

STATE OF MALNUTRITION AND ITS FAST GROWING WING IN DEVELOPING COUNTRIES

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Abstract

Nutrition is one of the most important issues for the well-being of human life. It concerns rich and poor, rural and urban, developed and developing countries. Since, it is not a specific problem for some part of the world only, like most other problems, it should get serious attention as it deserves.. Accordingly, different literatures show that, for millions of people worldwide, hunger and malnutrition are common everyday challenges; for some, even famine is a threat. But in many developed countries, food abundance brings other serious nutritional and health problems. Though these are being addressed, western habits are starting to spread.

However, most of literatures focus more on the undernutrition aspect of malnutrition, rather than overnutrition. Malnutrition is a broad term which refers to both undernutrition (sub nutrition) and overnutrition. Individuals are malnourished, or suffer from undernutrition if their diet does not provide them with adequate calories and protein for maintenance and growth, or they cannot fully utilize the food they eat due to illness. People are also malnourished, or suffer from overnutrition if they consume too many calories. According to the World Health Organization (WHO), malnutrition is the gravest single threat to global public health. And according to the Food and Agriculture Organization (FAO), the number of people globally who were malnourished stood at 923 million in 2007, an increase of over 80 million since the 1990-92 base -period. In more wealthy industrialized nations malnutrition is usually caused by: Poor diet, mental health problems, Mobility problems, digestive disorders and stomach conditions, alcoholism. In poor, developing nations malnutrition is commonly caused by: Food shortages, Food prices, food distribution and Lack of breastfeeding.

In this research nine countries from different continent are included. And the result of this assessment shows that there is high-rate of growth as far as overnutrition is concerned, in both high income and low income countries for both sexes. And the percentage growth of overweight and obesity for some low-income countries is very significant. Cameron is the one that shows high obesity rate from the low-income countries. And, France is the country that shows a low growth rate for overweight from high-income countries. The study also figure out that, there is a high positive relationship between the energy consumption and overweight.

Key words: Malnutrition, overweight, obesity, body mass index (BMI),

Introduction

Our world is facing different challenges from time to time. Most of the problems are associated with change in the human way of living. Over the past several decades a dramatic shift in stages of the way the entire globe eats, drinks and moves have clashed with our biology to create major shifts in body composition (Popkin, Adair and Ng, 2012).

Civilization and technological development, like any other aspect, plays a great role in the change of human feeding habit. Accordingly, consumption of industrially processed foods becomes common in many parts of the world. Being industrially processed food might not mean that it is unhealthy, but it may need special considerations during consumption. Because, most of industrially processed foods are concentrated with their content. In the United States, one third of children and adolescents are overweight or obese, yet food and beverage companies continue to target them with advertising for products that contribute to this obesity crisis (Harris and Griff, 2012).

Some years ago lack of food was a serious problem in most parts of the world. But, now a day, the problem of food shortage is not the agenda anymore in most parts of the world. But the problem of malnutrition still continues without any improvement. It seems paradoxical, but not, just changing its form. Malnutrition in all its forms: undernutrition, micronutrient deficiencies, and overweight and obesity does impose high economic and social costs on countries at all income levels (FAO, 2013). Many Governmental and non-governmental organizations and different concerned bodies are trying to solve the problem of 'Hunger' which leads to undernourishment. There is a substantial progress in this regard. But, the current world data show that both undernutrition and overnutrition are almost at the same level and troubling the world equally. And, according to the Food and Agriculture Organization (FAO), the number of people globally who were malnourished stood at 923 million in 2007, an increase of over 80 million since the 1990-92 base –period. By 2015, nearly one in every three people worldwide is projected to be overweight, and one in ten is expected to be obese (Pontzer et al., 2012).

There is a big gap between satisfying the stomach and satisfying the body. But, most people, even in developed countries and educated classes do not seriously think of the nutritional need of their body. Accordingly, many people try to solve their immediate need by consuming what makes them satisfied for the time. We can fill our stomach with anything that makes us interested to eat. But in the mean time we might forget satisfying or fulfilling our body need and possibly let the crave of our body for some nutrients continue. In the other dimension, the over consumption may happen and the body may become overloaded with unnecessary calories. Of course, the problem could be dependent on the food system and some other factors as well. This study may give a break to every individual to think thoroughly about each and every day feeding habit, regardless of where he or she lives.

