Re-examining the influence of lifestyle choices on the mortality rate

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Abstract

The focus of this paper is to provide insight into the current state of five lifestyle choices, (smoking, alcohol, leisure, physical exercise, and nutrition habits) review the effects of these lifestyle choices on mortality and recommend future directions for lifestyle research. We found that while some lifestyle choices (alcohol and smoking) have a direct relationship with the mortality rate, there is an inverse relationship between physical activities, leisure activities, and good eating habits on the mortality rate. We also found that despite the decrease in the mortality rate, it is likely that there will not be a significant decrease in youth mortality. We propose that future works should forecast how different lifestyle choices practice by the youth will influence future mortality rate.

Keywords: Lorenz Curve, Gini Coefficient, Right Truncated Pareto's Income Distribution

1. INTRODUCTION

Global mortality rate decreased by 13.46% % over a 20 year period spanning from 1996 to 2016(World Bank, 2019). Figure 1

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reports the trend in global mortality rate. From 8.83% in 1996, the annual deaths per 1,000 population decreased to 7.64% in 2016. Several factors contributed to the decrease in global mortality rate. Some researchers have found that mortality decrease is motivated by massive improvement in health care delivery (Christensen, Doblhammer, Rau, & Vaupel, 2009; Parkin, 2006; Rasella, Harhay, Pamponet, Aquino, & Barreto, 2014). An earlier contributor found that behavioral factors are related to the decline of infant mortality(Rutstein, 2000). Supporting this, Parkin (2006) argued that a decrease in stomach cancer has been recorded as results of Helicobacter pylori infection control and this has caused a decreased mortality rate. The use of ICT in reducing mortality rate has also been investigated(Moise, Kalipeni, Jusrut, & Iwelunmor, 2017; S.Nyamawe & Seif, 2014). Mobile phones usage presents a potential opportunity in enhancing quality of maternal, neonatal and child health (MNCH) services delivery(S.Nyamawe & Seif, 2014). Other scholars have also found evidence to support that the mortality rate has decreased as a result of improvement in nutrition(Cutler, Deaton, & Lleras-Muney, 2006). Confirming this, Cutler et al., (2006) argued that children who are frequently nourished do not suffer from the poorly-controlled infectious disease. Despite the decrease in the death rate, the determinants of longevity are not fully understood(Shi et al., 2015).
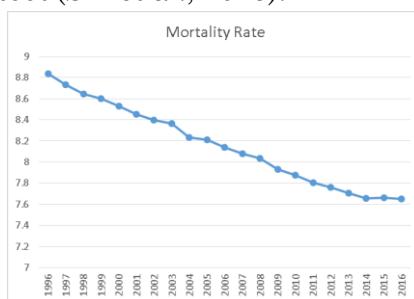

Figure 1 Global Mortality Rate

Source: (World Bank, 2019)

Previous works have found that biological, environmental, and psychosocial factors influence the death rate (Candore et al., 2006; Lin, Chen, Chien, & Chan, 2012). Lifestyle factors, such as physical activity, smoking, nutrition habits, and leisure time could play an important role (Jankovic et al., 2014). Although researchers have investigated different lifestyle choices, the scholarly understanding of the effects of different lifestyle on mortality is still scanty. Findings from previous works have not given clear directions as to how lifestyle choices influence the mortality rate. An understanding of how lifestyle choices influence the mortality rate will not only provide insight into the current state of some lifestyle choices but will bring into light the effects of these lifestyle choices on mortality. Addressing this in literature, we aim to provide insight into the current state of some lifestyle choices (smoking, alcohol, leisure, physical exercise and nutrition habits), review the effects of these lifestyle choices on mortality and recommend future directions for lifestyle research.

