Disease and Diagnosis

Dis Diagn. 2023; 12(3):144-150

doi 10.34172/ddj.2023.508

Mini-Review

# Mini-review on the Management of Lifestyle Disorders: Attempting to Keep Indians Healthy for a Bright Future

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**Abstract**
Lifestyle has historically been linked to the progression of different chronic diseases. The amount of convenience accessible for our use has expanded in the current period of modern technology, communication, and technological devices. Nevertheless, it has also resulted in an upsurge in issues related to emotional and mental wellness. Asthma, coronary heart disease (CHD), diabetes, lung cancer, and other disorders are all classified as lifestyle diseases. This theory contends that illnesses are brought on by an individual's actions. The transition from an indigenous to a contemporary way of life, with high-fat and high-calorie meals paired with increasing emotional strain, has exacerbated the issue at hand. Obesity, asthma, diabetes, arthritis, hypertension, chronic liver disorders, CHD, metabolic syndrome, depression, and cancer are all on the rise due to alterations to dietary habits and an increasingly unhealthy way of life. According to joint research by the World Health Organization (WHO) and the World Economic Forum (WEF), India lost around $236.6 billion in 2015 as a result of a sedentary way of life and consumption of unhealthy foods. Unhealthy eating, decreased physical activity, increased cigarette smoking, excessive alcohol consumption, insufficient sleep, and anxiety due to increasing job pressure are all examples of poor lifestyle choices.
**Keywords:** Lifestyle disorders, Health, Poor lifestyle, Diet, Physical activity

**Received:** April 1, 2023, **Accepted:** April 29, 2023, **ePublished:** June 15, 2023

## Introduction

There was an era when human beings did not have lifestyles but had long lives (1). This statement from Fitzgerald has contemporary importance because over the last three decades, public health policies have had great focus, to say the least, on what is termed as "lifestyle diseases". One important factor contributing to this issue is the lack of implementation, as these policies often remain on paper only. There is a significant gap between words and actions. Such lifestyles are not only observed in India but also other countries (2). Lifestyle disorders are defined as diseases linked with the way people live their lives, commonly caused by alcohol, drug, and tobacco abuse, as well as lack of physical activity and unhealthy eating habits. Diseases such as heart disease, stroke, and obesity impact our lifestyle. High rates of obesity, low levels of physical activity, and poor dietary intake are highly prevalent worldwide (3,4).

The report presented by the World Economic Forum (WEF) and the World Health Organization (WHO) in 2008 revealed that India suffered a collective loss of $236.6 billion by 2015 due to harmful lifestyles and unhealthy diets. The earnings lost in India due to these disorders were $8.7 billion in 2005 and $54 billion in 2015. Similar economic losses are also expected in other countries such as China ($131.8 billion), Pakistan ($5.5 billion), and so on (5).

Some main factors leading to lifestyle diseases include physical inactivity, unhealthy food habits, disturbed biological clock, and poor body posture. An unhealthy lifestyle includes poor eating habits, lack of physical exercise, smoking, excessive alcohol intake, disrupted sleep, and anxiety resulting from heavy workloads (6,7).

With advancements in medical science, significant progress has been made in areas such as cleanliness and sanitation, disease prevention through vaccines, and treatment of various ailments with antibiotics. Consequently, there has been a decline in the number of deaths due to communicable and infectious diseases, and many vaccinations have helped eradicate diseases that have claimed the lives of children in the past. Moreover, many infectious diseases can now be treated using antibiotics (8). The types of disorders caused by living standards are directly connected to an individual's habits. According to additional research, these disorders are illnesses that arise from the day-to-day practices of individuals and the consequences of their improper relationship with their environment. These kinds of disorders are occurring due

to technological advancements taking place around the world (9).