Though some literatures suggest the production point as the major factor to prevent malnutrition, the major point seems different. Here, we should ponder, but it seems the consumption is the major point. Because, if a person consumes according to the need of the body, it is much easier to produce according to the demand, so long as the production is grounded on the demand. To do so, there should be an appropriate means for any person to easily figure out how much energy does the food in a market contain. So, if a food in the market, whether it is processed or not, including hotel menu are labeled very clearly with its nutritional content and if a person knows the daily need of the body based on the specific personal factors, it would be much easier to make matches between them.

In this study, the case of overweight and obesity prevalence among different low income and high income countries is examined. And, the growth percentage of the problem from time to time is analyzed for both male and female above the age of fifteen. Further, comparison from different point of view regarding overweight and obesity is done among high income and low income countries and the relationship between energy intake and obesity is assessed.

Material and methods

Electronic database regarding the overweight population in some developed and developing countries above age 15 for both sexes is accessed from WHO website. Moreover, internet search engines and bibliographies of included studies were searched for articles published in English. Then, the numerical data are processed for its graphical display on windows-Excel sheet, for the comparison of overweight between developed and developing world, between female and male and the percentage growth of overweight and obesity is done. In addition, the relationship between intake of kilocalorie/person/day and prevalence of overweight is assessed using Software Package in Social Science/SPSS, applying correlation and regression methods.

Results and discussion

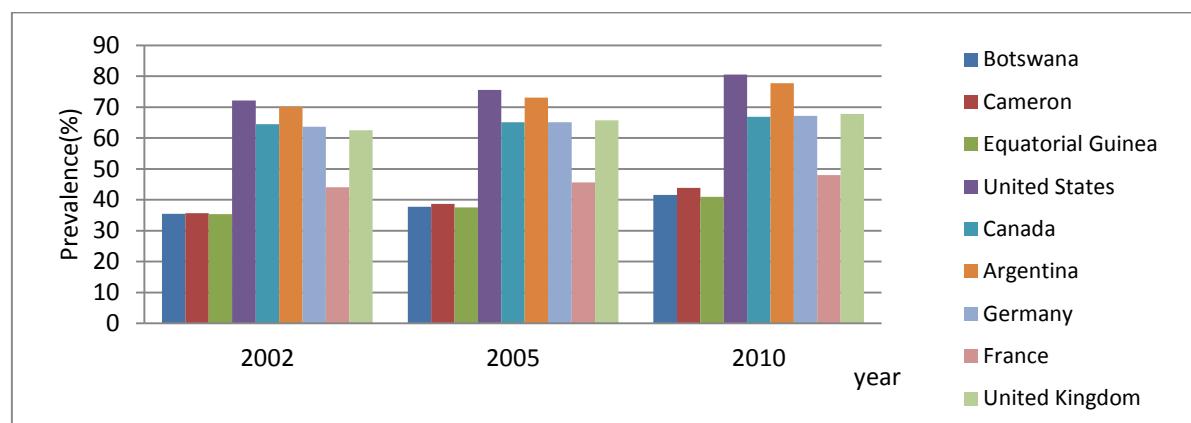


Figure 1: Overweight and obesity (BMI ≥ 25 Kg/m 2) prevalence, Male Age 15+
Source: WHO, own editing, 2014

Based on figure 1, in all the countries, overweight and obesity are increasing from time to time for males, though the magnitude differs from country to country. From the selected developed countries, United States show high rates of overweight and obesity having 72.2%, 75.6% and 80.5% in 2002, 2005 and 2010 respectively. On the other side, France shows the lowest rate of Overweight and Obesity from the developed countries observed, having 33.4%, 34.7% and 36.9% in 2002, 2005 and 2010 respectively. And, Argentina shows high rate of Overweight and Obesity next to the United States. But regarding the African developing countries, all the three countries show a lower rate when compared with the developed ones and Argentina.