2. STATE OF SELECTED LIFESTYLE CHOICES

2.1 Smoking:

Cigarettes are the most commonly used form of tobacco and one of the major causes of preventable diseases globally (World Health Organization, 2018). At the turn of the 21st century, 27% of people smoked around the world, it is predicted that by 2025 this figure will drop to 17%, (World Health Organization, 2018). Tobacco consumption has decreased steadily (Geneva: World health Organization, 2018). As indicated in figure 2, the prevalence of tobacco smoking decreased in all age groups between 2000 and 2015 and the reduction is expected to continue in all age groups during 2015–2025. In all periods, the prevalence of tobacco use is highest among people aged 45–54 years. Despite the decrease in smoking, it is unlikely for the world to meet global and national commitments to cut tobacco

use in over 15s by 30 percent by 2025(Geneva: World heald Organization, 2018).

Table 1 Tobacco smoking by age range						
Age	2000	2005	2010	2015	2020	2025
15-24	19.1	17.1	15.7	14.3	13.1	12.3
25-34	27	24.3	21.9	20.2	18.8	17.2
35-44	32	29	26.5	24.1	22	20.6
45-54	33.2	30.1	27.4	25.4	23.5	21.5
55-64	29.6	26.8	24.6	22.7	21.1	19.9
65-74	19.4	22.1	20	18.4	17.3	16.2
75-84	19.4	17.4	16	14.7	13.6	12.7
>85	15.3	14	12.1	11.5	10.7	10

Source: *(Geneva: World health Organization, 2018)*

2.2 Alcohol

Since 2000, the percentage of drinkers in the world has decreased by almost 5% from 47.6% to 43.0%(WHO & Management of Substance Abuse Team, 2018). Alcohol consumption ranks the fifth most important risk factor for the burden of disease worldwide(Rehm & Monteiro, 2015). Approximately 4.5% of the global burden of disease and injury is attributable to alcohol(WHO & Management of Substance Abuse Team, 2018). Moreover, over 2.3 billion people are current drinkers(WHO & Management of Substance Abuse Team, 2018).

Global Drinkers from 2000-2016
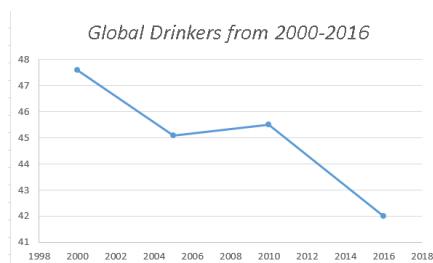
Source (WHO & Management of Substance Abuse Team, 2018)

Despite the decrease in global drinking pattern, total alcohol per capita consumption in the world's population over 15 years of age rose from 5.5 liters of pure alcohol in 2005 to 6.4 liters in 2016(WHO & Management of Substance Abuse Team, 2018). This means that despite the decrease in the global alcohol rate, the rate of increase among the youth keep increasing.

2.3 Leisure

Leisure is the time allocated aside from the real work based on individual consideration (Haworth & Lewis, 2005). Leisure activities are more important for quality of life(Brajša-Žganec, Merkaš, & Šverko, 2011). Leisure time stimulates internal motivation without the influence of reward or social control, an important component which requires special attention in anyone's life to ensure a prosperous and quality life(Korpela & Kinnunen, 2011). As reported by the World Atlas (2019) the amount of time spent on leisure, by selected countries, Belgium ranked first with 368 minutes per day on leisure. Figure 3 reports the top 20 countries and the amount they spend on Leisure activities
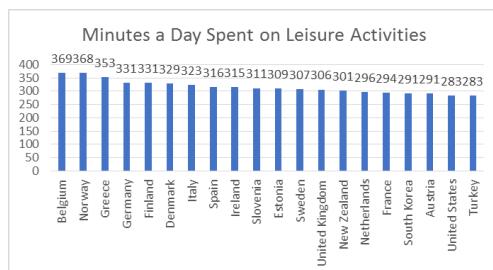

Figure 2 Top 20 OECD Countries that Spent the Most Time on Leisure Activities
Source: World Atlas

Leisure time activities could help to reduce stress and help to increase physical wellbeing, emotional, spiritual and self-development(Hamida, Ahmada, & Awang, 2016). Table 1 represents the amount of time spent on leisure by US citizens.

