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Zimbabwe college students' food consumption patterns: Implications on health

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Abstract

Zimbabwe college students face enormous challenges while trying to eat right. This study sought to establish the dietary patterns that are followed by college students in Zimbabwe and possible implications to their health. The study also endeavoured to establish challenges that are faced by college students in making choices of dietary patterns that promote good health. A quantitative approach was employed. The study was carried out at a Polytechnic College in Matabeleland South Province of Zimbabwe which is comprised of the Department of Technical Education and the Department of Teacher Education. The population of the study was 500 students from the Department of Teacher Education and a sample of 100 respondents was purposely selected. Questionnaires were used as methods of collecting data. Data were analysed using the Statistical Package for the Social Sciences (SPSS) Version 23.0. Findings of the study indicated that factors that influenced choice of dietary patterns for college students under study were; type of daily meals provided by the college; lack of time to prepare breakfast, insufficient funds to buy enough food supplies, low daily meal consumption frequency; having meals only when hungry and eating less in order to lose weight. The study concluded that students were having unplanned food consumption patterns which could lead to malnutrition and ill-health. This study recommends that every institution that provides food to students should have either a dietician or nutritionist to design a programme that promotes good dietary patterns and health to college students.

Keywords: College students, dietary patterns, food consumption patterns, eating habits, nutrients

1. Introduction

The importance of nutrition and health in college students has been fully recognised and the surveys on actual nutritional conditions in college students have been actively performed in many first world countries such as Korea since 1920 (Walker *et al.*, 1998:264) ^[19] and not much has been done in African countries and Zimbabwe in particular. Observation on daily routine of students has shown that some students tend to buy fast foods from different food outlets around the college while others eat from the college cafeteria due to busy class schedules. The mushrooming of fast food outlets in the town where the college is situated is an indicator of the rise in fast food consumption of the populace. It is clear that most people and students included have diverted from home cooked meals.

Willett, Sampson, Stampfer, Rosner, Bain and Witschi (2010) ^[22] state that the diet of college students has been modified by the influence of technology, presence of fast foods and social conditions. Manwa (2013) ^[11] also reports that due to western influence on the Zimbabwean population especially in colleges, students have developed a tendency to practice wrong eating habits such as reliance on fast foods consumption. However, this kind of food often has poor nutrition value that does not meet students' dietary needs. In these food outlets, same kind of food is prepared daily and students tend to consume the diet lacking variety. Manwa (2010) ^[10] points out to the fact that fast foods have some undesirable effects on health status and poor dietary patterns which leads to nutritional disorders. Proper dietary patterns maintain the health of body and mind prevents diseases, help normal development of the body, and maintain mental and emotional stability (Barker, 2002:185) ^[3]. Wardlow and Smith, (2011:61) ^[20] indicate that about two billion people, the world over are affected by malnutrition in one form or another. Previous researches suggest that continuous investigation on dietary patterns and assessment of nutritional status of vulnerable groups such as students at universities and

colleges would help to solve some societal problems particularly those of under nutrition and over nutrition which in turn affect their well-being (Manwa 2013) ^[11]. Akbaraly, Singh-Manoux, Marmot, and Brunner (2009:147) ^[1] purport that some students skip meals in order to achieve and maintain their desired body size. In these circumstances, these routines can have negative impact on nutritional status of students.

The researcher's experience as a college lecturer is that, when students get into colleges for the first time orientation is given to all other aspects considered necessary for the students' wellbeing. Students are not advised on how to ensure a balanced nutrition despite its obvious impact on health. Proper dietary patterns maintain the health of body and mind, prevent diseases, help normal development of the body, and play important roles in maintaining mental and emotional stability (Barker, 2002) ^[3]. Most college students are adolescents moving towards adulthood and are also in the period of active physical and mental growth, in which the nutritional condition greatly influences the health of a lifetime (Astorg *et al.*, 2004:527) ^[2]. However, college students have a higher frequency of eating out and irregular dietary patterns due to rapid changes of daily life (Manwa, 2013:197) ^[11]. 2009:147).