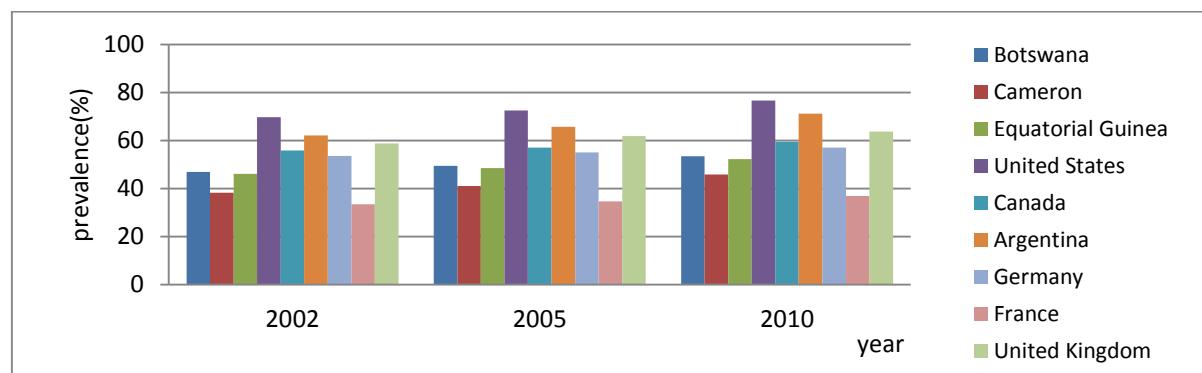


Figure 2: Overweight and obesity (BMI ≥ 25 Kg/m 2) prevalence, Female Age 15+
Source: WHO, own editing, 2014

According to figure 2, United States have high rates of overweight and obesity for female having 69.8%, 72.6% and 76.7% in the year 2002, 2005 and 2010 respectively. And France has the lowest rate of overweight and obesity having 33.4%, 34.7% and 36.6% in the year 2002, 2005 and 2010 respectively. All, Botswana, Cameron and Equatorial Guinea has shown higher rate of overweight and obesity than France and very much closer to the other countries as far as their rate of overweight and obesity is considered for their females.

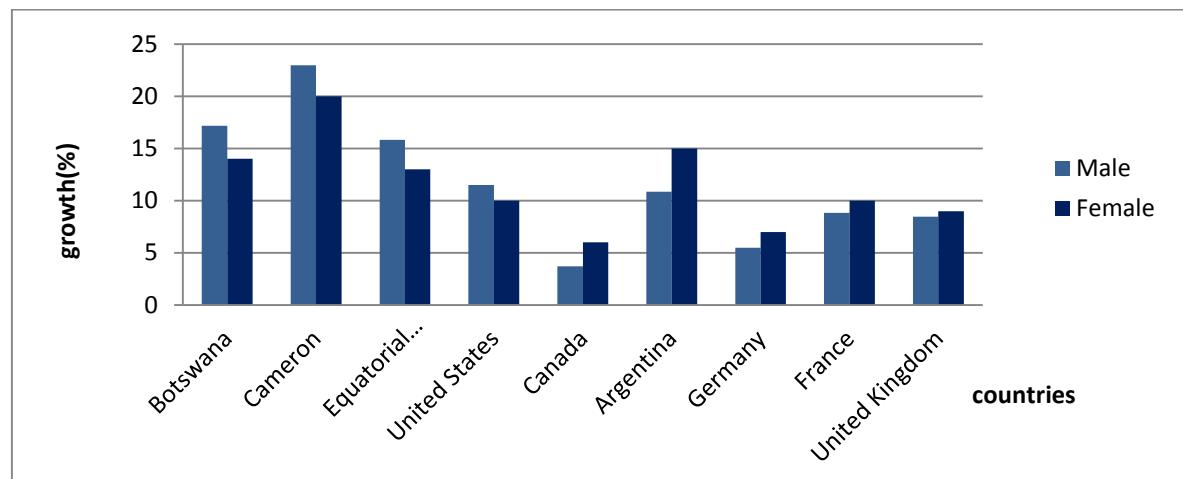


Figure 3: Overweight and Obesity increase rate from 2002 to 2010

Source: WHO, own editing, 2013

It is easy to observe the percentage growth difference between the countries from figure 3. Accordingly, the developing countries show the highest growth percentage of overweight and obese people than developed countries. The highest rate of growth in overweight and obesity for male and female is observed in Cameron, 23% and 20% respectively from the year 2002 to 2010. The lowest growth rate is observed in Canada, male 4% and female 6%. The other major thing that is found from the result displayed in figure 3 is that, the percentage increase in males is higher than females in all developing countries and in the United States. In the other developed countries and in Argentina the growth rate of the case for females is higher than males. The cause for this difference might need further research. Since overweight and obesity affect the social, economic and health aspects of life, this may have potential danger in the different dimensions of social affairs like gender issues.

