



International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 3 Number 6 (June-2015) pp. 135-147

www.ijcrar.com



Review on impact of changing lifestyles on dietary pattern

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KEYWORDS

Lifestyle trend,
Nutrition,
Urbanization,
Liberalization,
Retailing

A B S T R A C T

In today's fast moving life, the lifestyles of people have undergone drastic changes which have brought about major impact on their dietary patterns. Through this paper the researchers have tried to highlight various factors that have led to lifestyle changes. Food consumption patterns have completely changed and people are now more inclined towards processed food which is high in caloric content, sugar and salt. These changes have also brought along many non communicable diseases which are generally affecting the people of developing countries like India. In the end we have suggested few strategies which can be followed to overcome the nutrition related health problems faced by people.

Introduction

The lifestyles of people have undergone many changes since the Paleolithic age of hunter gatherers to industrialization and leading towards non communicable diseases of today's world. This change in lifestyle has also brought about changes in dietary patterns.

Goyal and Singh (2007) have highlighted the fact that youngsters visit fast food channels just for the sake of fun and some change from daily routine. It was found that lifestyle changes and tastes buds are backed by the urban culture and has a strong impact on the kind of food demanded and the utilization patterns by the people. Nichanj (2005) has depicted in his findings that

changing lifestyle and work habits are the two major factors deciding consumer's preference for fast food that is driving them towards junk health.

As described in the 1996 World Food Summit, "food security at the individual, household, national, regional and global levels are achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996).

The definition is an extension of its focus in previous summits that had highlighted the importance of volume and stability of food

supplies. It included secured access of food to all, to avail sufficient supply of food and achieve food safety and nutritional balance. This definition further explains concerns about composition of food and nutritional requirements for a healthy and active life.

Jan Mei Soon and Tee (2014) have proposed in their paper the need to review the changing eating patterns of South East Asian countries, he has cited Malaysia in his example.

He has highlighted in his paper that traditional diets especially in urban cities have been modified and replaced by diets which are high in fats, salts and animal products. These areas have also seen to have reduced intakes of fresh fruits and vegetables. This has resulted in complete transition in nutrition intake. Generally food consumption is measured in kilocalories per capita per day and this has remained the key factor for measuring and evaluating the contents of food habits. It has also been observed that there is a drastic increase in energy contribution to the food we consume by addition of vegetable oils and added sugars and salts.

Objectives of the study

- To study about the factors influencing the changing dietary pattern
- To discuss the impact of changing dietary pattern on health
- To suggest strategies to improve the dietary pattern

Literature review

Dietary patterns are driven by certain factors which has a direct impact on the lifestyle of people leading to changes choice of food. The food choices made has a direct impact on nutritional health of the people as bad

food choices can have adverse effects on overall health. In the end some strategies are needed to overcome this anomaly of bad food choices.

Drivers influencing the changing dietary pattern

There has been a complete change in the eating patterns of the people and the driving factors for this change are liberalization, the free trade policies which has lead to bugarisation, the foreign direct investment, spurting of supermarkets and fast food chains, increase in the purchasing power of the people, urbanization, better access to internet and other communication systems.

Due changes in family and social environment there has been a revolutionized change in children's lifestyle and eating habits.

These changes are mainly due to increase in working women, decline in the birth rates and reduction in the size of the families. The advancements in food technology, fishing and agricultural methods employed for food production have led to change in the food pattern.

Ease of access to health services and better education facilities, very strong influence of television, decline in the age for children to start going to school, children getting access to money for spending which prompts them to buy unhealthy food without parental control are all the leading factors for changes in the eating habits.

Shift from traditional to modern diet

Dietary patterns have shifted from traditional and staple food to modern diet. Traditional food included rice and other food crops like sweet potatoes, pulses and

various other traditional foods are being abandoned by people. There has been a sudden increase in intake of meat products, products containing wheat, fats and oils, sweeteners etc. all these are contributing to increase total energy intake. There is also an overall reduction in variety of the food we eat, and due to the consumption of more refined and processed food our overall health has been impacted.