The primary non-communicable diseases (NCDs) that are leading causes of death worldwide are high blood pressure (BP) (13%), tobacco use (9%), diabetes (6%), lack of physical activity (6%), and obesity (5%). It has been observed that these diseases mainly affect the younger generation and urban populations (10-12). A sedentary lifestyle, characterized by a lack of exercise, is a major risk factor for premature mortality worldwide. This type of unhealthy lifestyle increases the risk of conditions such as high BP, high cholesterol levels, respiratory tract infections, and obesity (13). The WHO estimates that India will have the highest number of individuals suffering from these sedentary lifestyle disorders. Figure 1 represents good and bad lifestyle habits (14).

Figure 2 represents different types of lifestyle disorders (15). The WHO has reported that at least 80% of premature heart diseases, strokes, and type 2 diabetes, and 40% of cancers could be prevented through a healthy diet, regular physical activity, and avoidance of tobacco (16).

## Lifestyle Disorders

### *Asthma*

Asthma is a chronic pulmonary disease with increased airway irritability, characterized by frequent episodes of severe blockage of the airways that resolve spontaneously or after proper treatment (17). Asthma is common, and about 300 million people worldwide now have asthma. There are reports indicating that the incidence of asthma worldwide increases by 50% every decade (18). Patients with asthma show clinical signs such as wheezing, night cough, breath shortness, tightness of the chest, and variable limitations of expiratory airflow. Symptoms fluctuate over time and can get worse, leading to respiratory failure (19). Many harmful substances found in the air may cause blockage of the airways. In many nations of the world, it is considered that industry is the biggest contributor that produces harmful compounds in the environment. In the United States and many other Western countries, morbidity and mortality from asthma tend to be on the rise. In the United States and Canada, mortality rates decreased between 1965 and 1978 and then rose again. In the Western world, asthma prevalence and occurrence are very high. There is a general concern that the incidence of asthma is developing (20).

### *Chronic Obstructive Pulmonary Diseases*

The presence of poorly reversible airflow limitation is defined as chronic obstructive pulmonary disease (COPD) (21). COPD is characterized by related airflow obstruction that is not fully reversible, and its symptoms include chronic cough, exertion dyspnea, expectoration, and wheezing (22). It is closely correlated with tobacco smoking, but not all can develop COPD. However, non-smokers can also develop COPD, indicating the contribution of other risk factors. COPD is the third leading cause of human death after heart conditions and stroke in the world (23). The global burden of COPD, as the sixth leading cause of death in 1990 and fourth in 2000, is increasing worldwide and it is estimated that it will be the third by 2020 (24). The United States ranks 12th in COPD mortality among 28 industrialized countries. The primary cause of morbidity and mortality in high, middle and low-income countries is COPD. Data from WHO's Global Burden of Diseases and Risk Factor Project reveal that COPD represented 3.8% of total deaths in 2001. It was the 5th leading cause of mortality in high-income countries and the sixth-largest cause of death in low- and middle-income countries (LMICs), accounting for 4.9% of all deaths (25,26). The World Health Report 2002 has classified COPD as the fifth cause of death in the world, and its prevalence and mortality are anticipated to

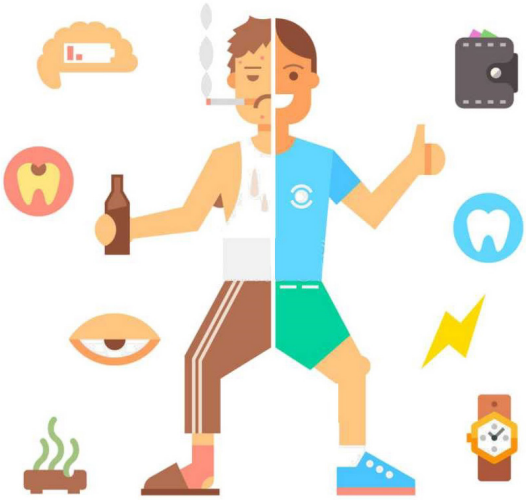

**Figure 1.** Good and Bad Lifestyle


**Figure 2.** Various Lifestyle Disorders

increase further in the next few decades (27). COPD is a silent killer in LMICs: an estimated 328 million people around the world have COPD, and it is predicted to become the leading cause of death in 15 years (28).