From table 2, it is seen that on average, adults aged 75 and over spent 8.0 hours per day engaged in leisure activities more than any other age group. On the other hand, the youthful age between 35- to 44-year-olds spent 4.1 hours engaged in leisure less than another age group.

Table 1. Average hours per day spent in leisure and sports activities by age, 2014 annual averages

Age	Watching TV	Socializing and communicating	Playing games and using computers for leisure	Participating in sports, exercise, and recreation	Reading	Relaxing/thinking	Other leisure and sports activities, including travel
15 to 19 years	2.4	0.8	0.9	0.6	0.1	0.2	0.7
20 to 24 years	2.5	0.9	0.8	0.4	0.2	0.1	0.5
25 to 34 years	2	0.8	0.4	0.3	0.1	0.3	0.4
35 to 44 years	2.2	0.6	0.3	0.3	0.2	0.2	0.4
45 to 54 years	2.7	0.7	0.3	0.2	0.2	0.3	0.4
55 to 64 years	3.3	0.6	0.4	0.2	0.4	0.3	0.4
65 to 74 years	4	0.7	0.5	0.3	0.6	0.4	0.5
75 years and over	4.5	0.7	0.5	0.2	1.1	0.7	0.4

Source: World Atlas

2.4 Physical Exercise

Physical exercise includes bodily movement produced by the skeletal muscles that increase energy expenditure. The benefits of physical activity include reduced risks for noncommunicable diseases (Lee et al., 2012). All adults should undertake at least 150 min of moderate-intensity aerobic physical activity or 75 min of vigorous-intensity aerobic physical activity or an equivalent combination each week(WHO European Office, 2018). Despite the advantages of physical exercise, lots of youth lack physical exercise(Huang et al., 2019). It has been found that youth have low physical activity and physical fitness levels and high sedentary behaviors (Huang et al., 2019). Moreover, more than 80% of adolescents do not undertake enough aerobic physical activity (Human Health Service, n.d.) This means that despite the importance of physical exercise, this benefit is not much experienced among the youth.

2.5 Nutrition Habits

Nutrition influences health status(Gezer, 2018). Malnutrition and poor diets is a major driver of the global burden of disease and also is one of the major determinates of health (Global Nutrition Report, 2016). At least 48% of countries are in the process of achieving meeting least one nutrition target(Global Nutrition Report, 2018). Another important food eating habit is the timing of eating. Breakfast is seen to contribute to the physical health and intellectual capabilities of a person. It is the central component of one's daily nutritional requirement. Individuals who eat breakfast each day are less depressed and have lower levels of perceived stress. Breakfast skipping has been found to have negative effects on health(Yokoyama et al., 2016). Despite the benefits of breakfast, youth do not eat breakfast (Agrahari, Agrahari, & Mishra, 2017). Explaining this, they argued that the youth miss breakfast due to peer pressure, lack of time and no nutritional awareness.

3. EFFECTS OF LIFESTYLE CHOICES ON MORTALITY

We first discuss the effects of smoking on mortality. A report by the World Health Organisation, (2015) stated that both smoking and smokeless account for the death of about six million people across the world each year. In Finland, smoking-attributable deaths constituted about 27% of all male deaths above age 50 in the early 1970s and 17% in the period 2006-2010; (Martikainen, Ho, Preston, & Elo, 2013). Another effect of smoking on mortality is a higher probability of implant failure (Goutam, Singh, & Patel, 2013). Next, we discuss the effects of alcohol on mortality. The average volume of alcohol consumed by a person is related primarily to long-term health consequences(Roerecke & Rehm, 2010). This means that alcohol has negative effects on mortality. The use of alcohol resulted in 3 million deaths which accounted for 5.3% of all deaths