The transition in food eating patterns basically has two main parts. The first one is quantitative and the second one qualitative. Under quantitative it suggests that caloric intake increases with proportionally equal intake in all food products, the overall nutritional structure remains stable. Under qualitative diet transition is highlighted. The author suggests that once caloric saturation is achieved the total diet structure changes. He further points out that due to this diet transition the consumption of cereals and vegetables decrease and intake of sugar, fats and other animal products increases (Hervé Guyomard, 2011). Apart from the above highlighted factors the consumption pattern is further affected by availability of food, accessibility of food and choice of food, this may be further influenced by other factors such as geography, consumer attitude, religion, culture and demography.

Socio economic factor (Income)

Global per capita income is expected to rise at a rate of 2 per cent per annum over the next three to four decades. The developing countries those are starting from a low base too are on the verge of rising at higher rates (Du *et al.*, 2004).

The author has found that rise in income implies higher fat diets. His study in Mexico and Brazil has highlighted that previously being overweight was a sign of wealth; it has of late started to reflect poverty. Rising

income and lower prices of food has resulted in over consumption of animal and processed food. Although the educated class can choose to adopt a healthy lifestyle people with less food choices have no option but to purchase less healthy and nutrition deprived food. There has also been lack of education regarding the nutritional food and balance diet.

In most industrial countries (e.g. the USA and the UK), the effects of increased income have generally been considered as beneficial, resulting in better quality diets, better healthcare, lower morbidity and mortality from infectious diseases and lower risk of obesity (Marmot, 2001). In addition to population growth, urbanization, a growing middle class and rising incomes, the rapid expansion of supermarkets and wholesalers in developing countries have been well documented in the literature (Reardon *et al.*, 2003).

Urbanization

It has been estimated that in the coming decades almost all the population growth will become urban. Way back in 1900 very feeble percentage of population inhabited in cities, just over 10 per cent. But today the figure has crossed 50 per cent mark. Urbanization has created new and better infrastructure with respect to marketing and distribution. It has attracted a number of supermarkets and also has resulted in better roads and ports. There is obviously very less space for growth in urbanization in countries which are already predominantly urban but the growth is unabated in countries whose vast population is in rural. Due to improvements in infrastructure access to better foreign suppliers and imports of food supply has increased and people can now get greater access to these facilities (Hawkes, 2006).

All these have resulted in globalization of the food consumption pattern among people. Popkin (1999) in his paper has reported that due to rapid urbanization there has been a very strong effect on the pattern of food consumption. He has further focused on the increase in the caloric intake and decrease in energy expenditure due to the nature of urban jobs. He says cities offer more variety of food and there is reduction in physical activity of the order of 10-15 percent. People also have more leisure time which implies that the diseases related to overconsumption of food like obesity and diabetes are rapidly on the rise in developing countries as compared to rural areas.

It has been further found that urbanization leads to change in food consumption which has a direct impact on the dietary behavior. The fast food industry has very rapidly created a niche for them by providing consumers with quick access to takeaways at very low prices. These foods result in consumption of food high in salt, sugar and fat. Fast food available in the market consists of mainly 30 percent fat as energy (Smil, 2000). This brings us to the conclusion that the major consequence that has happened due to urbanization is that there is a significant shift towards food that is high on energy, completely laden with fats and oils and also consists of more animal protein derived from meat and dairy. This leads to a diet that is low on fiber content, vitamins and minerals but very high in energy and saturated fats. The author has highlighted the fact that due to urbanization intake of animal foods was greater for urban (178.2 g per capita per day) compared with rural (116.7 g per capita per day) dwellers in 1997 (Zhai *et al.*, 2009). The study conducted by Mendez and Popkin in 2004 has resulted that in next few decades urbanization will primarily be a problem in developing countries.

