Impact Of Lifestyle Diseases On Oral Health

Junaid Ahmed, Saranya B, Nandita Shenoy, Almas Binnal

Manipal college of Dental Sciences,Mangalore. Light House Hill Road, Mangalore.

Abstract : The lifestyle of an individual has varied implications in his/her overall health. Lifestyle diseases caused bysmoking and use of smokeless tobacco, alcohol consumption, poor nutrition, and obesity and stress contribute to the leading causes of preventable death. Of the lifestyle factors certain behaviors and practices such as poor eating habits, inactivity, use of tobacco and alcohol form the preventable factors and ethnicity, age, gender, heredity form the non-preventable factors contributing to lifestyle diseases. This review discusses the lifestyle practices that have a profound impact on the oral health and the various modifications in lifestyle that can prevent them. [Ahemad J et al NJIRM 2013; 4(6) : 132-137]

Key Words: lifestyle diseases, oral health, lifestyle modification

Author for correspondence: Nandita Shenoy, Manipal college of Dental Sciences,Mangalore. Light House Hill Road, Mangalore. E-mail : nandita.shenoy@gmail.com

Introduction: A lifestyle typically reflects an individual's attitudes, values or world view. An individual's health depends a lot on their lifestyle. Maintaining physical and mental health is crucial to an individual's longevity. The rapidly changing disease patterns throughout the world are closely linked to changing lifestyles, which include intake of diets rich in sugars, widespread use of tobacco, and increased consumption of alcohol.[1]In addition to socio-environmental determinants, oral disease is highly related to these lifestyle factors and in turn affects the general health of an individual. Oral diseases qualify as major public health problems owing to their high prevalence and incidence in all regions of the world, and as for all diseases, the greatest burden of oral diseases is on the disadvantaged and socially marginalized populations.[2] Lifestyle diseases have their onset later in an individual's life and need a longer lifespan in order to become the cause of death.[4] Hence, longer the life expectancy, greater will be the number of lifestyle diseases and importantly, greater is the necessity to modify lifestyle.[5] According to recent statistics, the life expectancy at birth of 49.24 years in 1900 was too short for lifestyle diseases to occur, compared to a life expectancy at birth of 77.8 years in 2004.[3,5]

Lifestyle diseases have peculiar "follow others" pattern which becomes more complicated due to ignorance, especially in families where elders have addiction and unhealthy habits.The youngsters growing up in such circumstances have "role model phenomenon" and adopt the unhealthy lifestyle making them prone to a multitude of lifestyle diseases.[5]

Social determinants of oral health: Based upon a biomedical model of disease, oral health professionals have traditionally focused preventive and educational action on altering those behaviors which were seen to be the cause of dental diseases. This "lifestyle" approach has dominated preventive practice across the world for many decades. The underlying theory behind this approach is that once an individual acquires the relevant knowledge and skills, he/she will then alter his/herbehavior to maintain good oral health. The assumptions underlying this narrow and reductionist approach are fundamentally flawed. Firstly, human behavior is extremely complex. Knowledge gain alone rarely leads to sustained changes in behavior.[6, 7] Secondly, it is incorrect to assume that lifestyles are freely chosen and can be easily changed by everyone. Health knowledge and awareness are of little value when resources and opportunities to change do not exist.

People's behaviors are enmeshed within the social, economic and environmental conditions under which they are living. Although behaviors and lifestyles undoubtedly have some influence on health, it is essential to understand the broader context which determines patterns of behavior. Based upon an analytical framework developed from a social model of health, the broader context determining behavior becomes apparent. For example, individual behavior such as oral hygiene practices, dietary patterns and attendance for dental care are largely influenced by family, social and community factors, as well as political and economic measures.[5, 6, 7]Collectively these are

known as the social determinantsof health. Public health strategies therefore need to be directed at the underlying determinants, *the causes of the causes.*[8]

Oral health promotion: There are a number of different approaches that are used in oral health prevention, all aimed at making an effort to bring about a positive change. They can be broadly categorized into three namely:[8, 9]
The 'lifestyle' approach.
The 'population' approach.
The 'high-risk' approach.

The lifestyle approach is where oral health professionals focus on preventive and educational action to alter the behavior that causes oral disease. Dentists focus on changing lifestyles and use threats. Eg.to tell a patient whose parents are diabetic, to get regular investigations done as they are also at a risk for the disease.

In the population approach, the public health measures are implemented to reduce the level of risk in the whole population, aimed to address the underlying cause of the disease. Eg.Creating awareness in the populationregarding theill effects of various forms of tobacco use.