The fact that college students are eating anything that comes their way has become a reality in Zimbabwe regardless of the nutritive value of the food (Manwa, 2013:191) ^[11]. Tavelli, Suzanne *et al.*, (1998:78) ^[16] point out that it is important to attend to students' dietary patterns not simply because it can be life threatening but because wellbeing predicts academic attainment and attrition rates.

The researcher observed that lack of access to well-managed diet could have serious implications on the health of the students as compared to previous years when government used to provide accommodation, food and financial aid to the students.

1.1 Aim and objectives of the study

The aim of this study was to explore students' food consumption patterns and how they affect their health status

The objectives of this study were to:

- establish the students food consumption patterns
- describe the implications of the food consumption patterns followed by college students on their health

2. Methodology

2.1 Design

This study employed a quantitative approach using the descriptive survey research design.

2.2 Population

The population of this study was 500 students from the Department of Teacher Education at a Polytechnic College in Matabeleland South Province of Zimbabwe. The population was identified so that the researcher could gather as much information as needed concerning dietary patterns for college students since some students in the department were resident on campus while others were non-residents.

2.3 Sampling

Purposive sampling was used to select a sample of 100 respondents with 50 male and 50 female students.

2.4 Instrument

The researchers used questionnaires for collecting data for this study.

2.5 Data collection

In this study the researcher collected data using a self-administered questionnaire provided in English without translation because the participants were believed to have good understanding of English language. The questionnaire comprised of four sections, namely: demography, anthropometric data, eating patterns and considerations of choice of foods.

2.6 Ethical consideration

Ethical clearance was sought from the University of Venda and the Ministry of Higher and Tertiary Education, Science and Technology Development in Zimbabwe. The clearance was approved by both institutions. Two key ethical issues put across by Welman, Kruger and Mitchell (2012:181) ^[21] that should be considered in any project are consent and confidentiality. All the participants in the study voluntarily consented to participant and no names were used. The respondents completed and signed the informed consent forms.

2.7 Data analysis

Quantitative data analysis for this study was done using the IBM Statistical Package for Social Sciences (SPSS) version 23.0.

3. Results and Discussion

The results of the study are presented and discussed in this section.

3.1 Demographic characteristics of respondents

The demographics of the respondents included age, sex, weight, height and activity level in order to determine their dietary requirements (USDA Agricultural Research Report, 2015). Analysis was done to determine which demographic variables correlate best with participants' responses to the matters that contribute to effects of dietary patterns on students' health.

3.2 Students' age

The ages of respondents affect nutrient requirements; therefore meals should be planned according to age group needs. In order to establish the ages of students under study, the age ranges were established and results are presented in Table 1.

Table 1 presents the age ranges of the participants who took part in the study.

Table 1: Students' age (n=100)

Age range	Frequency	Percentage
18-20	60	60%
21-25	24	24%
26-29	11	11%
30-35	3	3%
36 and above	2	2%
Total	100	100%

Table 1 presents results showing that a majority (60%) of the respondents was between the ages of eighteen to twenty (18-20) years and 24% were those between twenty one to twenty five (21-25) years old. The results also show that eleven percent (11%) was in the twenty-six to twenty nine (26-29) age groups followed by 3% of the 30-35 age groups. The least (2%) were those above 36 years. It can be deduced that the 18-20 age group had the highest number since the students

were just from high school and entering college for the first time. The majority (84%) of the students were adolescents. Previous studies established that, most college students are adolescents moving towards adulthood and also in the period of active physical and mental growth, in which the nutritional condition greatly influences the health of lifetime (Astorg *et al.*, 2004:527) ^[21].

The college policy on enrolment of students allows only those who are aged 18 years and above. These results suggest that the majority of the students were young adults who still had an active lifestyle of which the diet should provide sufficient energy while keeping to the dietary goals of reduced saturated fats and increased carbohydrate foods (Tull, 1996:61) ^[17]. Age groups from 26 and above had 16% which is an indication that some join college later in life and may already have families to look after and this may exert role overload on the students who are parents, thereby compromising on their dietary patterns.

