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Investigation of factors related to Body Mass Index Underweight, Overweight and Obesity prevalence among university students

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ABSTRACT*: The purpose of this study is to examine student body mass and categories it into a grid whether they are underweight, normal body weight, obese or extremely obese. This study was carried out to first year Physical Education University student in Zambezi region of Namibia. A total number of 208 students 46.6% (n = 97) female participants and 53.3% (n =111) male participants, between the ages range of 18 - 37 partook in this study. The data of the study were gathered with the "Student Body Mass Index calculation form" Bathroom scale with 0.1 sensitivity and a static vertical measuring tape.According to the results of current study; (n =26) 12, 5% of university students were found to be underweight, (n = 61) 29,3% were found to have normal bodyweight, (n = 106) 51% were found to be overweight and (n = 15) 7.2% were found to be obese. Although the frequency of being underweight, overweight and obese show higher scores in female participants compared to male. Despite female dominance in 3 BMI grids, male participants scored higher records under normal bodyweight than female by 41% over female's 21%. Overweight and obese results in all genders are a severe risk to student's health.*

KEYWORDS*:* BMI, underweight, normal bodyweight, overweight, obesity, university students

INTRODUCTION

Overweight and obesity cause enormous health related diseases, and the reported health outcomes is increasing at an alarming rate globally equally in developing and developed nations (WHO, 2013). The World Health Organization has timeously described obesity related infections as a contemporary epidemic the health industries have ever seen in its history (WHO Obesity and Overweight, 2020). Moreover, for the past 20 years the commonness of obesity and overweight has sky rocketed rapidly in young people, mainly due to sedentary lifestyle and eating of junk foods (Zealand & Stergiadis, 2014). In Namibia, around 2 - 3 out of 10 young people between the ages of 18 to 24 years are battling with obese or overweight related diseases, this is also widely reported in Asia, Europe, North America, South America and Australia (WHO Obesity and

overweight, 2020). The massive numbers of obese and overweight young people live in urban areas rather than rural areas of the developing countries, whilst in developed nations immense numbers of obesity and overweight were annually reported in town and cities (World Health Organisation, 2019). Global obesity status has nearly increased and doubled since the year 1975. In the year 2016, more than 1.9 billion young people between 18 years and above, were reported to be overweight (WHO, 2013).

Furthermore, over 650 million young people were reported to be obese, 39% of young adults aged 18 years and above were overweight in the year 2016, and 13% were reported to be obese. The utmost of the world's people live in nations where overweight and obesity kills more people than underweight (WHO Obesity and Overweight, 2020). Obese young people are more prone to develop a variety of health related disease when they grow into adults. These health related diseases include: musculoskeletal disorders associated with osteoarthritis disease of the joints; some type of cancers such as breast, prostate, ovarian, liver, colon, gallbladder, kidney and endometrial; cardiovascular diseases which generally associated with heart disease and stroke and type 1 and 2 diabetes (WHO Obesity and Overweight, 2020). To prevent obesity in young people is a big challenge which requires an informative education and a serious awareness as it essentially reliant on avoiding sedentary lifestyle behaviors including no regular or rigorous physical activity and decreased junk foods eating behaviors (Zealand & Stergiadis, 2014).

According to Kela (2016) portrayed a clear evidence that an imbalanced social, physical, emotional, mental and intellectual health aspects plays an important role in changing people's lifestyle and health behaviors. The prevalent use of innovative technological gadgets to socialize online such as computers and cellphones has increase inactivity among young people, which has tripled obesity and overweight in recent years (Kela, 2016).

