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Review Article

Dietary Habit and Nutritional Status of Regular Students in Jigjiga University, Somali regional state of Ethiopia

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Abstract

Objective: To assess the dietary habit and nutritional status of under graduate students in Jigjiga University.

Methods: A descriptive survey design was used to answer questions concerning the dietary habit and Nutritional status of regular students in Jigjiga University. Students were interviewed through a structured questioner to assess their nutritional knowledge and dietary habit.

Results: A total of 120 respondent students 107(89.2%) of the respondents are age interval of 19-24, 12 (10%) of the respondent are age of 25-29 and at least only 1 (0.8%) student was above 29 old of age. Concerning sex of respondents, 84(70.0%) were male and 36(30%) of respondents were female. Academic year, II and III comprised 120 (100%) of the respondents. From those students 24(20%) were Natural Resource Management (NRM), 24(20%) food science and nutrition, 24(20%) animal range science, 24(20%) crop science and 24(20%) rural development. 70% of students said they were Muslims where by 30% were Christians. Almost 86.7% were singles and at least only 13.3% who are above 25 years old were married. 54.2% engaged themselves in to love relationship JJU Campus. However, 46.8% had no friends in the campus. Most of students by 72.4% believed that love relation in the campus had positive impact on their education.

Conclusion: The study showed that the majority of students had normal Body Mass Index (BMI) value and highlighted the presence of unhealthy eating behavior, inadequate nutrient intake of vegetables, snack and high prevalence of under weight among university students.

Recommendation: Nutritional education among university students should be encouraged to promote healthier eating habits and life style. There is a need for strategies and coordinated effort at all level (family, university, community) and government to improve the tendency of underweight among university students. Increase the daily fruit (vegetable), snack consumption apart from regular meal would be beneficial for the students.

Keywords: Nutritional Status; Dietary Habits; Body Mass Index; Kipping Breakfast; Snack; Fast Food Consumption; Excess Alcohol Consumption.

Introduction

Background

The transition of young people from high school to university has many health implications [1]. It is a time of increased responsibility for food choices and practices. The nutritional knowledge of university students and their dietary habit (food consumption patterns) have received global attention [2]. This because during the transition from secondary school to university, students need to adapt to a new environment. Good eating habits are essential part of a healthy lifestyle [3]. When students fail to adapt adequately this could have negative consequences towards their health habit (behaviors) and subsequent weight status. Eating habit (next to physical activity and sedentary behavior) is an important factor influencing students weight [2]. On the other hand, University students tend to engage in problematic eating habit which including unhealthy dieting, high intake of fast food, skipping breakfast, insufficient physical activity, low intake of fruits and vegetables, and minimal consumption of dairy products, although they are generally aware of the negative consequences of those habits.

Rapid changes in physical growth and psychosocial development have placed these young adults as nutritionally vulnerable groups with poor eating habits that fail to meet dietary requirements. Environmental factors also contribute to adoption of unhealthy eating habits among university students [3,4].

Bodyweight and its perception is an important aspect of health and constitute significant role in physical and mental well-being. Generally speaking, evidence related to eating habits or dietary

habit in relation to BMI status in our country especially in university students particularly in AAU which is oldest university in Ethiopia has shown setting is scare. In light of this, it is relevant to investigate and document the prevalence, dietary frequency and physical activity linked to eating habits in relation to BMI difference in Jigjiga University and provides some helpful insight for addressing the issues by the relevant stake holders.

Statement of Problem

University student's life style may face difficulty in regulating eating behavior since it is the transition of staying away from their parents. Many University Students may be overweight, underweight or obese due to socio demographic and socio economic factors, dietary habits, nutritional knowledge and decrease physical activity. The selection of unhealthy food may have a negative impact on university student's eating behaviors which requires the attention of the university management [5].

It is thus important to deal with the university students' dietary habit (behavior) and uncover the important relevant information in the universities. In line with this, this study was investigate the dietary habit of university students in relation to BMI difference and identifies the determinant factors that are associating with body mass index status among the study participants. However, there is/are no access information which is known about dietary intake and nutritional status of Jigjiga University students which shall be verify and explain in details after this study. Therefore the objective of this study was to assess the dietary habit and nutritional status of under graduate students in Jigjiga University.

