



## Common Risk Factor Approach for Oral Diseases- A SWOT Analysis

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### Abstract

Non Communicable Diseases (NCD) are on a rising trend in developed and developing world. Oral diseases are now considered as public health problem due to its effect on quality of life. Both these diseases are having many epidemiological similarities. Classical method of disease prevention and control strategies are not applicable there. Due to the presence of similar determinants in disease formation, a new method called- common risk factor approach is devised as a preventive strategy for them. The method aims to control risk factors which are common to NCDs and oral diseases.

The method is based on principles of health promotion and is cost effective, but at the same time it has a many limitations too. The method have limited evidence regarding its application, hence it should be practiced with caution.

**Keywords:** Risk Factor; Oral Diseases; NCDs

### Introduction

Of 56.9 million global deaths in 2016, 40.5 million, or 71%, were due to noncommunicable diseases (NCDs). The four main NCDs are cardiovascular diseases, cancers, diabetes and chronic lung diseases. The burden of these diseases is rising disproportionately among lower income countries and populations. In 2016, over three quarters of NCD deaths -- 31.5 million -- occurred in low- and middle-income countries with about 46% of deaths occurring before the age of 70 in these countries [1]. Oral diseases, including dental caries, periodontal disease and oral cancer, are neglected but important NCDs with a significant burden on overall health [2]. There is a need for a single strategy to prevent and manage non-communicable diseases [3].

The Multiple Risk Factor Intervention Trial emphasized the limitations of the lifestyle approach wherein Health professionals have traditionally focused upon changing the behaviours of their patients for promoting health and preventing disease, but failed to understand that there were problems related to social and cultural milieu rather than of the individual. This paved in the path for Common Risk Factor Approach revolutionising the concept that Oral health problems have risk factor in common with a number of important chronic diseases, and it's inefficient to target each disease separately when they have similar origins [4].

A number of chronic diseases such as heart disease, cancer, strokes, injuries and oral diseases have risk factors in common and

many risk factors are relevant to more than one chronic disease. Such risk factor oriented strategies are more rational than those directed at specific diseases [4]. The key concept underlying the integrated common risk approach is that promoting general health by controlling a small number of risk factors may have a major impact on a large number of diseases at a lower cost, greater efficiency and effectiveness than disease specific approaches [5].

### Rise of NCDs

For centuries, communicable diseases were the main causes of death around the world. Life expectancy was often limited by uncontrolled epidemics. After the second World War, with medical research achievements in terms of vaccination, antibiotics and improvement of life conditions, non communicable diseases (NCDs) started causing major problems in industrialized countries. Heart diseases, cancer, diabetes, chronic pulmonary and mental diseases became a real burden for health systems in developed countries. For a while, these diseases were associated with economic development and so called diseases of the rich. Then, by the dawn of the third millennium, NCDs appeared sweeping the entire globe, with an increasing trend in developing countries where, the transition imposes more constraints to deal with the double burden of infective and non-infective diseases in a poor environment characterized by ill-health systems [6].

Eighty percent of NCD related deaths occur in low- and middle-income countries, especially as these countries undergo

socioeconomic improvement after reductions in infectious disease. The World Health Organization predicts a global increase of 17% in NCDs over the next decade [7].

**Oral disease burden**

Oral diseases such as dental caries, periodontal disease, tooth loss, oral mucosal lesions and oropharyngeal cancers, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)- related oral disease and orodental trauma are major public health problems worldwide. Poor oral health may have a profound effect on general health, and several oral diseases are related to chronic diseases (e.g. diabetes). The experience of pain, problems with eating, chewing, smiling and communication due to missing, discoloured or damaged teeth have a major impact on people’s daily lives and well-being. Furthermore, oral diseases restrict activities at school, at work and at home causing millions of school and work hours to be lost each year throughout the world [8].