Despite numerous studies that are carried out on overweight and obesity, few studies have been done to reveal health diseases associated with being underweight on young people, these health related disease includes; Hormones regulating menstruation and fertility are disrupted, immunity is compromised and infections develop, nutrition deficiencies may produce hair loss, anemia Osteoporosis also known as bone thinning (Zealand & Stergiadis, 2014). Research has proved that participating in physical activities on daily basis relates with the prevention of overweight in young people (WHO, 2021). To fight this non-infectious epidemic, the present worldwide recommendations suggest that young people should at least participate for 150 minutes weekly of moderate to vigorous-intensity physical activities, in sessions of 10 minutes or more (Zealand, 2011). Physical activity in which young people can partake to avoid a sedentary lifestyle may include the following; physical education, running, housework, taking a walk, swimming, lifting weights, play, yoga, push up, games, sports, transportation, recreation, and structured exercise and may be undertaken in the context of family, school or community activities (KFL&A Public Health, 2020).

Numerous researches carried on obesity and overweight has revealed that the gradually developed and the advanced world driven by technology gives limited chances for young people to engage

more in physical activity that involve play (WHO, 2020). The results of young to participate in activities that do not involve physical movement are caused by some of the following factors; communication technology and increased usage of information, digital offline and online games, television and computers (Akalin & Gumus, 2020). Contrary to popular belief, it is widely believed that overeating of unhealthy food is the only cause of obesity, but the world of research have pointed out with concrete evidence that young people also have dedicated much of their time to inactivity for the past few years (Akalin & Gumus, 2020).

Problem Statement

Sedentary lifestyles have increased for the past two decades, which has led to numerous health deaths related to overweight and obesity globally. Today's young people enjoy their lives without physical activities than ever before, with the substitution of technological gadgets such as video games, smart phones, computers and watching television. More over numerous studies carried on underweight, overweight and obesity have pointed out that eating unhealthy junky and poor nutritious foods has immensely increased in the past years (Zealand & Stergiadis, 2014). Therefore the purpose of this study is to categorise student's body mass into a body mass index grid to determine whether they are underweight, normal body weight, overweight or obese, and outline health related diseases associated with each category.

Research questions

1. What is the health implications associated with sedentary lifestyle?
2. How can sedentary lifestyle be avoided to increase a lifestyle with physical activities?

LITERATURE REVIEW

Sedentary lifestyle

Sedentary lifestyle is a foremost underlying reason of death, illness, and disability globally. Roughly 2 million deaths annually are attributed to physical sedentariness; and pilot findings from a WHO study on the danger aspects put forward that sedentary lifestyle is one of the ten foremost causes of disability and death in the world presently (WHO, 2002). Moreover, sedentary lifestyle is found to increase all causes of death, it triples the risk of cardiac diseases, obesity and type II diabetes. It also raises the risk of breast and colon cancer, osteoporosis, high blood pressure, depression, anxiety and lipid disorders (Akalin & Gumus, 2020).

Levels of sedentariness are in elevation in almost all developing and developed nations. In developed nations more than half of young people are inadequately active. In fast growing big cities of the developing countries, sedentary lifestyle is even a bigger problem motivated by factors such as; poverty, crime, crowding, low air quality, traffic, lack of parks, sports facilities, recreation facilities and pavements make physical activity a challenging choice. In Sao Paulo Brazil, roughly 70% of its population is sedentary (WHO Obesity and Overweight, 2020).

Factors associated with being underweight

In Bangladesh, the prevalence of being underweight is very high with an increasing trend of overweightness and obesity. The multinomial logistic regression analysis carried in a study by Khan & Kramer (2009) indicates that young women with high socioeconomic status were significantly negatively associated with being underweight. Under-nutrition remain one of the most common causes of death among young people in developing countries. In sub-sahara Africa the prevalence of underweight young people is still a big problem and many countries have failed to accomplish the first millenium development goal that enforce and calls in a balance nutritious food (Khan & Kramer, 2009).