Significant of the Study

There has been no adequate information about standard guideline of good eating practice of food among higher education in Ethiopia. There is a need to map out the magnitude of the problem and avail information within the higher education institute as well as to stakeholders for appropriate intervention. Moreover, the result of the study was also be also helpful for planning and implementing good service provision in higher education as the finding was indicate which poor nutritional eating habit is more predominant among university students. This research was also served as a base line for researcher who wants to use as a reference and show areas where more research can be done in the future.

Material and Methodology

Description of study area

Jigjiga University (JJU) is one of the higher institutions in Ethiopia which has become operational since March, 2007. Jigjiga University is the first and only one university in Somali national regional region state, established in the capital city Jigjiga as direct outcome of government of FDRE policy to expand higher education for all citizens in the different corners of the country to produce completive graduates, conducting problem solving research and provide socially meaningful outer services. Jigjiga University officially started its operation with 712 students and 66 academic and 99 administrative staffs in 3 faculties in the year of 2007. Four years later the student'senrollment has grown to total number of 14.948 students of whom 7804 are regular, 4521 summer, 2623 continue and distance education program Jigjiga on the other hand is located at a distance of 636 km away from Addis-Ababa, eastern part of Ethiopia. Jigjiga lies between 90°2'0" N to 90° 42'0" N and 420°29'00'' E to 420°13'00". The mean monthly minimum temperature varies from 5.8°C in November to 14°C from July to September and the mean monthly maximum temperature varies from 25°C in July to 29°C from March to April.

Sample method

The sample size determination

The studies were estimated sample size by employing single population proportion formula. There are 9 faculties in Jigjiga University, this study selected only college of dry land agricultures with all its five departments. Due to their course was block course most of time they have no enough time to use cafeteria properly. Based on the data collected from head of registrar, there are about 1019 students in college of dry land agriculture in all three batches from 2014-2017 GC/2007-2009 EC (Table a).

	Data of students of college of dry land Agric from 2014 to 2016, and 2014 to 2017						
No	Departments	Batch of Students					
		Year 2nd			Year 3rd		
		Sex			Sex		
		F	M	Total	F	M	Total
1	Animal and range science	12	21	33	20	49	69
2	Dry land crop science	11	27	38	26	63	89
3	Food science and nutrition	17	18	35	19	71	90
4	Natural resource management	9	27	36	28	70	98
5	Rural development and agricultural extension	25	19	44	28	72	100
	TOTAL	632					

Table a. The numbers of male and females students from their respective batches as well as departments.

Study conducted in Ambo university showed that overweight was prevalent in female than males (29.8% versus 24.6%) with total prevalence of 27.5% whereas underweight was more prevalent in males than in females (42.8% % versus 40.7%) with overall prevalence of 40% [6]. Since there is no information regarding nutritional status of students in Jigjiga university we can take consideration from the above mentioned prevalent rate since all University students share many criteria which are the same because of living in the same in all Ethiopian university, under the federal ministry of education. This sample had been calculated by taking the consideration prevalent rate of under nutrition above which is 0.42 at 95% confident sample size had been calculated as:

The sample size had been calculated by using the following formula by Cochran (Israel, 1992), was be used to determine the sample size.

$$n = \frac{(Z_{1-\frac{\alpha}{2}})^2 * p * (1 - P)}{d^2}$$

$$[n = \frac{(1.96)^2(0.4)(1-0.4)}{(0.05)^2} = 369]$$

369 + 5% non-response rate = 387

Where: n= Total sample size that was be included in this study

- d= marginal error = 0.05
- P= prevalence rate = 0.4
- $Z_{1-\alpha/2}$= confidence interval (95%) = 1.96

P value of 0.4 was used since there is no information reported before in such study area. Therefore, the final samples included in this study werebeing calculated as follows:
Correction factor:

$$n_c = [\frac{n}{1+(n-1)\div N}] \ldots\ldots (1)$$

Where nc - corrected sample size

- n - Initial sample size
- N- Number of source population

$$n_c = [\frac{387}{1+(387-1)\div 632}]$$

n_c=240

50% of the correction sample size was considered to check the prevalence of dietary habit and nutritional status of regular students in Jigjiga University

0.50*240 = 120 sample size

Where: n_c – is corrected sample size; n –is initial sample size and N-is number of source population.

Sampling technique

The sampling technique that has been used is non- probability sampling, in which case respondents meeting the required selection criteria were students and having the criteria mentioned above (all students who registered in 2014 and 2015 as regular program). They were selected by using convenience sampling. The sampling technique that has been used is non- probability sampling, in which case respondents meeting the required selection criteria were students and having the criteria mentioned above (all students who registered in 2014 and 2015 as regular program). They were selected by using convenience sampling.