worldwide in the year 2016(WHO, 2010). Focusing on the effects on different age range, people of younger ages are disproportionately affected by alcohol compared to older persons, and 13.5% of all deaths among those who are 20–39 years of age are attributed to alcohol(WHO & Management of Substance Abuse Team, 2018). We now focus on how leisure influences mortality. Most works have found an inverse relationship between leisure and mortality rate(Lennartsson & Silverstein, 2001; Paganini-Hill, Kawas, & Corrada, 2011) Participation in leisure-time activities promotes ageing populations. (Paganini-Hill et al., 2011).Social activities have the strongest effects on survival among women, whereas men seem to benefit from solitary activities(Agahi & Parker, 2008). An earlier contributor found that Americans aged above 65 years who participates in social activities decrease mortality by 19%(Glass, de Leon, Marottoli, & Berkman, 1999). Another study by Lennartsson & Silverstein (2001) found that Swedish aged above 77 who participates in solitary activities was associated with a 20% reduction in mortality. In terms of physical activities, previous work has found a negative relationship between physical activities and mortality rate(Byberg et al., 2009; Lear et al., 2017). Increased physical activity among the middle age is followed by a reduction in mortality to the same level (Byberg et al., 2009). Again, physical activity reduces many major mortality risk factors including arterial hypertension, diabetes mellitus type 2, dyslipidemia, coronary heart disease, stroke, and cancer(Reimers, Knapp, & Reimers, 2012). From 17 countries, the findings of (Lear et al., 2017) found that higher physical activity was associated with lower risk of CVD and mortality. Finally, we discuss the effects of poor diet on mortality rate. In a study to examine the relationship between food habits and mortality using data from the Shi et al., (2015), found that fruit and vegetable consumption was inversely related to mortality. Poor dietary factors have also been found to be associated with

deaths from heart disease, stroke, and diabetes(Micha et al., 2017). Previous studies have also shown that skipping breakfast is related to unhealthy lifestyle habits and skipping breakfast significantly increased the risk of mortality from circulatory diseases(Yokoyama et al., 2016). A study by Cahill et al., (2013) found that skipping breakfast increased the risk of coronary heart disease and argued that breakfast consumption is a marker for an appropriate dietary pattern. Overall, we have found evidence to support that lifestyle choices influence the mortality rate differently

4. CONCLUSION

The focus of this paper is to provide insight into the current state of some lifestyle choices, reviews the effects of these lifestyle choices on mortality and recommend future directions for lifestyle research. Findings from previous works have not given clear directions as to how lifestyle choices influence the mortality rate.

First, we found that there is a direct relationship between smoking and mortality rate and a decrease in the smoking patterns decreases mortality rate. Our review found that although there is a decrease in the global use of tobacco, the use of tobacco is still high among the aged 45–54 years. In terms of alcohol, we found that the use of alcohol leads to 3 million deaths annually. Again, there has been a global decrease of 5% in terms of drinkers (from 2000 to 2016). Despite the decrease in global drinking pattern the alcohol consumption for over 15 years of age rose from 5.5 liters of pure alcohol in 2005 to 6.4 liters in 2016. Focusing on leisure, we found that participation in leisure decreases mortality rate and people who find time for leisure activities live longer than others who do not. We again found a direct relationship between physical activities and mortality rate. We found that an increase in physical activities decreases the mortality rate.

Finally, we found that nutrition has an effect on health status. The positive effects of timely eating habits include less depressed, less emotionally distressed and have lower levels of perceived stress. We also find that most youths do not eat at the right time.

Overall, our findings suggest that different lifestyle choices influence the mortality rate differently. Despite the decrease in overall mortality rate, it is likely that there will not be a significant decrease in youth mortality. For instance, despite the global decrease in the usage of alcohol and smoking, the rate of usage among the youth is still high and keeps increasing. The possible effect of this on mortality is that, although global mortality is decreasing, the rate of mortality among the youth is likely to increase. In terms of leisure activities, our results suggest that despite the benefits from leisure activities the youth spent the least time on leisure activities and hence are unlikely to enjoy the benefits associated with leisure in terms of mortality. Moreover, despite the advantages of physical exercise, lots of youth lack physical exercise and hence are unlikely to enjoy the benefits from physical activities. We, therefore, propose that future works should forecast how different lifestyle choices practice by the youth will influence the mortality rate. This prediction will give a clear indication of how these lifestyle choices affect youth mortality.

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