The prevalence of underweight among young people in Namibia is very low in comparison to overweight and obesity. Studies have shown that 5% of the Namibia young are underweight (Namibian Statistics on Poverty, 2020). According to the Bubnis & Nail (2021) reports that not all young people who are underweight experience side effects neither nor show symptoms of being underweight. Some young people who are underweight may experience these symptoms; Osteoporosis which is associated with bone thining and more prone to breaking, getting sick frequently, skin, hair, or teeth problems, anemia, Feeling tired all the time, irregular periods, premature birth, slow or impaired growth.

Factors associated with normal body weight

Maintaining a healthy weight is important for our living, as it is associated with the lowering the risk of heart disease, diabetes, stroke, high blood pressure, breast and colon cancer. (Harvard Chan, 2021). Studies have further suggested numerous aspects associated with a well maintainted body weight and some of its benefits include; the body circulates blood to the rest of the body efficiently, body fluid levels are easily and well managed, less risk of developing diabetes, heart related diseases, certain types of cancers, breathing difficulties, sleep apnea, osteoarthritis and you are likely to feel bettter about your inner self, with high energy to make other positive health choices (America Heart Association, 2021). Maintaining a healthy normal body weight is one of the greatest challenge of the 21th centuary, with the rise of sedentary lifestyle motivated by technology and eating unhealthy foods (Zealand & Stergiadis, 2014). To maintain a nornmal body weight a study by Lebaron (2019) has suggested the following tips, minimised food portions, eat good health foods, drink more water daily, track everything that you eat, exercise on a daily basis, sleep more and create a goal and be consistant with it.

Factors associated with being overweight and obese

Being overweight is one of the leading risk factors of untimely death. It is projected to cause an average loss of 3.9% of years of life and 3.8% of disability-adjusted life years international (Ng, et al., 2014). According to the WHO (2021) at least 39% of young people globally are currently overweight or obese, and that number is 26% in low and lower middle-income nations. Whilst in the Carribean more 60% of young people are overweight or obese, and this number is as high as 80% in some nations such as the Barbados and Tobago (World Obesity Federation, 2020). The major causes of overweight and obesity is an energy imbalance between calories ingested and calories used. Globally reports shows that there has been: an increase intake of energy-dense foods

that are high in fat and sugar, an increase in physical inactivity due to the increasingly sedentary ways of many forms of work, changing types of transportion, and increasing urbanization (WHO, 2021). The common health consequences of being overweight and obese has major risk factors for noncommunicable diseases such as; cardiovascular diseases (heart diseases and stroke), diabetes, some type of cancer (including kidney, colon,ovarian,prostate,liver, gallblader and endometrial). Musculoskeletal disorders (including osteoarthritis a disabling degenerative disease of joints) (Namibian Statistics on Poverty, 2020)

Framework

This study was framed and informed by the biopsychosocial model advocated by George Engel in 1977. Biopsychosocial model is an inter-disciplinary model that looks at the interconnection between biology, psychology and socio-environmental factors. This model specifically examines how these aspects play a role in topics ranging from health disease, to human development (Biderman, Yeheskel & Herman, 2005). The application of biopsychosocial model guided the framework of this current study and allowed it to gain deeper information and insight into medical health implications of being underweight, maintaining a normal body weight, overweight and obesity.

RESEARCH METHODS

According to Creswell (2002) quantitative research is the process of collecting, analyzing, interpreting, and writing the results of the study. This study used a quantitative research method to categorise and determine student's body mass into a BMI grid, whether they are underweight, normal body weight, overweight or obese.

Population

According to Polit & Hungler (1999) population of study consist of the whole group of people that the researcher is interested in who have the same notable characteristics. The population of this study was all Physical and Health Education first year university students in the Zambezi Region of Namibia.

Sample

Sample is a small group of the targeted population that the researcher plans to study for generalization about the target population (Creswell, 2002). Purposive sampling was employed in this study; participants were chosen to partake in this study based on a notion that they were doing Physical and Health Education as their core academic subject at the university.