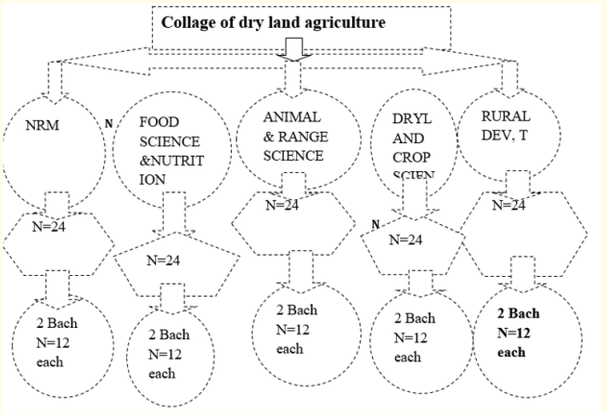

Figure 1: Schematic Presentation of the Sampling Technique.

Data collection method

Data collection instruments

Data had been collected using structured questionnaire prepared in English and was designed by reviewing pertinent research Findings on the issue under caption. The Questionnaire was constituted information on socio demographic, eating attitude, psychological eating behavior and daily meal frequency. The instrument was being pretested in a University which was being selected for the study before the final administration of the questionnaire.

Anthropometric measures

- **Weight**: Weight was being measured without shoes and with minimum clothes; to the nearest 100 gm. The scale was be zeroed before each session and calibrated with a known weight. Each participant stood on the scale and the researcher recorded the weight reading.
- **Height:** Height was be measured by using an audiometer, which was be mounted to the wall by resting the body meter on the ground, and placing it against the wall with the visualdisplay facing the researcher and was be measured to the nearest 0.1 cm. The participant was stand straight with heels where weight wasbeing distributed evenly on feet, buttocks and back touching the wall. The head wasbeing positioned so that the line of vision was at right angles to the body and thearms hang freely by the sides. All measurements werebeing recorded in the questionnaire.

Study Variable

Dependent variable

- Mental retardness
- Academic weakness
- Health impact

Independent variable

- Body mass index (BMI)
- Age
- Sex
- Educational status
- Dietary behavior
- Snacking
- Skipping breakfast
- Alcohol consumption

Operational Definition of Terms

- **Underweight:** BMI of male and female students< 18.5 kg/m2.
- **Normal weight:** BMI (kg/m2) of student's between18.5 and 24.9 kg/m2.
- **Overweight:** BMI of the students > 25.0 kg/m2 during the period of study.
- **Food Frequency:** Food frequency refers to how often a given food and fluid was usually consumed per day, per week, per month or never.

Data analysis

The collected data from each respondent has been entered and analyzed using SPSS version 20 computer Software packages for analysis. Data cleaning was being carried out and cross tabulation was be also made for each variables. Odd ratio was be also made to assess the strength of associations. The sustainable data was be collected and reliable information for dietary habit and nutritional status of regular students in Jigjiga University was be obtained

Ethical considerations

Ethical clearance and permission was being obtained from research committee in JJU department of food science and nutrition and actual data collection, permission was be also obtained from Jigjiga University at Large or in Students Service Director. During the distribution of questionnaires and weight and height measurement taken, students was be informed about the purpose and the benefit of the study along with their full right to refuse or completely reject in participation.

Results and Discussion

Results

Table 1 has shown socio-demographic characters of respondents and related variables among Jigjiga University students in 2017. The finding indicates all students had different bad habits which could affect their learning effectiveness. So, almost half of 53 (44.2%) students were addicted to chewing chat, less than half of them were fanatic for smoking cigarette and using Internet (Facebook), 29 (24.2%) and 28 (23.3%) respectively, and very few 10 (8.3%) students were accustomed to drinking alcohol.