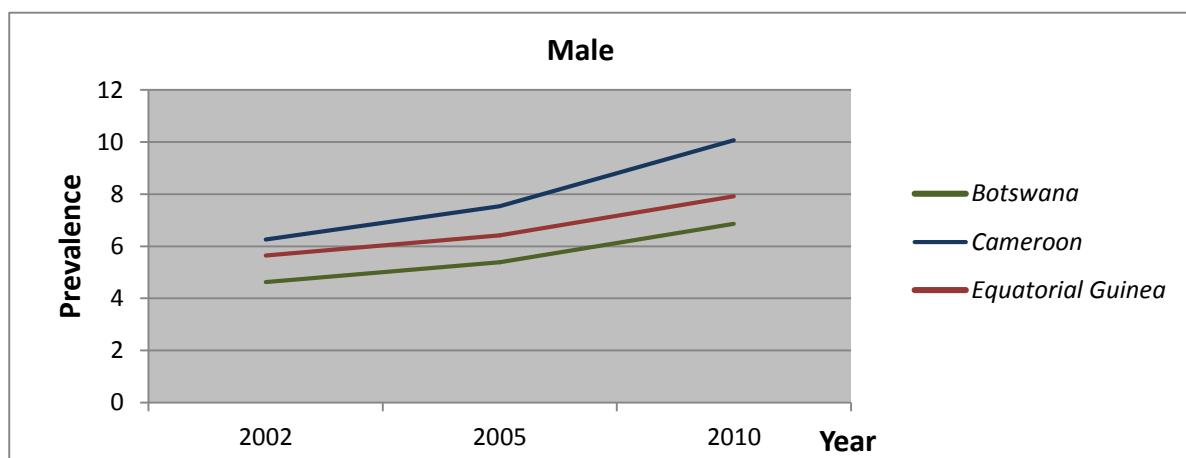


Figure 4: Estimated Obesity (BMI $\geq 30 \text{ kg/m}^2$) Prevalence, males, Aged 15+, 2002-2010

Source; WHO, own editing , 2013

Figure 4 shows that, how the growth trend of obesity in male is going on in developing countries. According to the 2010 data, Cameron is the one with the highest rate of Obesity for Male among the three African developing countries.

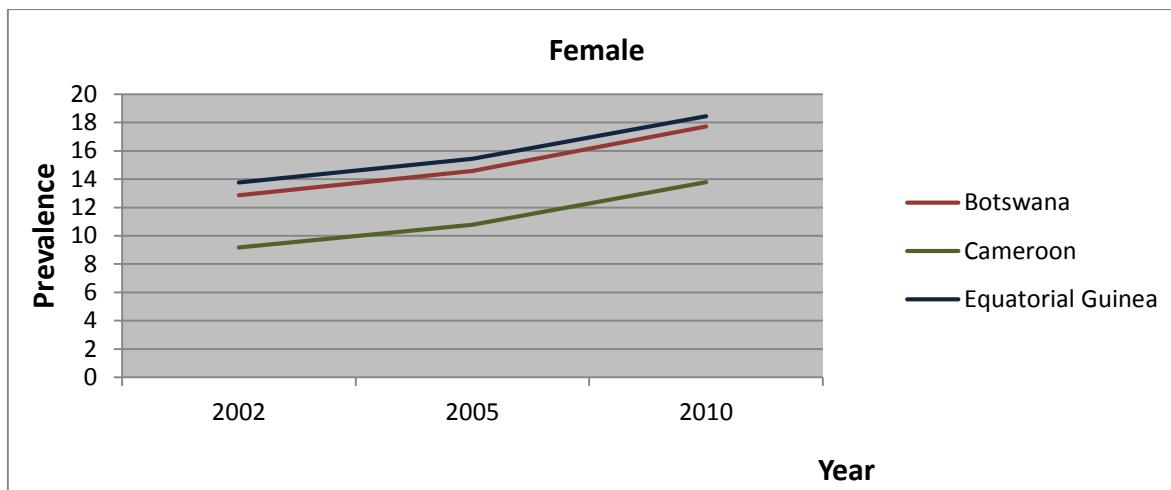


Figure 5: Estimated Obesity ($\text{BMI} \geq 30 \text{ kg/m}^2$) Prevalence, Female, Aged 15+, 2002-2010

Source; WHO, own editing, 2013

From figure 5, it can be easily observed that, how the growth trend of obesity for female is going on in developing countries. Accordingly, the increase rate is higher for females in all the three countries. Based on the 2010 data the highest proportion of Obese female population above the age of fifteen is found in Equatorial Guinea, among the three African countries.