Data collection methods

Data collection is a procedure of collecting and measuring data on variables of interest, in a organized method that allows one to respond to research questions, test assumptions, and evaluate results (Creswell, 2002). Data for this study were gathered with the "Student Body Mass Index calculation form" Bathroom scale with 0.1 cm sensitivity and a static vertical measuring height tape.

Student body mass index calculation form
This form was prepared by the researcher and it was meant for gathering data on key informants' gender, age, height figure, weight figure and categorizing weight into BMI grid; Underweight, Normal body weight, Overweight, Obese.

Data Analysis
Student Body Weights was analysed on BMI values for adults age 18 or above recommended by the World Health Organization (WHO). The analysis by categorization of student's weight used the chart below:

Table 1: BMI Category Chart
The height and weight was analysed using the below BMI Calculator Formula

Category	BMI Range – kg/m^2
Underweight	< 18.5
Normal Weight	18.5 – 24.9
Overweight	25 – 29.9
Obese	> 30 – 35

H^{eight}___ x H^{eight}___ = $H^{eight\ Figure}$____
____Kg / $H^{eight\ figure}$____
= BMI____

Data derived from BMI category chart and the BMI calculator formula was analysed using Statistical Package for Social Sciences V22 (SPSS software programme. Descriptive statistics (mean and Standard deviations) for each weight category were analysed

RESULTS

This section includes statistical analysis and interpretation of data gathered as a result of the application of data collection tools (demographic characteristics of student's body mass index BMI) of university students.

Table 2 below gives a brief demographic characteristic of university students who participated in the study. A total number of (n = 208) formed part of the sample (n = 111) which represent 53% were female, whereas (n = 97) representing 46% were male participants. The age ranged between 18 – 37 years female and 18 – 35 years male. The obtained height after the descriptive analysis results, ranged between 125m – 175m female and 135 – 190m male. The participants' height recorded ranged between 34.9 kg – 103.8 kg female and 37.6 kg – 92.5 kg male.

Table 2: Demographic Characteristic of Key informants

Gender	(n)	%	Age Range	Height Range (m)	Weight Range (kg)
Female	111	53%	18 – 37 years	125 – 175m	34.9 kg – 103.8 kg
Male	97	46%	18 – 35 years	135 – 190m	37.6 kg – 92.5 kg
Total	**208**	**100**			

Table 3 shows results of underweight female and male participants, 16 female participants were found to be underweight with a mean score of 1.44 (14%) over male participants with a lower score of 1.03 (10%). A total of (n = 26) 12, 5% participants are categorised as being underweight out of (n = 208) overall study sample. These results further show a high standard deviation score of 3.52 in female over 3.05 man's lower score to imply that female participant are more underweight in comparison to their male counterpart within the same category grid. Table 3 further illustrate that female participants between the age range of 18 – 19 years of age and 18 – 20 male participants dominated this BMI category, this imply age has some kind of influence to their body mass. Height was also taken into consideration, female participants' height ranged between 125 – 152 m while male recorded 135 – 155m, this means male participants were taller than female participants under being underweight category. Looking closer to table 3's height projected results suggests it clearly that height also influenced body mass results.

Table 3: Underweight Female and Male Result Comparison

	(n)	%	Age Range	Height Range	Mean	Standard Deviation
Female	16	14%	18 – 19 years	125 – 152m	1.44	3.52
Male	10	10%	18 – 20 years	135 – 155m	1.03	3.05
Total	**26**					

Table 4 shows the normal body weight of female and male results participants in comparison. A total number of (n = 61) participants were classified in this category on a BMI chart, 21 female participants recorded 1.89 mean score which represent 18% and a lower SD of 3.93. Meanwhile, (n = 40) male participants recorded a higher mean score of 4.12 representing 41% with a higher SD of 4.94 in comparison with female participants in the same category. This shows interesting results, as it imply that male participants maintained well their body healthier in comparison to their female counterpart within the same category grid. Moreover, 61 participants categorised as having a normal bodyweight represent 29.3% of (n = 208) participants. Table 4; further project the age ranges of 21 – 23 years to have dominated the normal bodyweight category equally. While, the height range of 150 – 160m was recorded under female participants and 155- 165m under male, this further suggests that female participants were shorter than male participants under this category grid.