Market liberalization

Trade liberalization or market liberalization is another most important factor that has results in changes in food intake. Food environment has been modified due to modifications in food supply and that has further lead to the choices made by the consumer. There have been drastic reductions in the price of unhealthy food items i.e. those food items that are rich in calories poor in nutrient, and having higher proportions of saturated fats and salt content. The increased availability of unhealthy foods and the asymmetric relation between consumers and suppliers providing food stuffs have all been possible due to the market liberalization that has affected the food consumption pattern that too among poor population (Thow and Hawkes, 2009).

Market liberalization has a direct affect on the availability of particular food items as the barrier for foreign investment that generally happens in food distribution is removed. This further propels and enables the investments in other food items in retail sector. As there are many multinational fast food outlets and they have entered many countries having middle income.

After the incorporation of foreign direct investment by food companies the availability of processed food has become more evident in developing countries.

Thow and Hawkes (2009) have identified in their study that the changes in trade policies has resulted in rise in meat availability and its consumption. The dairy products and processed food consumption also has risen. They have pointed out that these policies of trade liberalization have impacted health of the consumers by contributing to nutrition transition. This transition is associated with rise in the rates of people suffering from

obesity and other chronic diseases like cardiovascular and cancer. Bloin *et al.* (2009) in his paper has said that trade liberalization has led to people consuming more processed and high calorie food which is poor in nutrient content and this has happened due to removal of trade barriers in foreign investment.

Transnational food corporations (franchises and manufacturers)

The ILO report in 2011 has put forward some startling facts. It says that there is shift from the kind of work pattern as compared to olden days. The work has shifted from agricultural sector to manufacturing sector which is less labor intensive as compared to agricultural type. This shift has reduced the amount of energy spent. The study has been focused on Malaysians. The report highlights the fact that in 1980 the number of people working in agriculture sector was 1.6 million including forestry and fishing. Only 800 thousand workers were in manufacturing sector and approximately 2.3 million were employed in service sector. The study has found that in the present scenario the although the agriculture, forestry and fishing still remains stagnant at 1.6 million but the manufacturing and service sectors have increased to almost 2.2 and 7.3 million.

TFC's like KFC, McDonalds etc. are all considered as the drivers of fast food and processed food markets. The western style has influenced and become a part of developing countries (Hawkes, 2005). He further says that not only these outlets are promoting fast food but they also creating processed food versions which are inspired from the traditional food. Due to globalization in food patterns, traditional food in these developing countries is getting transformed. More varieties of dishes are

available in this category of fast food calorie rich pattern which has been developed in developing countries. These foods are popular as they are very cheap and this is due to the advancements achieved in food processing technology.

Globalization is generally blamed for changes in food consumption pattern that includes the food processing technique, marketing of food items and the distribution system of the TFC companies. There are other factors that play a crucial role in decline in energy expenditure. They include rapid expansion of global mass media, leisure, work and modes of transportation. All these factors have directly contributed to opening of the world economy (Popkin, 2009).

The penetration and influence of modern communications, removal of communication barriers are also related to globalization B. M. Popkin, 2006. For example, fast food restaurants and their ready-to-eat takeaway products have been heavily advertised as a tasty, nutritious and relatively cheap means of feeding the family.

T.M. Tan *et al.* in 2013 it is said that the global fast food franchises have the tendency to advertise and promote their brands more aggressively on media and social network coverage. Fast food has not been restricted to one off meal but has extended to all courses of our daily consumption, with many companies offering 24 hour service and drive through.

These restaurants are preferred by youngsters and they are ones who influence their parents forcing them to visit the fast food joint of their choice as highlighted by Nezakati *et al.* (2011).

The transnational corporation (TNC) is created when a foreign enterprise becomes foreign affiliate of the parent company (Bolling and Somwaru, 2011). FDI has brought about revolutionary change in the way the TNC's operated and enter new markets. Due to this flow of FDI many global retail multinationals have come up. The increase in level of FDI has led to a nutrition transition and the processed food market takes a different turn and more unhealthy and processed food is available in developing countries.