The next question under demographic data required respondents to state their sex.

3.3 Students' Body Mass Index (BMI)

BMI is a useful tool to judge if one is at healthy weight, based on the ratio of weight to height expressed in kg/m² with underweight from 18.4 and below, normal weight ranging from 18.5 to 24.9kg/m², overweight 25 to 29.9kg/m² and obese 30kg/m² and above.

Table 2 shows the number of students in different weight categories.

Table 2: Body Mass Index of students (n=100)

Weight	Frequency	Percentage
Underweight (18.4kg/m ² and below)	27	27%
Normal weight (18.5 to 24.9kg/m ²)	5	5%
Overweight (25 to 29.9kg/m ²)	37	37%
Obese (30kg/m ² and above)	31	31%
Total	100	100%

Table 3 shows that only (5%) of the respondents were of normal weight while (27%) were underweight and those overweight and obese put together comprised the majority with (68%). According to Cole *et al.*, (2000:111) ^[15] excess weight increases how hard the heart has to work and thus, it also raises blood pressure and blood cholesterol levels and can make a person more likely to develop diabetes, and this condition triggers continuous tiredness and one would lose concentration thereby negatively impacting on well-being.

Research from national surveys and longitudinal cohorts has identified the transition between adolescence and adulthood as a period of increased risk for excess weight gain (Worthington-Roberts & Williams, 2000:344) ^[23]. Furthermore, a growing number of individuals are now becoming obese during adolescence and are exposed to a wide array of precursors to poor-diet quality and inactivity before the emerging adult years. Although sedentary behaviours may also be important determinants of weight status, little is known about these behaviours among college students (Mokdad *et al.*, 1999:1519) ^[12]. Recent evidence suggests that dieting frequency and unhealthy weight control may be associated with weight gain and poor-diet quality (Ebbeling, Pawlak & Ludwig, 2010: 54) ^[7].

Results from this study suggest that (68%) of the students are at high risk of chronic diseases associated with overweight and obesity which consequently affects overall health. Those who were underweight comprised 27% of the students and by

implication, when students are underweight they are not healthy and it is a sign that they are not getting enough nutrients to keep a healthy body. The Zimbabwean population and students inclusive, has suffered food insecurity for the past three decades and has experienced lack of basic food coupled with insufficient monthly income rendering inability to source food from neighbouring countries. According to Helwig, (2009:186) ^[8] students are usually underweight due to insufficient food intake either due to lack of food or skipping meals because of pressure of work.

3.4 Nutrient Intake

To establish students' nutrient intake the students were asked to tick the foods from food groups they consumed in their daily diet. The results are indicated in Table 3.

Table 3: Students' frequency of daily nutrient intake (n=100)

Food groups	Response	Frequency	Percentage
Cereals and cereal products	Yes	100	100%
	No	0	0%
	Total	100	100%
Meat and substitutes (legumes)	Yes	63	63%
	No	37	37%
	Total	100	100%
Fruits and vegetables	Yes	12	12%
	No	88	88%
	Total	100	100%
Dairy and dairy products	Yes	31	31%
	No	69	69%
	Total	100	100%
Fizzy drinks	Yes	88	88%
	No	12	12%
	Total	100	100%
Fats and oils	Yes	100	100%
	No	0	0%
	Total	100	100%

The results on Table 4 indicate that all the participants, (100%) were taking carbohydrates, fats and oils in their meals, on daily basis, followed by fizzy drinks which were taken by (88%), while (63%) took proteins, (31%) took dairy and dairy products and lastly fruits and vegetables were consumed by only (12%). These results show that participants were consuming same type of foods limiting variety in their food intake. The results indicate that students lacked some nutrients such as vitamins as their diets had limited variety of fruits and vegetables and took too much of one nutrient which is carbohydrate. Taking too much of one nutrient leads to malnutrition and in this case taking too much of carbohydrates leads to obesity. According to Satalic, Baric and Keser (2007:410) ^[14], a healthy diet is one which includes a variety of foods that contain the quality and proportions of nutrients needed to maintain good health and to sustain life. The notion of food variety is essential because good nutrition contributes to good health.