Table 4: Normal Bodyweight Female and Male Result Comparison

	(n)	%	Age Range	Height Range	Mean	Standard Deviation
Female	21	18%	21 – 23 years	150 – 160m	1.89	3.93
Male	40	41%	21 – 23 years	155 – 165m	4.12	4.94
Total	**61**					

Table 5 shows overweight female and male results, with female participants recording a bigger mean score of 5.67 representing 57% with a SD of 4.97. Despite female participants recording higher score under this category, male participant recorded a lower mean score of 4.43 (43%) and a higher SD of 4.99. Under this category results show that female participant are more overweight in comparison to male participants who partook in this study. Furthermore, (n = 106) participants classified to this category represent 51% of the entire participants are categorised as overweight with female participants leading in this grid. The projected age range under the overweight grid shows that female ranged between 24 – 27 years of age and male 24 – 29 years. Despite age differences under this grid female participant were found to have a height range of 150 – 175m and male recorded 160 – 180m taller in comparison to female heights.

Table 5: Overweight Female and Male Comparison

	(n)	%	Age Range	Height Range	Mean	Standard Deviation
Female	63	57%	24 – 27 years	150 – 175m	5.67	4.97
Male	43	44%	24 - 29 years	160 – 180m	4.43	4.99
Total	**106**					

Table 6 below shows the obese female and male results comparatively. This category is classified as 30 and above on a BMI category grid. A total of (n = 15) 7.2% out of (n = 208) participants were classified and placed under this grid. Female participants recorded a big mean score of 0.99 (9.9%) over male counterparts who recorded a mean score of 0.41 (4%) with a SD of 1.99. These results imply that female participants lead this category higher score of (n = 11) over (n = 4) and are classified as obese in comparison to male participants. Table 6 further illustrates age ranges of 30 – 37 years female and 30 – 35 years male participants classified under obese category grid. These age results suggest that as young people grow older they gain excessive weight. The height range shows female to have scored ranges of 150m – 160m and male 165m – 180m, which imply that obese female participants have a shorter height in comparison to male participants

Table 6: Obese Female and Male Result Comparison

	(n)	%	Age Range	Height Range	Mean	Standard Deviation
Female	11	9.9%	30 – 37 years	150 – 160m	0.99	3.00
Male	4	4%	30 - 35 years	165 – 180m	0.41	1.99
Total	**15**					

Table 7 summarizes the results and categorise participants who scored higher per each BMI category and shows the percentage scored of (n = 208) participants. Moreover, the height, age range and gender are well aligned to each category. Under the category grid of being underweight female participants were categorised as been more underweight by 12.5% over male participants. Under normal body weight male participants recorded 29.3% higher than female participants indicating that their body weight is more normal and acceptable comparably to female participants. In the grid of overweight, women scored 51% over male participants suggesting that they are more overweight when compared to male participants. Lastly, under obese grid woman scored 7.2% over male participants suggesting that they are more obese when compared to male participants.

Table 7 Summary Percentage and Categorisation of Results

Category	% (n)	Age	Height (m)	Gender
Underweight	12.5% of (n = 208)	18 – 19	125 - 152m	**Female**
Normal Body Weight	29.3% of (n = 208)	21 – 23	155 – 16 m	**Male**
Overweight	51% of (n = 208)	24 – 27	150 – 175m	**Female**
Obese	7.2% of (n = 208)	30 – 37	150 – 160m	**Female**

DISCUSSION

The aim of this study was to examine the health implications associated with sedentary lifestyle with an objective to motivate physical activities on a daily basis. According to results of this study data were analysed separately according to BMI grid's four categories, underweight, normal bodyweight, overweight and obese.