Variable	Frequency	Percent%
1. Age		
2. 19-24	107	89.2
3. 25-29	12	10
4. Other	1	0.8
5. Total	120	100
Sex		
1. Male	84	70.0
2. Female	36	30.0
3. Total	120	100.0
Marital status		
1. Unmarried	104	86.7
2. Married	16	13.3
3. Total	120	100.0
Religion		
1. Orthodox	14	11.9
2. Muslims	94	78.3
3. Protestant	9	7.5
4. Catholic	1	0.8
5. Others	2	1.7
6. Total	120	100.0
Have you a lover in your campus?		
1. Yes	65	54.2
2. No	54	45.0
3. Total	120	100.0
If your answer is yes does your lover disturb your education?		
1. Yes	52	73.2
2. No	18	25.4
3. Total	71	100.0
When do you meet your lover?		
1. When I am free	42	59.2
2. Class time	16	22.5
3. Cafeteria	12	16.9
4. Movie theater	1	1.4
5. Total	120	100.0
From which department you are?		
1. NRM	24	20.0
2. Food science &_nutrition	24	20.0
3. Animal &range science	24	20.0
4. Dry land crop science	24	20.0
5. Rural development	24	20.0
6. Total	120	100.0
What is the level of your study year of respondent		
1. 2nd_year	55	45.8
2. 3rd_year	63	52.5
3. Other	2	1.7
4. Total	120	100.0
Have you habit		
1. Yes	32	26.7
2. No	86	71.7
3. Total	120	100.0
If your answer is yes which habit do you have?		
1. Alcohol	10	8.3
2. Smoking	29	24.2
3. Chewing Chat	53	44.2
4. Internet (Facebook)	28	23.3
5. Total	120	100.0

Table 1. Socio-demographic character, love and bad habits of students in Jigjiga University, 2017.

Table 2 above indicates that from a total of 120 respondent students, 103(85.8%) respondents have taken meals regularly, and 15(12.5%) have taken meals irregularly. Regarding on the always take breakfast of students, most of the respondents were 102(85%) daily. Regarding on the always take lunch of respondent, most of the students were 102(85%) daily. Regarding on the always take dinner of respondent, most of students were 105(87.5%) daily. Regarding on times eat meals except snacks of respondent, most of the students were 88(73.3%) three times. Regarding on the take snacks apart from regular meals, most of the respondents were 49(40.8%).

Variable	Frequency	Percent (%)
Do you take your meals regularly		
1. Regularly 1000101514637	103	85.8
2. Irregularly	17	14.2
3. Total	120	100.0
Do you always take breakfast?		
1. Daily	102	85.0
2. Three or four times per week	10	8.3
3. Twice per week	4	3.3
4. Rarely	4	3.3
5. Total	120	100.0
Do you always take lunch daily of respondent		
1. Daily	102	85.0
2. Three or four times per week	13	10.8
3. Twice per week	2	1.7
4. Rarely	3	2.5
5. Total	120	100.0
Do you always take dinner daily of respondent?		
1. Daily	105	87.5
2. Three or four times per week	8	6.7
3. Twice per week	2	1.7
4. Rarely	5	4.2
5. Total	120	100.0
How many times do you eat meals except snacks which is one time of respondent?		
1. Once time	13	10.8
2. Two times	13	10.8
3. Three times	88	73.3
4. Four times	6	5.0
5. Total	120	100.0
How often do take snacks apart from regular meals of respondent?		
1. Daily	49	40.8
2. Three or four times per week	37	30.8
3. Once or twice per week	18	15.0
4. Rarely	16	13.3
5. Total	120	100.0
How many meals do you usually eat each day of respondent		
1. One	13	10.8
2. Two	17	14.2
3. Three	83	69.2
4. Four	7	5.8
5. Total	120	100.0
If you skip meals which meals is it usually?		
1. Breakfast	42	35.0
2. Lunch	42	35.0
3. Dinner	36	30.0
4. Total	120	100.0
How often do you eat fruits daily?		
1. Daily	35	29.2
2. Three or four times per week	27	22.5
3. Once or twice per week	23	19.2
4. Rarely	35	29.2
5. Total	120	100.0
How often do you eat fried food?		
1. Daily	41	34.2
2. Three or four times per week	27	22.5
3. Once or twice per week	29	24.2
4. Rarely	23	19.2
5. Total	120	100.0
How often do you take alcohol?		
1. Daily	16	13.3
2. Two or three times per week	16	13.3
3. Rarely	88	73.3
4. Total	120	100.0
How often do you eat with friends and family daily?		
1. Daily	30	25.0
2. Three or four times per week	48	40.0
3. Once or twice per week	20	16.7
4. always alone	22	18.3
5. Total	120	100.0
What type of food do you eat to balance your diet?		
1. Mainly meat	27	22.5
2. Mainly vegetable	25	20.8
3. Meat vegetable and other	47	39.2
4. Variety of food	21	17.5
5. Total	120	100.0
Where do you mostly obtain nutrition information?		
1. Friends	20	16.7
2. Media	32	26.7
3. Parents	31	25.8
4. School	34	28.3
5. Others	3	2.5
6. Total	120	100.0

Table 2. Dietary habits of students (respondents).