### *Cancer*

Globally, more than 18 million new cancer cases are reported each year, imposing a growing health and economic burden and having the greatest effect on the most vulnerable communities. To identify possible risk factors and generate strategies for cancer prevention, understanding the current cancer burden in different regions is important. Cancer is a disorder that involves irregular cell growth. It is likely to invade other areas of the organism's body, which may be malignant (may easily spread) or benign (cannot spread to other parts) and can display signs such as a lump or abnormal bleeding (29-31).

Cancer is a major public health problem worldwide and the second leading cause of death in the United States. In 2020, the diagnosis and treatment of cancer were adversely affected by the COVID-19 pandemic (32). Reduced access to care due to healthcare setting closures and fear of COVID-19 exposure resulted in delays in diagnosis and treatment that may lead to a short-term drop in cancer incidence followed by an uptick in advanced-stage disease and, ultimately, increased mortality (33, 34).

### *Diabetes*

India is known as the world's diabetes capital. Diabetes is a metabolic disorder that usually affects the way the body consumes food for energy and overall development. It is classified into four types: type 1, type 2, gestational, and pre-diabetes (disturbed glucose tolerance). Type 2 diabetes is the most common type globally and is caused by modifiable behavioral risk factors. It is the chief cause of mortality worldwide and has become the most formidable disease of the 21st century (35). Considering the pathophysiology, diabetes mellitus (DM) mainly has two types: Type-1 DM (T1DM) and type-2 DM (T2DM) (36). Unlike T1DM, T2DM is not hereditary and is largely affected by surrounding factors, individual's lifestyle, and eating habits. Recent research indicates that the association of gut microbiome with genetic factors is highly significant in determining the type of DM (37). T2DM is a global catastrophe that impairs the economic development of all communities, especially developing countries. Obesity is also one of the major causes of T2DM resulting from poor eating habits or improper nutritional intake. Studies have shown that in Asian countries, many people are affected by diabetes due to rapid economic growth, resulting in a massive increase in the prevalence of this disorder. These communities are affected by this disorder at younger ages and lower body mass index (BMI) levels than Caucasians (38,39). In southern parts of India, the prevalence has reached about 20% (40). In this country, many individuals possess traits that make them prone to the disorder. According to various reports, it is observed that Indian people are genetically predisposed to diabetes, which is exacerbated by unfavorable environmental conditions. It is observed that about 75% of patients have a family history of diabetes in the country, indicating a strong genetic predisposition (41). Lifestyle changes, such as healthy eating habits, increased exercise, and avoiding the use of harmful substances like artificial sweeteners, alcohol, cigarettes, and so on can help individuals protect against the disorder (14).

### *Obesity*

Obesity causes or exacerbates numerous health problems, both independently and in connection with other diseases. According to clinical sciences, the body fat of an individual is measured based on their height and body mass, using BMI. BMI is used to estimate the accumulation of fat in an individual (42, 43). The accumulation of excessive body fat that adversely affects the health of an individual is termed obesity. Around 2-7% of the healthcare budget is spent on obesity-related problems in different countries, which is a significant amount (44). Additionally, obesity can impair various bodily functions such as cardiac output and respiratory functioning and disturb insulin secretion (45, 46). In India, the rate of obesity is not too high compared to the US, but the number of diabetes sufferers is high. However, there is an increased risk of diabetes in the Indian population compared to Europe (47).

### *Polycystic Ovary Syndrome*

Polycystic ovary syndrome (PCOS) is a common endocrine disease in women of reproductive age. This disorder is estimated to affect 4–8% of females, as shown in studies conducted in countries such as Greece, Spain, and the United States (48). Conventional statistics suggest a reduction in occurrence, and the expected financial burden of this disorder in Australia was estimated to be AU$ 400 million, indicating the primary impact of obesity on well-being and economic burden (49).