Underweight

According to the result of this study, when the body mass of students were run into SPSS descriptive statistics of (mean and standard deviation), an important difference was found between the measurements of age, height and bodyweight. According to Zealand (2011) defines underweight as weighing below the healthy desirable weight range of 18.5 on a BMI grid. Table 3 shows that female participants recorded a higher mean score of 1.44 representing 14% with (SD 3.52) over male participant's 1.03 representing 10% with (SD 3.05). This score difference suggests that female participants were found to be more underweight (n = 16) compared to male participants (n = 10).

According to the Bubnis & Nail (2021) young people who are underweight experience side effects neither nor show symptoms of being underweight. Some young people who are underweight may experience these symptoms; osteoporosis which is associated with bone thinning and more prone to breaking, getting sick frequently, skin, hair, or teeth problems, anemia, Feeling tired all the time,

irregular periods, premature birth, slow or impaired growth. This study further found that these young people who were found to be underweight were between the age 18 - 19 (height range 125 – 152m) female and 18 – 20 (height range 135 – 155) male which means they were adolescent and some in their early adulthood's child development phases.

Normal Bodyweight

The statistical results from Table 4 shows that male participants scored a high mean of 4.12 (41%) above female participants who recorded less mean score of 1.89 (18%). These results suggest male participant have a normal body weight in comparison to female participant's in the same group. Maintaining a healthy weight is important for our living, as it is associated with the lowering the risk of heart disease, diabetes, stroke, high blood pressure, breast and colon cancer. (Harvard Chan, 2021). Moreover, (n =61) 29.3% of participants categorised under this grid were found to be in the age range of 21 – 23 years both male and female. Furthermore, participant's hieght suggest male were taller (155 – 165) than female (150 – 160).

Studies have further suggested numerous aspects associated with a well maintainted body weight and some of its benefits include; the body circulates blood to the rest of the body efficiently, body fluid levels are easily and well managed, less risk of developing diabetes, heart related diseases, certain types of cancers, breathing difficulties, sleep apnea, osteoarthritis and you are likely to feel bettter about your inner self, with high energy to make other positive health choices (America Heart Association, 2021).

Overweight

Table 5 shows high mean score of 5.67 (57%) under female participants over 4.43 (44%). These mean score suggest female participants are more overweight when compared to male participant in the same grid. The major causes of overweight and obesity, is an energy imbalance between calories ingested and calories used.

Globally reports shows that there has been: an increase intake of energy-dense foods that are high in fat and sugar, an increase in physical inactivity due to the increasingly sedentary ways of many forms of work, changing types of transportion, and increasing urbanization (WHO, 2021). Participants under this grid were found to be between the age range of 24 – 27 female and 24 – 29 male. A total score of (n = 106) were found to be overweight in this study which represent a highest score (51%) from all four BMI grids.

The common health consequences of being overweight and obese has major risk factors for noncommunicable diseases such as; cardiovascular diseases (heart diseases and stroke), diabetes, some type of cancer (including kidney, colon,ovarian,prostate,liver, gallblader and endometrial). Musculoskeletal disorders (including osteoarthritis a disabling degenerative disease of joints) (Namibian Statistics on Poverty, 2020)

Obese

Results from table 6 show female participants between the age of 30 – 37 years recording a higher mean score of 0.99 (9.9%) over male participants between 30 – 35 years with lower mean score of

0.41(4%). These results suggest that female participants are more obese when compared to male participants in the same grid. Moreover, this study further found that these female participants were shorter (150 – 160m) in height when compared to male (165 – 180m). According to the WHO (2021) at least 39% of young people globally are currently overweight or obese, and that number is 26% in low and lower middle-income nations. Whilst in the Carribean more 60% of young people are overweight or obese, and this number is as high as 80% in some nations such as the Barbados and Tobago (World Obesity Federation, 2020). Being obese is associated with; walking difficulties, body pain and difficulty with physical functioning, low quality of life, sleep apnea and breathing difficulties, stroke, hypertension, depression, anxiety, high and LDC cholesterol, high level of dyslipidemia, low self confidence and living life in solitude (Zealand & Stergiadis, 2014).