Regarding on the how many meals do you usually eat each day, most of the respondents were 83(69.3%) three per day. Regarding on the skip meals, most of the respondents were breakfast 42(35%) and 42(35%) lunch. Regarding on the eat fruits, most of the respondents were 35(29.2%) daily and 35(29.2%) rarely. Regarding on the eat fried, most of the respondents were 41(34.2%) daily. Regarding on the take alcohol, most of the respondents were 88(73.3%) rarely. Regarding on the eat with friends and family, most of the respondents were 48(40%) three or four times per week.

Regarding on the balanced nutrition food, most of the respondents were 47(39.7%) meat, vegetable and other. Regarding on the obtain nutrition information; most of the respondents were 34(28.3%) school. Regarding on the well sleep, most of the respondents were 57(47.5%) hardly sleep well. Regarding on the health condition, most of the respondents were 72(60%) normal. Regarding on the feeling lonely, most of the respondents were 59(49.2%) yes. Regarding on the feel completely out of control when it comes to food, most of the respondents were 73(60.8%) No.

Regarding on the eat until stomach hurts, most of the respondents were 96(80%) No. Regarding on the felt stress, most of the respondents were 68(56.7%) not at all. Regarding on the cigarettes smoke per day, most of the respondents were 114(95%) None. Regarding on the eat because of feeling upset or nervous, most of the respondents were 94(78.3%) No. Regarding on the physical exercise, most of the respondents were 87(72.5%) yes. Regarding on what time physical exercise, most of the respondents were 61(62.2%).

Variable	Frequency	Percent (%)
How well do you sleep?		
1. I hardly ever sleep well	57	47.5
2. I usually do not sleep well	26	21.7
3. Average	37	30.8
4. Total	120	100.0
How is your present health condition?		
1. Bad	5	4.2
2. Normal	72	60.0
3. Good	26	21.7
4. very good	17	14.2
5. Total	120	100.0
Do you eat because of feeling lonely?		
1. Yes	61	50.8
2. No	59	49.2
3. Total	120	100.0
Do you feel completely out of control when it comes to food?		
1. Yes	47	39.2
2. No	73	60.8
3. Total	120	100.0
Do you eat so much until stomach hurts of respondent		
1. Yes	24	20
2. No	96	80.0
3. Total	120	100.0
Have you ever felt stress lately of respondent		
1. Not at all	68	56.7
2. Normal	38	31.7
3. Rather	11	9.2
4. Very much	3	2.5
5. Total	120	100.0
How many cigarettes do you smoke per day of respondent		
1. 1-5	2	1.7
2. 6-10	4	3.3
3. None	114	95.0
4. Total	120	100.0
Do you eat because of feeling upset or nervous of respondent		
1. Yes	11	9.2
2. No	94	78.3
3. Some times	15	12.5
4. Total	120	100.0
Are satisfied by physical exercise of respondent		
1. Yes	87	72.5
2. No	33	27.5
3. Total	120	100.0
At what time you do physical exercise of respondent		
1. Morning	61	62.2
2. Afternoon	39	32.5
3. Others	20	16.7
4. Total	120	100.0

Table 3: Psychological factors affecting students eating habits.

Discussions

Socio-demographic characteristic of students

The sample size of this study was 120. Our finding had revealed that, majority of students by 80% were found in age group of 19-24yrs and at least10% of students were found in 25-29 age group.

Almost 70% of students were male in this study compared to 30% that of female. The same is true sex of students, majority of students in our study are male with 70% compared to 30% of females 70% of students said they were Muslims where by 30% were Christians. Almost 86.7% were singles and at least only 13.3% who are above 25 years old were marriage. 54.2% engaged themselves in to love relationship JJU Campus. However, 46.8% had no friends in the campus. Most of students by 72.4% believed that love relation in the campus had positive impact on their education.