3.5 Eating Patterns

Eating patterns involve the types of foods eaten and the number of times one eats in a day over a period of time. In the next section students were asked whether they accessed their favorite meals regularly and the following responses were recorded in (Table 5).

3.6 Access to favorite meals.

When one gets access to their favourite meals they enjoy eating the food, and Table 4 shows whether students got their favourite meals or not.

Table 4: Access to favourite meals regularly (n=100)

Access to favorite meal	Frequency	Percentage
Yes	13	13%
No	87	87%
Total	100	100%

On the whole (87%) of the students did not have access to their favorite meals more often except for (13%). Levitsky, Garay, Nausbaum, Neighbors and Dellavalle, (2006:1009) suggest that access to favourite meals increases food intake in the short term. This may be relevant because it will make it easier for students to maintain energy balance in the long term. However, favourite meals may be unhealthy and because students like the foods, they may over eat and develop overweight but if the meals are healthy they may help the development of well-being. According to Drewnowski (1992:371) ^[6], eating food that one enjoys can cheer up and make one feel content and relaxed.

Eating is one of the pleasures of life and if possible students should consume foods they enjoy and avoid those they dislike. Literature has shown that eating favourite foods can stimulate the release of β -endorphins, which are known to enhance mood (Shi, 2005:1446) ^[15]. However the attractiveness of a food is not only related to its sensory properties, it also depends on how hungry one is, previous experience of eating the food and the social circumstances in which it is consumed. When students do not get favourite meals they do not enjoy eating and that compromises on the recommended nutrient intake. The next section sought to establish what students' favourite meals consist of.

3.7 Favorite meal constitutions

It was necessary to explore what students' favourite meals consisted of, in order to establish the nutritive value of such kind of food. Types of students' favourite meals are reflected in the percentages provided in each column in Table 5.

Table 5 outlines the students' favourite meals.

Table 5: Favorite meals (n=100)

Meals	Frequency	Percentage
Indigenous foods	20	20%
Fast foods	63	63%
Snacks	17	17%
Exotic foods	0	0%
Total	100	100%

The majority (63%) of the students indicated fast foods as their favourite meals, and these tend to have too many fat and empty calories which, in turn, may be the major cause of a large number of students who were obese and overweight. From the participants' responses, 25% indicated preference for indigenous foods whilst 17% indicated preference for snacks. Manwa (2010:65) ^[10] reports that due to western influence on the Zimbabwean population, especially in colleges, students have developed a preference for fast foods. Thus, students were using the mobile kitchens to prepare their meals and practicing wrong dietary patterns by consuming foods with poor nutritive value. In local food outlets, since the same kind of food is prepared daily students tend to consume the same type of food repeatedly, thereby denying them of variety in the process. The students' food consumption patterns were mainly fatty foods with empty calories hence, students lacked variety.

3.8 Number of meals taken per day during the week

Nutritionists and dieticians recommend at least 3 meals per

day in order to meet daily nutrient requirements. To establish whether the students under study were meeting daily nutrient intake the number of meals they took per day were explored. Table 6 shows the number of meals taken by the students per day during working days.

Table 6: Number of meals taken on a day during working days (Monday to Friday) (n=100)

Number of meals per day	Frequency	Percentage
3 meals every day	31	21%
2 meals	48	48%
1 meal	21	31%
Total	100	100%

Table 6 indicates that (31%) took one meal per day while (48%) respondents indicated that they took two meals per day and (21%) took three meals per day during week days. Akbaraly *et al.*, (2009:147) ^[11] purport that some students skip meals in order to achieve and maintain their desired body size. These results suggest that students were taking insufficient meals during the week thus failing to meet the Recommended Daily Allowances (RDA). The following section explains why students took the number of meals they took during week days.

3.9 Factors that influence the number of meals taken per day

There are varying factors that influence students' students' frequency of taking meals per day which are indicated in Table 7 below.

