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Nutritional Assessment of Hostel Residential and non Hostel Residential Boys and Girl Students of Sindh University, Jamshoro, Sindh, Pakistan

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Abstract: Nutrition has great importance for humans to survive whole life but it takes special attention during the study period. University Hostel students are totally dependents on their own care; they mostly ignore the importance of balance diet and nutrition which is necessary for the health and fitness of mind for a student to study to achieve the tasks assigned. Questionnaire was filled by all the students which contained economic condition, education, health, food pattern, height and weight of 100 of Boys and Girls Hostel Residential (HR) and Non Hostel Residential (NHR) students. Biochemical tests like blood Glucose, Albumin, Globulin, Total protein, A/G ratio and Hb was analyzed to evaluate the nutritional status of the students, for the statically analysis, Arithmetic mean, Standard Deviation, probability and Chi square distribution was calculated.

Key words: Nutrition, students, food pattern, economic condition

INTRODUCTION

Balance diet is essential for all humans even deficiency of single nutrient cause fatal diseases. University students are mature and also understand the importance of good diet but mostly they ignore proper food and diet. Essential nutrients like essential amino acids, fat, vitamins and minerals are not only compulsory compounds for survival but these are very essential for study to achieve the goals (Premala and Sowmya, 2012; Aravind *et al*., 2011; Kruger *et al*., 2005; Richard *et al*., 2005).

In all the countries for the higher education most of the students live in hostels and hostel life has strong impact on the health (Eikhalifa *et al*., 2000; Popivanova *et al*., 1994). Boys and girl students who are living at homes their parents look after them well but hostel students especially University students are totally dependent on themselves (Popivanova *et al*., 1994). At hostel, boys and girl students get food from canteens.

This study was carried out at University of Sindh, Jamshoro, Sindh, Pakistan there most of the students belong to upper and lower middle class, that's why they cannot spend much money on their food and diet to maintain their health better way, this was proved by Saifullah and Tariq (2011) that financial condition has a great impact on the health and achievement of goals. Hostel life of Boys and Girls at University of Sindh, Jamshoro is very difficult, they usually live 3 to 4 students in single room and try to spend minimum money on food and ignore the importance of fruits. Malnutrition has lack of essential or vital nutrients in the diet even a single nutrient can cause different disorders in human body (Jessica *et al*., 2007; Caryl *et al*., 2003).

In hostel life young boys and girls neglect the importance of nutrition. There is a big issue of malnutrition, food available at canteens usually cooked in unhygienic condition and usually during the process of cooking most of the essential nutrients will destroy and food will not fulfill the requirement of students (Fatima *et al*., 2011). Sindh University hostel life may be 2 years to 6 years, during these period boys and girls student pass over the importance of diet, they usually take different types of snacks and drinks but do not take proper food, due to this they lose their health (Khan *et al*., 2002). Ozlem and Gulec (2012) and Premala and Sowmya (2012) says University students faced lot of problem along with choose a right food according to their health and body requirement. There are lot of research has been done on the nutrition of University student (Akinyemi and Ibraheem, 2009; Anderson *et al*., 1995). This study was carried out on Hostel Residential (HR) and Non Hostel Residential (NHR) boys and girls students Sindh University, Jamshoro, Sindh, Pakistan. Questionnaire was filled by all students which contained economics condition, education, health, food pattern, height and weight (Jessica *et al*., 2007) of 100 Boys and Girls of Hostel Residential (HR) and Non Hostel Residential (NHR) students. Biochemical tests like Glucose, Albumin, Globulin, Total protein, A/G ratio and Hb was analyzed from the blood of students to evaluate the nutritional status. Arithmetic mean, Standard Deviation, probability and Chi square distribution was calculated.

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MATERIALS AND METHODS

Subject selection: Nutrition survey was conducted on the students of University of Sindh, Jamshoro, Sindh, Pakistan. 50% boys and girl students were selected as 50% Hostel Residential (HR) and 50% were selected as Non Hostel Residential boys and girls (NHR). NHR group are those students who are living with their parents. The age group of students was 20-24 years and mean was 23 years.