Although the accurate pathophysiology of PCOS is complicated and unknown in most cases, the main cause is hormonal imbalance due to elevated levels of androgens or insulin. Other risk factors include obesity, hypothyroidism, ovarian impairment, and abnormalities related to the pituitary glands (50). Females suffering from PCOS have a higher risk of developing diabetes, cardiac-related problems, and impaired glucose tolerance. On the contrary, lean females and females with mild PCOS have insulin resistance (51). Lean women with PCOS were also found to have dysfunction in insulin release (52).

Various problems associated with PCOS include excessive hair growth, increased body weight, acne,

infertility, and mood swings. Therefore, it can be said that PCOS affects women physically as well as mentally. Females suffering from PCOS are at a higher risk of depression. The main treatment for PCOS involves lifestyle changes (53, 54).

### *Cardiovascular Diseases*

Cardiovascular diseases (CVDs) are among the leading causes of death worldwide and involve the heart, arteries, veins, and capillaries. Approximately 80-85% of mortality due to cardiac disorders occurs in LMICs globally. High BP is responsible for almost 7.5 million deaths worldwide (55,56).

CVDs, including ischemic heart disease (IHD), stroke, heart failure (HF), peripheral arterial disease, and other cardiac and vascular conditions, are the leading cause of global mortality and significantly contribute to reduced quality of life (QoL). In 2017, CVDs caused an estimated 17.8 million deaths worldwide, corresponding to 330 million years of life lost and additional 35.6 million years lived with disability. These summary measures of health, along with data on CVD and prevalence of risk factors, are invaluable for cardiologists, clinicians, and public health experts to guide actions for prevention, treatment, and control of CVD and risk factors at global, regional, national, and subnational levels (57). The prevalence of CVDs has been continuously increasing worldwide. In China, approximately 290 million patients have CVD, with 13 million, 11 million, 5 million, 4.5 million, 2.5 million, 2 million, and 245 million having stroke, coronary heart disease (CHD), IHD, HF, rheumatic heart disease, congenital heart disease, and hypertension, respectively (58).

Statistics indicate that SAARC nations constitute about 20% of the total population and are therefore one of the most affected zones (59, 60). Irregular alteration (elevation or reduction) in BP is associated with the probability of cardiac stroke (61). Prevention of CVDs nowadays involves adopting appropriate lifestyles and the correct use of pharmacological interventions. One of the chief limitations of current prevention measures is patient compliance and the adoption of healthy lifestyle behaviors, as population studies have shown that only a few individuals follow these behaviors (62-65).

### Management of Lifestyle Disorders

Chronic diseases are among the leading causes of death and disability worldwide. The incidence of these diseases is increasing globally, affecting every country and socioeconomic class. By reducing risks and promoting healthy lifestyles, it is possible to reduce the mortality, morbidity, and disability associated with chronic diseases, which currently account for approximately 60% of global mortality and 43% of disease occurrence (66). Figure 3 shows the causes and lifestyle disorders associated with