Table 7: Factors that influence the number of meals taken per day (n=100)

Reasons	Frequency	Percentage
Meals are provided by the college on a daily basis	29	29%
Have no time to prepare breakfast	17	7%
I do not have enough food supplies	27	27%
Do not have enough time to take more meals per day	16	16%
Because I want to lose weight	8	8%
I only eat whenever I feel hungry	3	13%
Total	100	100%

The highest number of students (29%) indicated that the number of meals they take per day is determined by the college followed by (27%) who indicated that it was because they did not have enough food supplies. These students are likely to be the ones who indicated having one meal per day. The other 16% indicated that they had no time to take more meals per days due to busy schedules. Eight percent comprised of students who wanted to lose weight while 13% of the students indicated that they only ate when hungry and 17 students (7%) indicated having no time to prepare breakfast in the morning. The results suggest that the college time table was the most determining factor for the number of meals taken by students during the week especially resident students and for the non-resident students it was mainly due to lack of funds and time to prepare meals.

Several studies claim that increasing meal frequency does not increase metabolic rate when dietary intake is matched, implying that total calories consumed count more than frequency (Cameron, Cyr & Doucet, 2010: 1101) ^[4]. Consumption of a certain number of meals that allows one to meet nutritional needs consistently each day is important as adequate nutrient intake cannot be met with less than three

meals per day. Resources allowing, college students should have regular meals.

Frequency of food consumption during weekends was next investigated and the following results were established as recorded on Table 8.

3.10 Number of meals taken on a day during weekends (Saturday and Sunday)

Table 8 shows the number of meals taken by students during weekends.

Table 8: Number of meals taken during weekends (n=100)

Number of meals per day	Frequency	Percentage
1 meal	21	21%
2 meals	56	56%
3 meals	20	20%
4 meals	3	3%
Total	100	100%

During weekends 21% of the students took one meal per day, (56%) took two meals per day and 20% took three meals per day while only 3% took 4 meals per day. The results show that a larger number of respondents took two meals per day during the week days and during weekends as well. These findings suggest that most students did not get the recommended daily meals, since a person should get at least 3 meals a day. According to Mpofu and Matienga (2016) ^[13], people should take four to five meals per day in order to meet required nutrients. No one meal can supply the required daily nutrient intake.

4. Conclusion

The study concluded that the participants varied in their ages with the majority in the adolescent stage suggesting that they were active hence they should be provided with more energy foods to replace the expended energy. Age presented new challenges to the achievement of a good nutrition status. Most of the students had unhealthy food consumption patterns due to availability of junk food comprising of too much oils and carbohydrates and this placed students at high risk of chronic diseases associated with overweight and obesity which consequently affects overall health. It is important when considering future food policy that a sustainable pattern of food consumption be considered, ensuring a sufficient supply of staples and of micronutrient-rich foods without encouraging excessive consumption of energy-dense, nutrient-poor foods. The students had limited food variety as they were taking the same kind of food from the college cafeteria and restaurants around, which led to too much intake of carbohydrates at the expense of other nutrients such as vitamins as their diets hardly, had fruits and vegetables. Taking too much of one nutrient leads to malnutrition as a result of inadequate consumption of other nutrients. The students had unplanned, haphazard and unfixed meal patterns and they did not have sufficient number of meals taken per day during week days and weekends as recommended by dietitians and nutritionists. Students who were underweight were also the same students that did not have enough time to prepare and take adequate meals per day.

Thus, by implication the food consumption patterns followed by the college students have ripple effects on their health. The observed changes in dietary patterns brought about by study related pressures have significant effects on health. This is particularly important in terms of the rise in over-nutrition (i.e. diet-related chronic diseases) in many developing countries.

5. Recommendations

There is need to carry out a longitudinal study with other colleges in order to generalise the results. Students should be educated on the importance of observing proper food consumption patterns in order to maintain good health. Since these are college students there is need to carry out another study that looks at food consumptions patterns and academic performance.

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