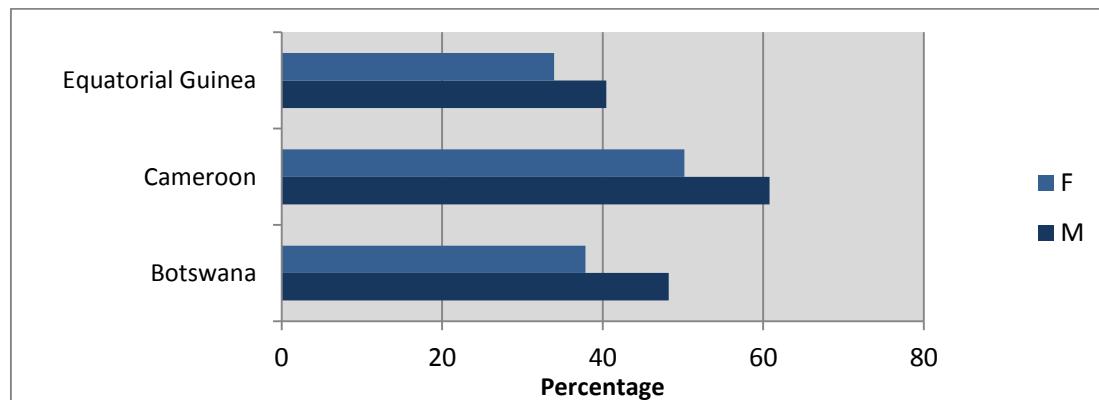


Figure 6: Percent change for Obesity ($\text{BMI} \geq 30 \text{ kg/m}^2$) Prevalence, males and Female, Aged 15+, from 2002 to 2010,

Source; WHO, own editing, 2013

Figure 6 shows the growth prevalence rate of Obesity (BMI $\geq 30 \text{ kg/m}^2$) for the above mentioned countries for both sexes. Accordingly, the highest growth rate for male has seen in Cameron by 60.77%. This means that the Obesity for males grow at the rate of 60.77% from 2002 to 2010. And the second country is Botswana, where the obesity grows at the percentage of 48.24 from 2002 to 2010. And the third country is Equatorial Guinea, where the obesity increases by 40.45% from the year 2002 to 2010.

As far as the obesity of female concerned, the first country is Cameron, the rate is around 50.18%, this means, obesity in the country grows by 50.18% from 2002 to 2010. The second country is Botswana, where the obesity grows at the rate of 37.8 % from 2002 to 2010. And the third country is Equatorial Guinea, where the obesity grows by 33.9 % from the year 2002 to 2010.

Based on the above results for both sexes, Cameron is the country that shows high obesity increase rate among the three developing countries included in this research from Africa. And, for both sexes, the country shows more than 50% increase from 2002 to 2010. And Botswana is the second country to show high growth rate for both sexes next to Cameron and the last one is Equatorial Guinea.

Relationship between energy intake and overweight

Many literatures and scholars talked much about the relationship between energy intake and overweight. The assessed result on an SPSS for this study shows the following results. All the assessments are done only for male above age 15.

Table 1: The correlation between energy consumption and Estimated overweight for the nine countries, 13th of January, 2014

		Energy consumption	Estimated overweight Over
Energy consumption	Pearson Correlation	1	.727*
	Sig. (2-tailed)		.026
	N	9	9
Estimated overweight	Pearson Correlation	.727*	1
	Sig. (2-tailed)	.026	
	N	9	9

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3 shows that there is a strong correlation between energy consumption and estimated obesity. Accordingly, the significance level 0.026, which is less than 0.05, it shows that there is a relationship between the two variables, energy consumption and Obesity. And since person correlation displays 0.727, according to the statistical interpretation, it shows that the relationship is very strong and positive.