In the high risk approach, through standard screening, the individuals at risk are identified and the oral health promotion protocols are targeted at this high risk population. Eg. Routine oral hygiene interventions in patients diagnosed with HIV.

Risk factors for poor oral health:[11]

- Tobacco
- Diet and nutrition
- Alcohol consumption
- Stress

Though on one hand, lack of oral health care can be attributed to lack of awareness of general people against dental well-being and on the other hand it can be linked to poverty, mal-habits of intake of tobacco products (in various form of chewing, snuffing, smoking), unrestrained consumption of refined sugar, unattended malnourishment and stress are also major contributors.[9,11] In order to battle dental problems, it is essential that dental health education must be emphasized and the people must be made aware of the basics onmaintenance of oral healthcare and hygiene and the factors that are responsible for tooth decay, tooth loss and other oral diseases. Hence, the answer to solve the oral health problems of the society lies in lifestyle modification as well as mental, behavioral and educational motivation of the human race. It is also important to keep these in mind as the body of evidence linking oral disease with systemic diseases continues to grow because ultimately these lifestyle factors might impact a patient's overall health.[9, 11]

Smoking and oral health: Tobacco: Tobacco, at present is the most identified cause of cancer and is responsible for about 40-50% of all cancers in men and 20% of cancers in women. It has been proven that the negative impact of smoking is not only limited to the smoker himself/herself but also extends to the people surrounding them via "passive smoking". Smoking causes 80% of lung cancers as well as other cancers of the oro-pharyngeal region. It plays a contributory role in cancers of pancreas, stomach, kidney, uterus, colon and bladder.

Adverse effects of smoking includes, [5,6,11]

- Increased heart rate of 15-25 bpm
- Increased blood pressure of 15-20 mm Hg
- Morning cough
- Increased gastric acid flow and susceptibility to gastritis
- Changes in the oral and pharyngeal mucosa
- Periodontal disease
- Impotence and infertility

Smokeless tobacco is also one of the most debilitating habits in developing countries. Chewing tobacco may have a stronger effect on the oral cavity than smoking because of the direct contact of the tobacco carcinogens with the oral epithelium as the chewing tobacco is chewed or kept in the mouth for varying periods of time. [5,6,7] Lesions such as tobacco pouch keratosis, lichenoid reactions to the quid, leukoplakia, erythroplakia, oral submucous fibrosis and carcinoma result due to chewingtobacco.

Tobacco is a major preventable cause of premature morbidity and mortality. Health professionals are uniquely positioned to provide targeted interventions and should be empowered to provide cessation counseling that influence patient smoking.[4,6]There is a need to adopt a standard curriculum containing comprehensive tobacco prevention and cessation training to improve their effectiveness as role models.

Avoid tobacco use: Prevention is better than cure. Educating the adverse health and social consequences of tobacco usage.[2] Educating on the cancer risk, exacerbation of asthma, stained teeth and poor oral health status.[4] Addressing the reasons why adolescents smoke (peer acceptance, stress management)[5]. Education regarding the social influences on smoking such as media, peers etc and strategies to overcome such influences.[7]

The use of teachers and peer leaders as health counselors.[6] Support for students who plan to quit as well as those who abstain from smoking and awareness about use of nicotine replacement substances. An effective and easy-to-follow tobacco cessation protocol.

Alcohol: Alcohol has been recognized as an important risk factor for oral cancer. Together, alcohol and smokingdue to their multiplicative interactionsare associated with approximately 75% of upper aero digestive tract cancers.[15]Alcohol may possibly act as a solvent, allowing the carcinogens from tobacco to penetrate deeper into the tissues and may act as a catalyst in metabolically activating tobacco carcinogens. Another possible mechanism is that alcohol lessens the protective effect of vegetables and fruits by decreasing the nutrient intake or absorption.[15,16]The rising incidence of oral cancer has prompted a revaluation of the role of alcohol (both alone and in partnership with other etiologic agents). The excessive consumption of alcohol-containingbeverages is also associated with an increased risk of developingcancers of the head and neck such as pharyngealand laryngeal cancer,as well as other chronic diseasesincluding heart disease, Alzheimer's disease, stroke, liverdisease, chronic respiratory disease, diabetes mellitusand bone disease.