CONCLUSION

This study intended to probe the factors related to Body Mass Index, Overweight and Obesity prevalence among university students**.** The findings of this study show that overweight and obesity's prevalence is on high rise in young people between the ages of 18 – 30 years. Sedentary lifestyle has become a preference over physical activities with the increase of use of technological gadgets and eating unhealthily. Though there are challenges associated with maintaining a healthy body weight, but it's more beneficial when compared to been overweight and being obese. Therefor this study concludes that:

- There are health implications associated with being underweight on both male and female participants who were categorised as been underweight in this study, these includes; osteoporosis which is associated with bone thinning and more prone to breaking, getting sick frequently, skin, hair, or teeth problems, anemia, Feeling tired all the time, irregular periods, premature birth, slow or impaired growth.
- There were few young people who were maintaining their body weight with normalcy as per this study's results. If we are to win the battle against sedentary lifestyle maintaining a normal body weight should be taken seriously. Benefits of maintaining a healthy bodyweight includes; the body circulates blood to the rest of the body efficiently, body fluid levels are easily and well managed, less risk of developing diabetes, heart related diseases, certain types of cancers, breathing difficulties, sleep apnea, osteoarthritis and you are likely to feel better about your inner self, with high energy to make other positive health choices.
- We are losing the battle against being overweight, under this grid the study projected half of the participants were categorised under this BMI grid which means more precautionary measures and awareness need to be carried on. The health diseases associated with being overweight includes; cardiovascular diseases (heart diseases and stroke), diabetes, some type of cancer (including kidney, colon, ovarian, prostate, liver, gallbladder and endometrial). Musculoskeletal disorders (including osteoarthritis a disabling degenerative disease of joints.
- There are few male and female participants who were categorised into a grid of being obese. This study vividly portrayed results and healthy diseases associated with being obese which includes; body pain and difficulty with physical functioning, low quality of life, sleep apnea and

breathing difficulties, stroke, hypertension, depression, anxiety, high and LDC cholesterol, high level of dyslipidemia.

Recommendation

Based on the results of this study, the following recommendations are made with the intention to discourage sedentary lifestyle, bad eating habits and motivate daily physical activity among university students:

When you are underweight it is recommended to; eat more frequently, choose nutrient-rich foods (seeds, nuts, lean protein sources, dairy produce, fruits, vegetables, pastas, cereals and choosing of whole-grain breads. Exercise with focus on strength training sessions which helps to build muscles. Add Calorie-dense snacks between meals with foods such as peanut butter, sandwiches containing vegetables and avocados, dried fruits, cheese, fruits and low fat dairy.

Maintaining a healthy normal bodyweight is important; consistently choose exercise daily at least 150 minutes of moderate-intensity aerobic exercises weekly. Choose foods that are rich in nutrients with very low calories. Be involved in physical active activities such as swimming, running, walking, bowling, karate or evening gardening (don't be idle). The combination of a low calorie diet and participation in physical activity is commended, as it lowers weight loss, cuts abdominal fat, and rise cardiorespiratory fitness. Behaviour therapy is recommended for changing young people's eating mind sets.

The university should have adequate training equipment and facilities to support students who want participant in physical activities. University subjects such as physical and health education should teach the importance of BMI and raise awareness on the implications of sedentary lifestyle. Regular checkup of BMI is vital as it informs the subjects of their body mass progression. A combination of slimming diets with consistence involvement in physical activities can help in losing weight. Avoid sedentary lifestyle by not spending much time watching tv, playing video games, too much use of social media application, too much time spent on smart phone and too much time spent on the internet. Policy makers at the university level have a major role and responsibility in developing and implementation of policies that motives and encourage health eating and physical activity within the university.

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