Eating haibt of students

In this study, breakfast was the most frequently skipped meal among both male and female students. In fact many students inthis study skipped breakfast about 35%. However,this finding appeared to be lower when compared with prevalence of skipped breakfast of the other studies such as study conducted in sidamo zone, southern Ethiopia among 11-13yrs age group which was 42.3% [7]. In addis abbaba 85.1% (Tefera Tezera, 2017). In another study conducted in Ankara university in turkey reported that, the the percentage of skipping breakfast meals was found to be 82.5% among students (Ergulen S., *et al*. 2001) higher than the percentage of meal taken by students of our stdudy. The main reason for this varation may be lack of nutritional message mong JJU students. Our finding here revealed that, almost 87.5% of students in jigjiga univesity had taken the dinner regularye excepy snack which seem to be rare among the students.This Finding is also in line with study coducted in addis ababa earlier this year where 51.8% of students were reported followed the dinning meal regulary (Tefera Tezera,2017), but there is major different these two studies because majoriy of JJU students had taken their dinner regulary compared that of addis abab university in which only portion of student by 51.8%. Taking snack in both finding was said to low howevr, only 29.1% of student inour study in contrast to 46.9 in addis abbaba univresty students (Tefera Tezera, 2017), the reason for that different may be that those living in capital city spents much of their living outside the campus where they intened to visit all restrausts and cafeteria.majoriy of student did not consumed alcohol about 91.3% (Tefera Tezera, 2017) and 73% rarely in addis abbaba university and jigjig university respectivly.our finding reaveld that the above mention difference after we compared regulay meals,skipped meals, dinner and other relative food eating habit beween those sudies with our studies may some mentioned reason below: the main reason for this in JJU students is many of students intended to eat outside university cafeteria even if they had no enough money that would satified their breast meals and left in dielimma between universty cafeteria and outside cafeteria.Eating outside on other hand may expose adolesent from higher income to sedentary way of life style.another for should be lack of awareness about dis advantages of eating disorder so they thought that missing one meals may not have any sigh effect to their nutritional status..another reseason for this may be attending a university or collage students can be stressful experience for many college students as a result they tend to eat more as away of getting relief particular in developing countries (Ergulen, Saygamum, 2001), but this may not be the case for ethiopia.

In Ethiopia weight gain were still considered a sign of healthiness, other shows that overweight as a disease of high economic class [8]. In contrast to this low socio economic status children are at higher risk of becoming obese as compared to those from high socio economic status indevloping countries based on the study conducted inGermany (Ergulen ,Saygamum, 2001).

The association between eating habits and psychological factors among university students, eating habits score in this study was significancantly lower among those who answered `yes by 49.2%`on the following statements; eat because of feeling lonely``eat because of feeling bored``.The percentage of students consuming fruit and vegetables one three or four times per week 35% university students. This result is very less as compared to a study conducted in turkey university students where fruit and vegetable consumption was better reported 64.8% of the students [9]. The main reason for that in our finding should be that, there is no availability of fruit and vegetable in jigjig a city compared to Addis Ababa and other country such as turkey where vegetable and fruits may be available in the market. It had been reported that unhealthy nutritional behaviors such as irregular consumption of meals, low frequency of vegetable and fruit consumption of meals were chararcteristic of students in general so there is a need to create programs for health education at universty students (Uramowsk B., *et al*. 2004). Concerning the life style, this sudy had found that, the sleeping and health condition of the respondents were normal by 60%. In addition to coping with the normal stressors of every day life, university students need to deal with stressors specific to their academics [9]. Although dieting is becoming a popular phenomenon among university students to achieve or maintain a healthyweight,Data from this study shows that dieting is not a common practice among the studied population Uramowsk B., *et al*, 2004. Likewise, smoking of cigarettes was not common among the students. The prevalence of smoking is low compared to the prevalence of many european countries universities [10]. This finding had revealed that. Alcohol intake was not a common among respondents (jigjig a university). Nearly half of the students believe that eating meat, vegetables and other food will provide them with balance diet 39.2%. Compared to study of Addis Ababa university students 38% in this study it was agreed that eating a variety of food for good health is importance (Tefera Tezera, 2017) [11-50].

Conclusion

According to the finding of this study, the following conclusions are forwarded. The study showed that the majority of students had normal BMI value and highlighted the presence of unhealthy eating behaviour, inadequate nutrient intake of vegetables, snack and high prevalence of underweight among university students.

Most of the university students skipped breakfast because of fatigue and various reason for instance lack of time and not feeling hungry. Eating behaviours are influence by variety of factors including life style factors. This study showed that eating attitude has an impact on BMI of respondent.

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