Table 2: The model summary, analysis between energy consumption and Estimated overweight for the nine countries, 13th of January, 2014.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.727 ^a	.528	.461	11.5882

a. Predictors: (Constant), Ener.cons

From the above model summery table, some meaningful interpretation of the figures is done. Since R = 0.727 this shows that there is a strong positive relationship between energy consumption and overweight. And, the R square = 0528, this shows that the energy consumption accounts for 52.8% of Obesity in the countries. So that, the cause for the rest 47.2% of obesity is considered as some other factors.

Which might be connected with health, exercise, genetic, and others . But to figure out the contribution of each factor according to countries context, it needs further detail research.

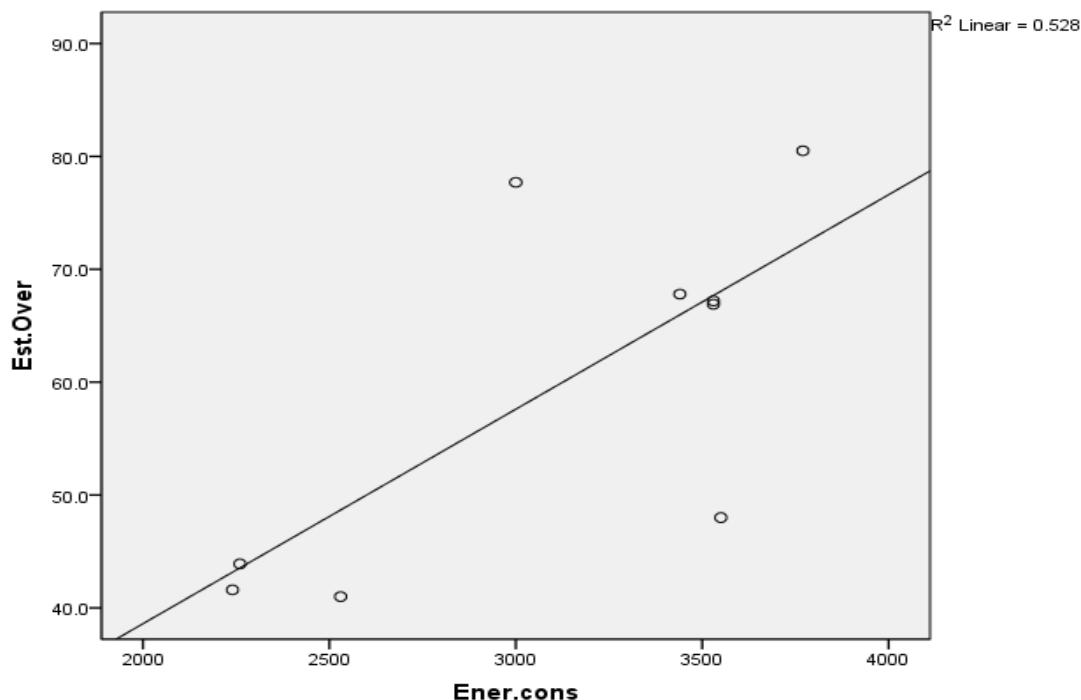


Figure 1, the regression line for the relationship between energy intake and Overweight in the above nine countries.

The above regression liner illustrates that, there is a positive relationship between energy intake and overweight. Accordingly, as the energy intake increases prevalence of overweight also increases.

Conclusions

From the above analysis, there is high difference among the developed countries themselves regarding the rate and the percentage growth of overweight and obesity. And the overweight and obesity is not only the problem of the developed world, in some cases, it is becoming worse in low income countries showing high percentage growth and high prevalence rate. As a result, in the developed world case, though there is enough production, malnutrition is still there in the form of overnutrition. The percentage increase of overweight and obesity from time to time for males is higher in African countries and the United States. And the percentage increase of overweight and obesity from time to time for females is higher in Europe, Argentina and Canada.

In general, it could be concluded that malnutrition is increasing all over the world in its form of overnutrition and the cause of the problem seems it needs further research according to the country's condition. Otherwise, the development level and fast food consumption status might not be mentioned as the major complaining factors for overweight and obesity.

As far as the relationship between energy consumption and overweight is concerned. There is a high correlation between the two variables. And moreover, from the model summery table result, it can be concluded that, the energy consumption accounts for more than fifty percent of

obesity cause in the observed nine countries. Finally, not only overnutrition in general, but also, obesity is growing at a very fast rate in developing countries.

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