

“How tourism industry and culture may affect physical activity, obesity and health status, with focus on telomers?”

Abstract

Prevalence of health-related complication, has gained a growing trend within the past decades. Health status, both. In individual and public scale, can be affected by lifestyle. Social behaviors and lifestyle, can be as results of culture and history in a society which can affect health status as a result. History and heritage can affect components of lifestyle as well, including dietary pattern and physical activity. Moreover, each country, has its own natural and historical resources which can affect lifestyle, way of living, social behavior, tourism and cultural exchange. The purpose of this article was to reveal the effect of culture on healthy behavior exchange within the communities with more emphasize on telomer, as an indicator of cell health status. By considering the positive aspects and strength of culture in health area, including traditions for foods and physical activity, it can be suggested that life-related behaviors and natural resources, can affect cell health status which can be predicted by telomer length and tourism attraction. This may provide an opportunity for health-related behavior exchange, by improving national and international culture-related and health-related behaviors which seems to require effective and practical regulations to be organized by responsible authorities.

Keywords: tourism, culture, lifestyle, nutrition, physical activity

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Introduction

Health status, both in individual and public scale, may be affected by lifestyle. Lifestyle has several components which among all, physical activity and dietary pattern, have been introduced as more effective indicators for health status. Although, several other indicators including behavioral aspects and smoking are components of lifestyle. Lifestyle may be affected by culture, way of living, socio economical status. Governmental decisions and policies. Moreover, education and knowledge status can affect lifestyle and health status as well.¹⁻⁵ Within the past years, the prevalence of health-related complications has gained a growing trend with higher rate of chronic disease. Higher prevalence of health-related complications, may put a lot of costs on health care system and negatively affect socio-economic growth. The purpose of this opinion article, is to suggest a novel strategy to improve individuals and public health status and suggest tourism strategies. Moreover, we have focused on one of the major indicators which can predict the cell health status and can be affected by lifestyle, which is called telomer.

Telomer- how can it be defined?

Telomer, is a dynamic complex at the end of chromosomes which is tightly regulated and contains repetitive sequences of DNA and protective proteins. The length of telomer, can be considered a health-related indicator for cells and individual health status as a result. The shortening of telomer, can lead to cell death. It has been suggested that several mechanisms can lead to telomer shortening, including oxidative stress and DNA transcription stress. Furthermore, the telomer length may decrease by aging, genetics and disease prevalence.^{1,6,7}

Genetic factors- lifestyle and telomer

Genetics can affect telomer by 30-80%. Short telomers can be inherited in familiar mutations. Although studies have suggested that non-genetic factors can affect telomer, the aging process may decrease

the telomer length which can enhance the role of environmental factors. Lifestyle indicators including physical activity, can affect telomer.² Physical activity has been introduced as a beneficial indicator for healthy lifestyle which may decrease oxidative stress and improve antioxidant enzymes capacity and lead to telomer proteins stability.³

How can healthy diet improve telomer stability?

Unhealthy dietary pattern, genotoxins and other detrimental factors can affect telomer and genome which can be as a result of oxidative stress and ROS production, lipid and protein oxidation. As a result, it has been suggested that antioxidant consumption can have beneficial effect. Polyphenols, are components with beneficial effects on telomer and aging process. Studies have indicated that polyphenols found in black and green tea, are related with inflammatory factors. Resveratrol, is another natural component which may affect telomer length and can activate crucial metabolic and physiologic proteins. Resveratrol can be found in red grape skin which has antioxidant effect and can decrease oxidative stress and inflammation.⁸

Physical activity- an effective indicator for telomer length

Physical activity has been considered as an important component of healthy lifestyle. It has been shown that physical activity has a spectrum for effect on telomer, in the other words, low and extreme intensity of exercise may not have beneficial effects on telomers. Intensity and time, are considered as indicators for effectiveness of physical activity and its health outcomes. Physical activity can improve cardio-vascular endurance, increase in VO₂max, improvement in mitochondrial function, increase telomer stability and decrease the chance of cell aging. As a result, endurance exercises are known as effective activity type which may help telomer maintenance due to increase in VO₂max, mitochondrial function, aerobic endurance and decrease in oxidative stress, which becomes more important in elderly individuals.^{9,10} Studies which have focused on the difference of telomere between active a non-active individual, have suggested better

leukocyte telomer maintenance in individuals with higher physical activity status and better endurance capacity.¹⁰ This brings us to this idea that increase in physical activity intensity, may increase telomer stability and maintain telomer length, as a result. This outcome may be due to increase telomerase activity in active individuals and down regulation of cell cycle inhibitors.¹¹ Studies on type of exercise has reported no negative effect by recruiting strength exercise on telomer length and indicated that chronic fatigue syndrome which may be revealed in some athletes, is not related to strength training,¹²⁻¹⁶ although several studies have indicated that telomer length seem to be shorter in individuals suffering from chronic fatigue syndrome.

Obesity and effects on telomer

Physical inactivity and poor dietary pattern have been considered as effective components for both individual and public health. The prevalence of overweight and obesity has gained a growing trend which can be mainly as a result of physical inactivity, poor dietary pattern and industrialized behavior in most of the countries. Both sedentary lifestyle and unhealthy dietary pattern can increase the risk of disease prevalence due to the increase in oxidative stress and decrease in leukocyte telomer length. Studies have suggested that physical activity even as leisure activity, can bring beneficial effects for telomer stability.¹⁷

Culture, tourism, lifestyle and telomer

Each society has its own culture and heritage. Several social behaviors are derived from culture and which can be inherited from the past. Social behaviors can affect the lifestyle and the way of living including dietary pattern and physical activity.¹⁰ This hypothesis may bring us to the question that how culture and tourism industry can affect telomer.

As mentioned before, tourism industry in each country, can be affected from the past history of the society which may be inherited from the previous community, in the other words, tourism can be affected by history. Each society has its own culture which may lead to certain lifestyle, which can be manifested even in dietary pattern (including traditional foods) and physical activity. Besides that, each country has its own historical attraction including natural resources. These can make each country to be known as a pole of historical or natural resources which may increase the attraction of tourism.¹⁸ It can be suggested that the attraction of tourism via increasing the manifestation of beneficial aspects to other societies, increase the rate of tourism which can be considered as a way to exchange lifestyle as well. By improving the lifestyle component including dietary pattern and physical activity, which can be inherited from the history and culture, more exchange regarding healthy and positive aspects of that specific lifestyle will be occurred which may ultimately improve the cell health, increase the length of telomers and improve both individual's and public health status.^{19,20}

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Conflicts of interest

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