutila M, Suominen-Taipale L, Martelin T, Nordblad A, Niskanen M, *et al.* A strong sense of coherence promotes regular dental attendance in adults. *Community Dent Health* 2004;21:271-6.
- Viswanath D, Krishna AV. Correlation between dental anxiety, sense of coherence (SOC) and dental caries in school children from Bangalore North: A cross-sectional study. *J Indian Soc Pedod Prev Dent* 2015;33:15-8.