Retailing

Retailing has come in a big way in the last decade and due to the liberalization of markets a lot of transformation has taken place in retail sector. In a study by Reardon and Swinnen in 2004 they have found more changes in Latin American retail sector in last ten years than it had happened in last fifty years. The retailing formats which are the major players in most of the Latin America's agri food economy are supermarkets. The year 2000 saw fourfold increase in the number of supermarkets in South America and Mexico. Almost 60 percent of the national retail sectors only comprised of supermarkets (Reardon *et al.*, 2003). Supermarkets in collaboration with big food manufacturers have together transformed the region itself. This rapid growth is attributed to the expansion of supermarkets crossing their original markets and entering into small and poor countries (urban to rural). The author also studied the development of supermarkets and has found out that super markets in South East Asia have registered a more speedy growth as compared to Latin America. He further emphasizes on the fact that expansion of super markets has a strong influence on food choices, weight and health of the consumers.

Supermarkets can afford to charge very low price for processed food in comparison to traditional retailers as they able to generate bulk procurement and focus on economies of scale. This leads to poor consumers having ease of access to these processed and semi processed foods. These super markets on the other hand sell costly vegetables and fruits as compared to traditional vendors (Minten and Reardon, 2006). According to Gehlhar and Regmi (2005) supermarkets are in a position to sell processed foods at cheaper rates because of economies of scale in procurement. There has also been increase in use of refrigerator and cars in most of the developing countries. People tend to shop on weekends and store processed foods often leading to increase in processed food consumption.

Other aspects highlighted by Popkin (2006) is that the high economic growth, increase in availability of food and improved purchasing power of people has transformed dietary patterns of people forcing them to consume nutrient rich and animal source food. Due to better purchasing power people invest more technological innovations this has resulted in lack of energy expenditures and more time leisure, better transportation and easy going work life.

The key to success of these supermarkets is to constantly look for vertical expansion i.e. focuses on menu lines as these are nothing but flavor variations. The focus was never on horizontal menu expansion. They encouraged online ordering, started giving group discounts for bulk ordering and captured the young students by organizing events inside these fast food joints by offering tickets, discounts, coupons or offering special meals. They also attracted children by making play land area available considering they are a great market for these supermarkets. These children are more

likely to call their friends on special occasions to these fast food chains as the thought induced in them that this is a place to have great time and pleasant environment as well was provided by these supermarkets. Other aspect is in case the customer is not willing to come to these joints due to some other engagements they offer to deliver food at the place of the customer like office, home making the process more convenient. As studies have proved that due to this there is sudden rise in the demand of the so called convenient foods and snacks. These centers also offer special deals at midnight by giving away the order at lower price or offering buy one get free deals. As the drive through services have eased out these companies make more profits by misguiding the customer behind the concept of taking care of the customer's time and convenience.

Food industry marketing

Food marketing and distribution system has been modernized and lots of essential changes have come into place due to globalization and these changes have had a direct impact on the food consumption pattern. It has been found that role of supermarkets is a very prominent one for making these changes specially the growing trend in developing countries (Thow and Hawkes, 2009). Marketing as well as government policies and subsidies have played a major part in making processed food so popular among people. Thow has highlighted in his study the changed pattern of beverage consumption of USA over past 50 years. He says that way back in 1945 Americans were drinking milk almost 4 times more than soft drinks. But off late scenario has changed; now Americans are consuming almost 2.5 times more carbonated drinks than milk. The reason he found was very simple and that is the heavy

subsidies and innovative advertisement from the corn syrup producers. Putnam and Allshouse in 1999 in their article have said that for the first time in 1985 corn syrup production surpassed cane sugar and beet sugar production.

TV advertisements are undoubtedly the biggest and single largest factor that is responsible for the ever spreading epidemic of obesity in children. It has been understood that greater regulation needs to be done on marketing and advertisements of food and more emphasis should be given to the children food (Willett, 2002; Nestle, 2002). Increased disposable income of people in countries increased disposable incomes in countries such as China, India, Brazil and Mexico where consumers are spending more on foods that are often highly processed and unhealthy too has been exploited by marketers. Marketing has made them to spend more on food products that highly processed and unhealthy. Due to aggressive marketing strategies of these food companies the penetration of the product reaches deeper into the population.