The synergistic effect of tobacco and alcohol makes it difficult to assess the effectsof these factors individually,with approximately 75% of alloral cancers arising in association with both alcohol and tobacco use.[15]Two dietary factors of particular importance in AW are folic acid and thiamine. Folic acid plays a role in the synthesis of the cell's genetic material and maturation of certain blood cells. Folic acid deficiency can lead to changes in blood cells, including a form of anemia. Patients undergoing AW should be administered an oral multivitamin formula containing folic acid for a few weeks. Thiamine plays an essential role in the body's energy metabolism. Thiamine deficiency in alcoholics is a factor in the development of Wernicke syndrome. [30]

Alcohol Withdrawal (AW): Alcohol leads to physiological dependence; and chronic exposure causes neuro-adaptation. Identifying dependence to alcoholism is difficult because the patients usually underplay the habit due to fear of social stigma. The CAGE questionnaire is commonly used to identify alcoholics in the doctor's office.[29,30]

The symptoms of AW reflect over-activity of the autonomic nervous system, a division of the nervous system that helps manage the body's response to stress. The signs and symptoms of AW typically appear between 6 and 48 hours after heavy alcohol consumption decreases. Initial symptoms may include headache, tremor, sweating, agitation, anxiety and irritability, nausea and vomiting, heightened sensitivity to light and sound, disorientation, difficulty concentrating, and, in more serious cases, transient hallucinations.

Once the dependence is established, the goals of AW treatment should be targeted towards relieving the patient's discomfort and also to prevent the occurrence of more serious symptoms, and forestall cumulative effects that might worsen future withdrawals.[30]Treatment of alcoholism takes several steps. Because of the medical problems that can be caused by withdrawal, alcohol detoxification is carefully controlled and may involve medications such as benzodiazepines such as diazepam.[29] People with alcoholism also sometimes have other addictions, including

addictions to benzodiazepines, which may complicate this step.[29] After detoxificationsupport from group therapy or self-help groups help the person remain sober.

Nutrition and diet: Nutrition is vital to human development, growth, and health maintenance.The oral manifestations of nutritional deficiencies include nonspecific signs and symptoms that involve the mucous membranes, the teeth and the periodontal tissues, the salivary glands, and the perioral skin. Vitamins and minerals are valuable in maintaining healthy mucous membranes. Nutritional deficiencies affecting the oral cavity are related to the insufficient intake of vitamins such as vitamin A, D, C, B1, B3, B6, B12 and minerals such as calcium, iron, zinc and fluoride. [12,30]

Individuals with eating disorders, such as anorexia nervosaand bulimia, are susceptible to numerous deficiencies thatmay affect the mucous membranes, the teeth, periodontaltissues, salivary glands, and perioral tissues.

The following list discusses six aspects of diet for which strong evidence indicates important health implications. These goals are consistent with a detailed 2003 World Health Organization (WHO) report (WHO and FAO 2003) [11]

Replace saturated and trans fats with unsaturated fats, including sources of omega-3 fatty acids. Ensure generous consumption of fruits and vegetables and adequate folic acid intake. Consume cereal products in their whole-grain, high-fiber form Limit consumption of sugar and sugar-based beverages. Limit excessive caloric intake from any source. Limit sodium intake.

Dentists must be aware of how nutrition impacts general and oral health and how dental treatment can impact the nutritional status of the patient. Compared to other health care workers, dentists reach a larger number of the general public per year and are in a position to provide clinical and behavioral assessment, information, education, motivation, and follow-up. The dental visit, which is usually longer in duration than the medical visit, affords better opportunities for motivational interventions to enhance self-care and health care decisions.[12,14]

Within the community, dentists are strategically positioned to:[16]
(1) Be advocates for a better understanding of how oral health and systemic health are related and to be effectively involved in health promotion efforts;
(2) Offer patients nutritional guidance or refer them to an appropriate nutrition professional; and
(3) Advocate wellness for patients while improving or maintaining their oral health status.