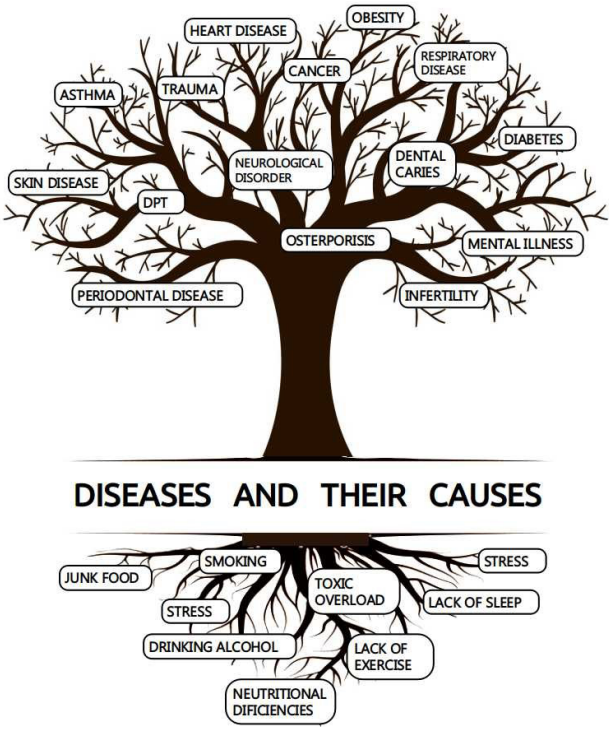


**Figure 3.** Various Lifestyle Diseases with Causes

them (15). According to statistical data from the WHO, 53% of deaths in India in 2008 were due to NCDs (67).

The guidelines set up by the WHO include: quitting smoking, maintaining a healthy body weight, moderating alcohol consumption, reducing salt intake, improving dietary habits, and increasing physical activity (68).

Embracing a healthy lifestyle, which includes consuming healthy food, increasing exercise, and maintaining a regular biological clock, is essential in combating these disorders. To reduce disorders related to the working environment, it is important to avoid prolonged sitting and have intervals for stretching or body movements. In this era of development, we cannot neglect our health, but we must manage our lifestyles effectively (69). Studies show that many ailments in humans are often caused by unhealthy lifestyles, such as hypertension, diabetes, obesity, and so on. In conclusion, it is necessary to change our ways of living (70). Yoga-based lifestyle has been found to be effective in preventing various chronic disorders. Yoga techniques, including physical postures, controlled breathing, meditation, and relaxation, help to regulate lifestyle and have the potential to decrease the risk of lifestyle disorders through direct and indirect mechanisms (71).

It is widely acknowledged that many disorders can be prevented and managed through the regular practice of Yoga, which is reported to have numerous health benefits (72). Yoga asanas (postures) not only help the body fight against many disorders but also maintain flexibility and mental pe+ace (73-76). According to WHO, physical movement refers to the contraction of skeletal muscles

that requires energy expenditure (77).

## Conclusion

These lifestyle disorders, also known as diseases of civilization, have become more prevalent as a leading cause of death primarily due to changes in living conditions and behaviors. With advancements in sanitation, vaccination, drugs, and medical care, infectious diseases are no longer the main threat to human health. Instead, lifestyle disorders such as heart disease and cancer have been identified as the primary causes of death. Poor eating habits, lack of exercise, improper body posture, and disturbed biological clock are key factors contributing to lifestyle diseases. Yoga is both an art and a science. It offers countless possibilities for addressing many health problems faced by humanity today. Yoga is a holistic science that should be learned and practiced with a holistic approach. Dedicated practice of Yoga as a way of life is undoubtedly a panacea for psychosomatic disorders, stress-related disorders, and lifestyle disorders, helping us regain our birthright of health and happiness.

### Authors' Contribution

**Conceptualization:** Md Sadique Hussain.
**Data curation:** Khusi Mathur, Somya Sharma.
**Formal analysis:** Khusi Mathur, Somya Sharma.
**Investigation:** Khusi Mathur, Somya Sharma.
**Methodology:** Md Sadique Hussain.
**Project administration:** Md Sadique Hussain.
**Resources:** Khusi Mathur, Somya Sharma, Md Sadique Hussain.
**Software:** Md Sadique Hussain.
**Supervision:** Md Sadique Hussain.
**Validation:** Md Sadique Hussain.
**Visualization:** Somya Sharma, Md Sadique Hussain.
**Writing–original draft:** Somya Sharma, Khusi Mathur.
**Writing–review editing:** Md Sadique Hussain.

### Competing Interests

Not applicable.

### Consent for Publication

Not Applicable.

### Data Availability Statement

This mini-review was carried out by us and we assure that it can be provided whenever required.

### Ethical Approval

Not Applicable.

### Funding

Not applicable.

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