Energy rich food often have very cheap source of energy alongside having very low nutrient density. These energy dense foods are often cheaper as compared to healthy food prompting the people with low income to select less healthy food item which is high in energy density. This relation is the sole explanation for strong link between obesity and low economic status.

Examples of energy dense food are cookies, candies, peanut butter, jam and chocolate (Temple and Steyn, 2011).

Consumer attitudes and behavior

Today consumer's attitude and behavior have been drastically altered due to changes

in their life style. Constant availability of health related information and awareness has continued to grow due to boom in information technology, which helps consumer's to take informed decision. The consumer is influenced by the food industry and retailers for selecting a particular food item based on the marketing as well as the availability of the product. In order to formulate policies for change in attitude and behavior of the consumer's, the policy makers need to understand the consumption pattern of consuming more energy laden food than they need to. Schor (1999) in his article has made significant observations on modern western culture highlighting the fact that, a minimum consumption level is required for survival. He further puts forth that, a culture has a major impact on the levels of consumption and it should not exceed the basic need. In his study on contemporary American consumers he has highlighted that, "Consumer satisfaction depends less on what a person has in an absolute sense than on socially formed aspirations and expectations"

In another study by anthropologist Willett Kempton (2001), mentions that the social status is relative in nature; hence the consumption pattern depends on it. Social status takes the consumer in an unending vicious circle wherein he is constantly comparing and re-comparing his social status. Therefore Consumer attitude and his behavioral patterns are inconsistent.

A study on Belgium consumers was undertaken by Vermeir and Verbeke in 2006, to understand the consumer attitude and behavior gap. It was found that, consumer involvement with sustainability, certainty and the perceived consumer effectiveness was directly proportional to the attitude of the consumer and his

intention to purchase sustainable food products. The authors have suggested that the policy makers should understand the role of consumers and their food consumption patterns in order to improve the food choices as consumers have major influence on the demand for wide range food products.

Working women

Women participation in the working force has seen an increasing trend more so in westernized work schedules leading to increase in the food purchasing option. The modern super markets are offering variety of food products which are more convenient to ease the life style of the working women as compared to the traditional options.

Demand for fast food has considerably increased in developing countries, and the most significant factor for the same is cited to be the large fraternity of working women who don't have time to cook at home.

According to an ILO report published in 2003 during 80s around 1.6 women were in the work force. The number rose to 4.2 million in 2010, a staggering jump of 62%. The study also quotes that the number of male employees in the work force were 7.5 million in 2010, as compared to 3.1 million in 1980, an increase of 87% as reported. The study highlights the fact that all though men were more in number there has been a significant increase in women joining work force and contributing to the overall household income.

Health impact of these food consumption trends

Due to changes in the life style of people their food consumption patterns have changed, 2002 World Health report has described major risk factors that are

responsible for morbidity and mortality in most of the countries. The reports says, in case of non communicable diseases the most common risks are high blood pressure, cholesterol, lack of intake of fruits and vegetables, obesity, lack of physical activity, high intake of tobacco. Most of the above mentioned risks are due to improper diet and physical inactivity.

Popkin, has highlighted in his study conducted in 2006 that, the world is gradually being dominated by degenerative diseases. He further says that, overweight people are considerably over powering underweight in the world. He has portrayed in his study that non communicable diseases are spreading at a very fast rate among lower middle income groups. Most of the developing countries have encountered obesity in line with globalization of food systems, market liberalization, FDI's and supermarket concepts.

Popkin *et al.* in 2006, have conducted an in depth analysis of food pattern trends in India and China. They have calculated various economic costs of the changing trend over the period of time. According to the study, it has been found that, estimates of their under nutrition factor has declined constantly while obesity, diabetes and hyper tension have risen. Facts put forward by them is even more interesting, they have concluded in their study that, countries like India, Pakistan and Sri Lanka have been struggling with epidemics like adult diabetes. They have projected that a fifth of diabetic patients will be an Indian and out of four three will be from developing countries by the year 2025.