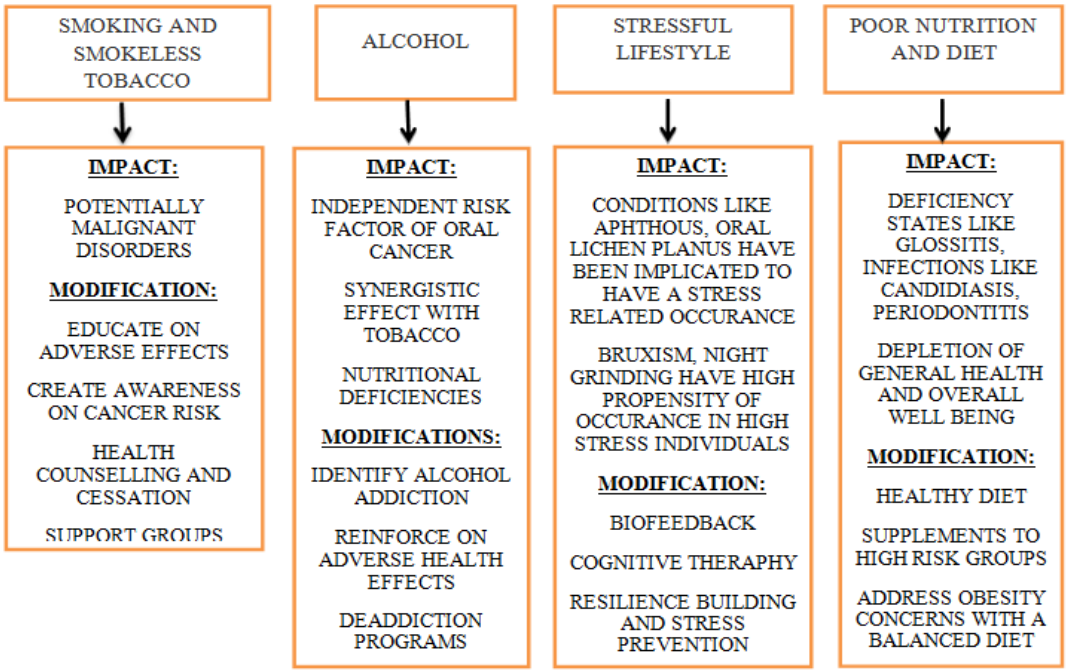
Stress: Stress is the term occasionally used in biological and psychological circles to refer to a mental strain, unwelcome happening, or, more medically, a harmful environmental agent that could cause illness. It describes a negative concept that can have an impact on one's mental and physical well-being, but it is unclear what exactly defines stress and whether or not stress is a cause, an effect, or the process connecting the two.

The potential fallout from stress and anxiety that can affect oral health includes:[20]

- Mouth sores, including mouth ulcers and cold sores
- Clenching of teeth and teeth grinding(bruxism)
- Poor oral hygiene and unhealthy eating routines
- Periodontal disease.

Psychological stress has also been implicated in the exacerbation and delayed healing in various chronic oral diseases like oral lichen planus, temporomandibular disorders, burning mouth syndrome, etc. Worsening of acute viral infections like herpes has also been attributed to stress.

Stress Prevention & Resilience: Although many techniques have traditionally been developed to deal with the consequences of stress, considerable research has also been conducted on the prevention of stress, a subject closely related to psychological resilience-building. A number of self-help approaches to stress-prevention and



resilience-building have been developed, drawing mainly on the theory and practice of cognitive-behavioural therapy.[27] Stress management has physiological and immune benefits. Positive outcomes are observed using a combination of non-drug interventions:[28]

- treatment of anger or hostility
- talking therapy (around relationship or existential issues)
- biofeedback
- cognitive therapy for anxiety or clinical depression

Conclusion: Control of oral disease depends on availability and accessibility of oral health systems but reduction of risks to disease is only possible if services are oriented towards primary health care and prevention. In addition to the emphasis on role of intermediate, modifiable risk behaviors, i.e. oral hygiene practices, sugar consumption (amount, frequency of intake, types) as well as tobacco use and excessive alcohol consumption, the socio-environmental factors should also be addressed.[26] Such behaviors may not only affect oral health status but also impact on quality of life.Apart from the obvious health benefits, reducing risks to health will promote sustainable development and reduce inequities in the society.

References:

1. World health organization. The world health report 2002. Reducing risks, promoting healthy life. Geneva. World health organization 2002
2. Edward Winslow. Lifestyle Modification: Weight Control, Exercise, and Smoking Cessation. Am J Med 1996;101(suppl 4A):25S-33S.
3. Blair SN, Kohl HW III, Paffenbarger RS Jr, Clark DG, Cooper KH, Gibbons LW. Physical fitness and all-cause mortality. A prospective study of healthy men and women. JAMA 1989;262:2395-2401.
4. Sandvik L, Erikssen J, Thaulow E, Erikssen G, Mundal R, Rodhal K. Physical fitness as a predictor of mortality among healthy, middle-aged Norwegian men. N Engl J Med 1993;328:533-37.
5. Riebel J. Tobacco and oral diseases, an update on the evidence with recommendations. Medical Princ Practical 2003;12(suppl.1):22-23
6. Johnson NW, Bain C. tobaaco and oral diseases. EU working group on Tobacco and oral health. Br Dent J 2000;189:200-06.
7. Klein S, Sheard NF, Pi-Sunyer X, Daly A, Wylie-Rosett J, Kulkarni K, et al. Weight management through lifestyle modification for the prevention and management of type 2 diabetes: Rationale and strategies: A statement of the American Diabetes Association, the North American Association for the Study of Obesity,