Data collection: Data was collected through own made Questionnaire that was composed on the food pattern, demographic, socioeconomic condition, general health and appearance of all the students (Premala and Sowmya, 2012; Fatima *et al*., 2011; Saifullah and Tariq, 2011; Przybulewska and Janda, 2004).

Laboratory analysis: 5cc random blood was collected for the analysis of Hemoglobin test; blood collected in EDTA containing tube and blood was centrifuged to perform other test.

Glucose measured from blood serum by Merck's Kit (5650). Total protein was determined by Photometry test according to Biuret method by using Merck's Kit (60026936), Albumin test was performed by Merck's Kit (6149), Hemoglobin test was carry out by Merck's Kit (5868). Globulin test was performed by this formula Globulin = Total protein-Albumin. And Albumin Globulin (A/G) ratio was determined by mathematically calculation as A/G ratio = Albumin/Globulin (Nagra *et al*., 2011).

Anthropometric studies: Height was measured by common flexible steel tape and Weight was measured by common weight machine (Fatima *et al*., 2011; Premala and Sowmya, 2012; McMahan and Bistrain, 1991).

Statistical studies: Arithmetic Mean, Standard Deviation, Probability and Chi-Square were calculated of all data (Jessica *et al*., 2007).

RESULTS AND DISCUSSION

There were two aspects, one was survey of comparative studies of nutritional assessment through questionnaire and other was biochemical analysis between Hostel Residential (HR) and Non Hostel Residential (NHR) boys and girl students. Through questionnaire of any aspect we can find out fruitful information (Nagra *et al*., 2001; Jessica *et al*., 2007; Khan *et al*., 2002 and Popivanova *et al*., 1994).

Biochemical assessment is also authentic study of nutrition status (Richard *et al*., 2005). Food and nutrition having vital role in human life specially it is compulsory during the student life (Abdul *et al*., 2012; Eikhalifa *et al*., 2000 and Khan *et al*., 2002). When students live in hostel they should focus on their proper food and diet, University students are mature and they can take care of themselves but they mostly ignore the proper food and diet, so many research studies have been conducted on the nutrition of University students (Abdul *et al*., 2012; Saifullah *et al*., 2011 and Pirya *et al*., 2010) but this study provides comparison of Hostel Residential and Non Hostel Residential students of Sindh University, Jamshoro, Sindh, Pakistan.

Through questionnaire it was observed that most of the students belong upper and lower middle class, they were taking proper food and diet specially those students who are living at homes (Przybulewska and Janda, 2004). Students from department of Information Technology, Computer science, Business Administration and other non biological Sciences are totally unaware about balance or essential diet. Students of both groups usually drop the breakfast. Caloric intake of girls of HR and NHR was low. Weight of NHR boys, HR girls and NHR girls was low, Pirya *et al*. (2012) some carried out researches on medical students that students usually take snacks and soft drinks which help to increase the weight, study showed that weight of students was high who consume daily snacks (Table 1). Glucose level of HR boys, NHR boys and HR girls was normal, result of NHR girls was low it may be possible that they awake early and don't take proper diet (Table 2). Hemoglobin of HR boys, HR girls and NHR girls was low (Table 3), Popivanova *et al*. (1994) observed that hostel life has high impact on the health of students. Total Protein of HR boys, HR girls and NHR girls was low (Table 4). Albumin and Globulin of HR and NHR girls was low (Table 6) and A/G ratio was nearly same in all groups (Table 7).

Table 1: Mean value of Caloric Intake, Height and weight of respondents

Respondent	Mean caloric intake/day	Mean value of height (cm)	Mean value of weight (Kg)
Hostel Residential (HR) Boys	2133	165.7	90
Non-Hostel Residential (NHR) Boys	1981	161.4	80
Hostel Residential (HR) Girls	1764	158.9	50
Non-Hostel Residential (NHR) Girls	1699	157.6	55