In today's urban families both parents are working and hence neither do they get enough time for planning balanced nutritious diet for their children nor they can cook nutritious healthy meals for them. The

author says that, when a person consumes food outside home, he has no control over his total calories consumption; also the nutritional quality of the food is affected. HE is forced to consume food rich in sugar, salt and fats (Friel and Lichacz, 2011). Due to over consumption of calories Over nutrition occurs which further leads to diet related non communicable chronic diseases like obesity, hyper tension, diabetes (Tee *et al.*, 2012). The author has in his study has also stated that children who are overweight will continue to remain overweight and tend to become obese adults.

Strategies to improve the dietary pattern

Design a lifestyle index

According to Kim *et al.* (2004), Life style index is a summary which is used for measuring cross national comparisons governed by four life style factors namely, diet, physical activity, smoking and alcohol usage. Each of these index are given differential weights, for example 2, .3 respectively each reflecting their relative usefulness with respect to health. The overall diet is assessed on the basis of variety, adequacy, moderation and the overall balance which is measured on the basis of intake of foods and nutrients.

Therefore, each component in the index is having a score which is based on the overall healthfulness of life style. Higher the score implies healthier the life style. The index score has the range starting from zero to hundred, where 100 points towards the healthy life style.

Surveillance of people's diets, physical activity and related disease burden

A system needs to be developed in order to monitor people's diet, their physical activity and health related problems in order to bring

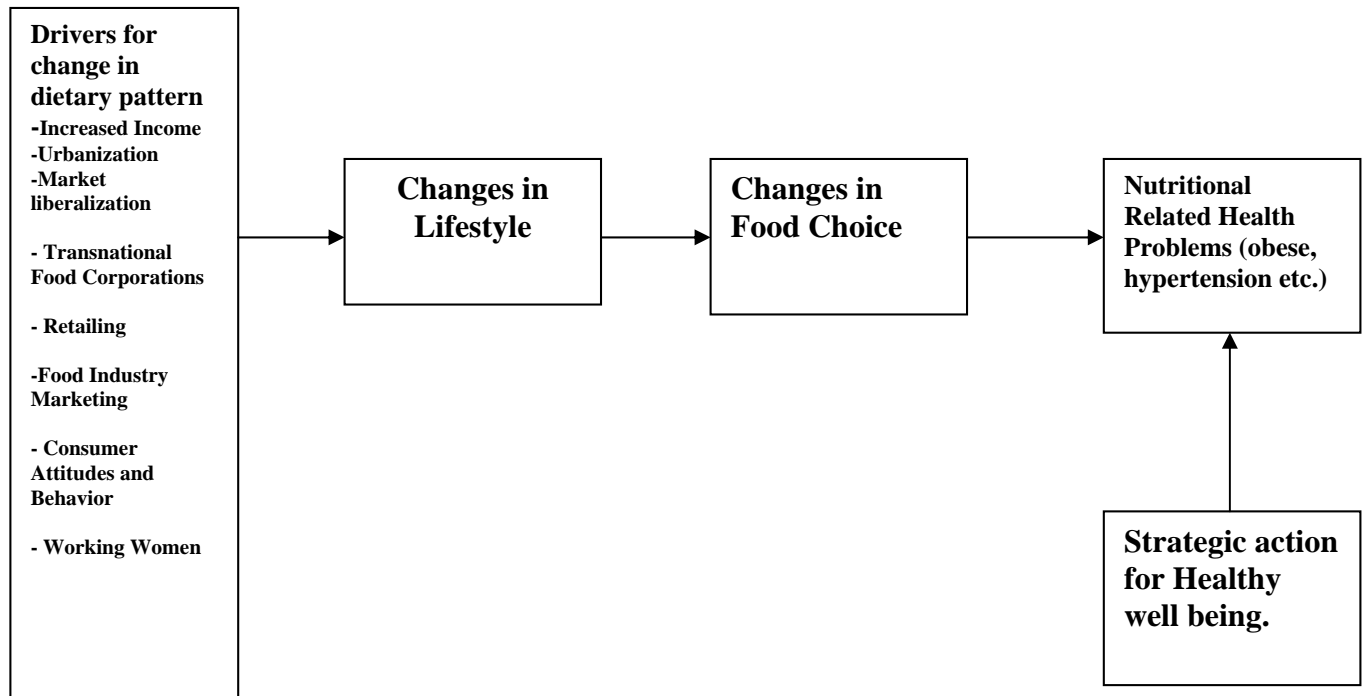
the country towards reaching its health targets. Proper guidelines, intensity and timely measurements are needed in order to propel achievements. Complete data will be required to formulate effective policies and implement them to achieve positive changing trends over the time period.