Dental caries and periodontal disease have historically been considered the most important global oral health burdens. Worldwide, the prevalence of dental caries among adults is high as the disease affects nearly 100% of the population in the majority of countries. Tooth loss in adult life may also be attributable to poor periodontal health. Severe periodontitis, which may result in tooth loss, is found in 5–20% of most adult populations worldwide [9,10]. Oropharyngeal cancer is more common in developing than developed countries. The prevalence of oral cancer is particularly high among men and it is the eighth most common cancer worldwide [11]. Studies have demonstrated the negative impact on oral health of HIV infection [12]. Approximately 40–50% of people who are HIV-positive have oral disease caused by fungal, bacterial or viral infections that often occur early in the course of the disease [13,14].

**NCDs and Oral diseases-Epidemiological similarities**

Oral diseases are non communicable and multifactorial in origin which share modifiable risk factors with the leading NCDs, including tobacco use, harmful alcohol consumption, and unhealthy diets. Both are the diseases of modern civilization and mediated by lifestyle transitions. Biomedical model of disease causation is not applicable and traditional interventions like vaccines or pharmacotherapy is of less significance in them. Risk factor modification is the best preventive strategy for both oral diseases and NCDs [14].

**Common risk factors**

Oral health and systemic health are closely related. This may be due to the fact that severe oral diseases and non-communicable chronic diseases have common risk factors such as tobacco use, diet, excessive alcohol consumption, stress, and poor hygiene practices. In addition, bidirectional interrelationships between oral and general diseases have been demonstrated, for example, in the case of periodontal and systemic diseases [2].

- **Tobacco:** The use of tobacco has been implicated in a large number of diseases. Smokers more often develop cancers of the lung, mouth, throat, pancreas, kidney, and urinary tract and have coronary heart disease and stroke, respiratory diseases, diabetes, and ulcers than nonsmokers. Smokers also have a high risk of periodontal disease and lesions of the oral mucosa [16].
- **Diet:** Diet is a risk factor for many NCDs. Diabetes Mellitus, Cardiovascular diseases, cancers and dental caries are associated with unhealthy diet and consumption of sugar. Sugar is called as white tobacco and has significant adverse effect on health.
- **Alcohol:** High alcohol consumption increases the risk of a wide variety of conditions such as increased blood pressure, liver cirrhosis, cardiovascular disease, diabetes, and cancers of the mouth. Recent research also indicates that excessive alcohol consumption is associated with increased severity of periodontal disease [17].
- **Stress:** It is well known that cardiovascular disease, diabetes, and other chronic diseases are related to psychosocial factors, but there is also evidence that stress is linked to periodontal disease [18].

**SWOT analysis**

<p><b>Strength</b></p> <ul style="list-style-type: none"> <li>• The method is based on the multifactorial theory of causation.</li> <li>• Focus on control of risk factors</li> <li>• Long term benefits are expected</li> <li>• Cost effective</li> <li>• Uses the principles of health promotion (Community participation, Integration of programs, Focus on prevention)</li> <li>• Reduce social inequalities</li> <li>• Applicable in developing and developed countries.</li> </ul>	<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>• Scarcity of evidence in practical application.</li> <li>• Limited to certain diseases</li> </ul>
<p><b>Opportunity</b></p> <ul style="list-style-type: none"> <li>• Integration of services and programs (Inclusion of oral health into NHM)</li> <li>• Horizontal programs</li> <li>• Incorporation of health promoting concepts into national policies (eg:Taxation for sugar)</li> <li>• Activities to achieve Sustainable Development Goals</li> </ul>	<p><b>Threat</b></p> <ul style="list-style-type: none"> <li>• Fail to address disease specific determinants (eg; Oral hygiene for oral diseases) which have more attributable risk</li> <li>• Practical difficulties in controlling risk factors which has deep rooted social implications (Diet, Alcohol, Tobacco)</li> </ul>

**Table**

## Conclusion

Common risk factor approach is a rational method advocated by World Health Organisation to prevent and control Noncommunicable diseases. Oral diseases and NCDs have epidemiological similarities, and the preventive modalities can be integrated based on common risk factors. The most important risk factors which need immediate attention are diet, tobacco, alcohol and stress.

The common risk factor approach is based on principles of health promotion and is cost effective. However the evidence regarding applicability of this method is limited and it fail to address risk factors specific to diseases.

The common risk factor approach should be practiced with caution. Future research is needed to generate appropriate evidence regarding this method.

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