Table 2: Statistical calculation of Glucose (mg/dl) in HR and NHR respondents

Respondent	Mean±SD	X^2	Probability	Probability (%)
Hostel Residential (HR) Boys (n = 25)	90.8±1.90	0.00844	0.03	3%
Non Hostel Residential (NHR) Boys (n = 25)	90.4±7.39	0.00884	0.03	3%
Hostel Residential (HR) Girls. (n = 25)	90.2±9.66	0.00007	0.04	4%
Non-Hostel Residential (NHR) Girls. (n = 25)	87.7±9.89	0.00009	0.03	3%

Table 3: Statistical calculation of Hemoglobin (g/dl) in HR and NHR respondents

Respondent	Mean±SD	X^2	Probability	Probability (%)
Hostel Residential (HR) Boys (n = 25)	12.8±13.9	0.01152	0.06	6%
Non-Hostel Residential (NHR) Boys (n = 25)	13.9±2.04	0.01184	0.06	6%
Hostel Residential (HR) Girls. (n = 25)	11.6±1.50	0.00003	0.03	3%
Non-Hostel Residential (NHR) Girls. (n = 25)	11.3±1.73	0.000035	0.03	3%

Table 4: Statistical calculation of Total Protein (g/dl) in HR and NHR respondents

Respondent	Mean±SD	X^2	Probability	Probability (%)
Hostel Residential (HR) Boys (n = 25)	7.4±0.84	0.00749	0.02	2%
Non-Hostel Residential (NHR) Boys (n = 25)	8.1±0.84	0.00794	0.02	2%
Hostel Residential (HR) Girls. (n = 25)	7.0±1.92	0.003	0.03	3%
Non-Hostel Residential (NHR) Girls. (n = 25)	6.5±1.25	0.0029	0.03	3%

Table 5: Statistical calculation of Albumin Protein (g/dl) in HR and NHR respondents

Respondent	Mean±SD	X^2	Probability	Probability (%)
Hostel Residential (HR) Boys (n = 25)	4.3±0.55	0.00546	0.04	4%
Non-Hostel Residential (NHR) Boys (n = 25)	3.9±0.81	0.00544	0.04	4%
Hostel Residential (HR) Girls. (n = 25)	3.6±0.9	0.00067	0.03	3%
Non-Hostel Residential (NHR) Girls. (n = 25)	3.6±0.69	0.00099	0.03	3%

Table 6: Statistical calculation of Globulin Protein (g/dl) in HR and NHR respondents

Respondent	Mean±SD	X^2	Probability	Probability (%)
Hostel Residential (HR) Boys (n = 25)	3.7±0.37	0.00397	0.03	3%
Non-Hostel Residential (NHR) Boys (n = 25)	3.4±1.21	0.00341	0.03	3%
Hostel Residential (HR) Girls. (n = 25)	3.3±1.59	0.00003	0.03	3%
Non-Hostel Residential (NHR) Girls. (n = 25)	3.2±1.15	0.00003	0.03	3%

Table 7: Statistical calculation of A/G ratio (g/dl) in HR and NHR respondents

Respondent	Mean±SD	X^2	Probability	Probability (%)
Hostel Residential (HR) Boys (n = 25)	1.2±0.46	0.00008	0.03	3%
Non-Hostel Residential (NHR) Boys (n = 25)	1.2±0.45	0.00033	0.03	3%
Hostel Residential (HR) Girls. (n = 25)	1.4±0.89	0.000069	0.03	3%
Non-Hostel Residential (NHR) Girls. (n = 25)	1.3±1.15	0.00007	0.03	3%

University hostel life impact on health, if students do not take care them self then they lose their health (Ozlem *et al*., 2012 and Popivanova, 1994). For the hostel Students University should arrange different seminar/workshops to spread awareness about proper food and diet (Ozlem *et al*., 2012; Norazmir *et al*., 2012; Saifullah *et al*., 2011 and Popivanova, 1994).

Conclusion: Students usually neglect the importance of proper diet which plays key role for the humans specially the student's age to achieve the goals, food of hostel canteens should be assessed regularly by the University authority.

It is proposed that Health awareness seminars/ workshops on the proper intake of good Nutrition or Balance diet should be arranged for University students at provincial and national level and Nutrition or Balance diet subject should set as compulsory subject for all University students.

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