Enabling people to make informed choices and take effective action

Consumers can make informed choices only if the information about better quality of

food, importance of physical activity and informed global community is provided to them. He must also be provided information about food labeling requirement for different population groups. Knowledge about the quality of fat, total content of salt and sugar present in the food products along with the information about health promotion messages must be given to him in order to enable consumers for taking affective actions related to food choices.

Fig.1 Author's Model



Ensuring that “healthy diet” components are available to all

Consumer preferences for healthy diets are increasing and the suppliers want to project their products according to the demands of the consumers. Governments can make consumers to choose healthier food options according to the overall population nutrients intakes by promoting food which is having

less content of processed ingredients and encourage the population to use natural and healthier food products over processed ones. Governments should ensure sustainable and adequate supply of fresh fruits, vegetables and nuts in the domestic markets. If the consumer has to consume meals from the restaurants he should be informed about the total nutritional quality in the simplified

manner which will help him in selecting healthier food option.

Achieving success through intersectoral initiatives

Success cannot be achieved if different sectors of societies do not join together for a single goal of healthfulness. Comprehensive strategic approaches are needed for promoting healthy diets which have to intertwine various groups within the country. These groups should involve alignment and encourage national and local strategies concerning healthy diets and physical activities. Initiatives must be taken by the intersectoral groups that will help in encouraging production and supply of fruits, vegetables, cereals to all the segments at affordable prices, equal opportunities must be given to all and every individual must indulge in certain level of physical activities.

Making the best of health services and the professionals who provide them

Health professionals that include, physicians, nurses, dentists and nutritionists must be given in depth training related to diet, nutrition and physical activity as these are key determinants related to medical and dental health. All aspects that include social, economic, cultural and psychological determinants should be incorporated in the public health program. These training programs need a proper attention to develop and strengthen in order to implement the health programs successfully.

Impact of life style changes

Socio economic situations of a country are responsible for advancements in lifestyle that leads to significant changes too. Eating out has become very common and there is rise in the consumption of fast and fried food, there an increased tendency to overeat,

oversized proportions and erratic use of nutrient supplement. Sedentary life style and irrelevant dietary patterns are the main reasons for obesity and chronic diseases. These can be prevented if the public adopts healthy eating habits practices active life style.

Conclusions

Changing life style trends have had a very strong impact on the dietary patterns of the people. The paper highlights various factors responsible for change in life style trends. These changes have resulted in depreciating overall health of urban population and a gradual increase in the non communicable diseases. These harmful effects of change in the food habits can be mitigated by slightly modifying the life style. The United Nations economic and social commission for Asia has predicted that almost 50% of world population will become urban by 2020 hence immediate steps needs to be taken to stop this epidemic of non communicable diseases.

Food is considered to be means of life but has become an investment opportunity for business people, this mind set needs to be changes and people should try to work towards healthy wellbeing. Feenstra (2002) has very rightly said that the whole efforts should be towards building more local based self sufficient food economies which has sustainable production system, easy processing methods, transparent distribution and equal consumption. All these function need to be integrated in order to bring about overall economic, environmental social health. Therefore food policies will be successful only when their inputs from agricultural as well as health sectors working together with government and consumers.

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