and the American Society for Clinical Nutrition. Diabetes Care 2004;27(8):2067–2073.
8. Poul Erik Petersen and Stella Kwan. Evaluation of community-based oral health promotion andoral disease prevention – WHO recommendations for improved evidence in public health practice**.** Community Dental Health2004;**21**:319–29.
9. Watt R, Fuller S., Harnett R, Treasure E, and Stillman-Lowe C. Oral health promotion evaluation – time for development. Community Dentistry and Oral Epidemiology 2001;**29**:161–66.
10. R. James Barnard. Prevention of Cancer through Lifestyle Changes. eCAM2004;1(3):233–39
11. Poul Erik Petersen. The World Oral Health Report 2003: continuous improvement of oral health in the 21st century – the approach of the WHO Global Oral Health Programme. Community Dentistry and Oral Epidemiology. December 2003;3–24, .
12. World Health Organization (2003a): The World Oral Health Report 2003. Geneva: WHO, 2003.
13. World Health Organization (2003b): Diet, Nutrition and the Prevention of Chronic Diseases. Report of a Joint WHO/ FAO Expert Consultation.WHO Technical Report Series 916. Geneva: WHO.
14. Danielle Marie Thomas et al. Nutrition and oral mucosal diseases. Clinics in Dermatology 2010;28:426–31.
15. Seppo Wickholm, M. Rosaria Galanti, Birgitta So¨der and Hans Gilljam. Cigarette smoking, snuff use and alcohol drinking: coexisting risk behaviours for oral health in young males. Community Dent Oral Epidemiol2003;31:269–74.
16. G.R. Ogden, A.J. Wight. Aetiology of oral cancer: alcohol. British Journal of Oral and Maxillofacial Surgerv 1998 Xi:247-51.
17. Anubha Agarwal, Dharmendra K, Gupta,Priyanka Bhatia. Oral health –as a prodrome of Systemic diseases.
18. Cohen, Sheldon; Williamson, Gail M. Stress and infectious disease in humans**.** Psychological Bulletin Jan 1991;109:15-24.
19. Anielle Marie Thomas. Nutrition and oral mucosal diseases. Clinics in Dermatology 2010;28:426–31.
20. Helen C Gift, kathyrynAtchinson. Oral health, health and health-related quality of life. Medical care Nov 1995; 33(11).
21. National Oral Health Policy prepared by Core Committee by the Ministry of Health & Family Welfare.
22. Watt R, Fuller S., Harnett R, Treasure E, and Stillman-Lowe C. Oral health promotion evaluation – time for development. Community Dentistry and Oral Epidemiology 2001;29:161–166.
23. World Health Organization (2003b): Diet, Nutrition and the Prevention of Chronic Diseases. Report of a Joint WHO/ FAO Expert Consultation. WHO Technical Report Series 916. Geneva: WHO.
24. Sheiham A. Improving oral health for all: focusing on determinants and conditions. Health Education Journal 2000; 59: 351-63.
25. Sheiham A, Watt R. The common risk factor approach — a rational basis for promoting oral health. Community Dentistry and Oral Epidemiology 2000;28:399-406.
26. Warnakulasuriya S. Effectiveness of tobacco counseling in the dental office.Journal of Dental Education 2002;66:1079-87.
27. Bower, J. E. &Segerstrom, S.C. "Stress management, finding benefit, and immune function: positive mechanisms for intervention effects on physiology". Journal of Psychosomatic Research 2004;56(1): 9–11.
28. Wolfgang Linden; Joseph W. Lenz; Andrea H. Con "Individualized Stress Management for Primary Hypertension: A Randomized Trial". Arch Intern Med 2001;161(8):1071–80.
29. Ewing JA. "Detecting alcoholism. The CAGE questionnaire". JAMA 1984;252(14): 1905–07.
30. Hugh Myrick, M.D., and Raymond F. Anton, M.D. Treatment of Alcohol Withdrawal. Alcohol Health & Research World. 1998;Vol. 22, No. 1.

Conflict of interest: None
Funding: None