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*Qualitative assessment of dietary habits among female  
students of the Medical University of Lublin  
in the academic year 2006/2007*

Rational, that is regular, varied and moderate nutrition is the precondition to mental as well as physical fitness. University students constitute a specific community, in which irregular lifestyle, dietary habits related to it, addictions and stressful environment are likely to lead to future health consequences such as e.g. civilization diseases. Monitoring of these dietary habits may reveal possible defects and abnormalities, which is essential in working out suitable educational programmes.

The aim of the study was to qualitatively assess the dietary habits of female students of the Medical University of Lublin in the academic year 2006/2007.

#### MATERIAL AND METHODS

The study was carried out in autumn (October–November) 2006/2007 and it encompassed 82 female students. The dietary habits were assessed using the last 24-h dietary history, including the picture album of food products and meals of various size portions designed in the Institute of Nutrition in Warsaw (1). The number of meals and their qualitative composition were assessed in the study. The quality of individual meals was submitted to classification suggested by Szewczyński (2). Moreover, the nutrition condition of the examined was established by calculating mass and height measurements (BMI).

#### RESULTS

Proper body mass was observed in over half of the students (52.7%) whereas as many as 36.8% of the examined had underweight. However, above standard body mass was a characteristic of every tenth student. The results obtained are presented in Table 1.

The findings led to the conclusion that more than half of the respondents (67.1%) consumed on average four or more meals a day, as few as 4.5% admitted to consuming two meals a day and only 1.5% consumed solely one meal daily. What is more, snacking between meals was stated by 29.8% of the respondents and was also included in the study. The most frequently consumed meals among students were breakfast (100%), dinner (92.5%) and supper (85.1%), respectively. However, it was the afternoon snack that was skipped by the highest number of students as it was consumed by as few as 35.8% of the examined. Parallely, alarming tendencies were displayed with regard to the consumption of lunch, which was considered in the diet by only 62.7% of the students (Table 3).

Table 1. Body mass index (BMI) of the examined students

BMI	BMI<18.5	BMI 18.5–19.9	BMI 20–24.9	BMI 25–29.9	BMI≥30	BMI≥40
Share % (N= 82)	14.0	22.8	52.7	8.8	1.7	0.0

Table 2. The number of meals consumed by students within a day

The number of meals	1	2	3	4 and more	Snacking
Share % (N= 82)	1.5	4.5	26.9	67.1	29.8

Table 3. Percentage of students consuming individual meals

Meal	Breakfast	Lunch	Dinner	Afternoon snack	Supper
Share % (N= 82)	100	62.7	92.5	35.8	85.1

Not only was the number of meals consumed relevant in everyday diet but also the kind of products the meals contained. The qualitative assessment of individual meals is presented in Table 4.

Meals were grouped according to product content, which is the source of animal protein including the one coming from meat, eggs as well as milk and its products. Moreover, protein-free meals as well as the ones containing fruits and vegetables were distinguished in the study.

Furthermore, the study revealed that milk and its products were most frequently consumed as part of breakfast (62.7%) and supper (50.7%). However, the highest percentage share of meat and egg products (58.2%), similarly to fruits and vegetables (73.1%) appeared in dinners. 91.1% of consumed afternoon snacks and 71.7 % of lunch turned out to be protein-free meals.

According to Szewczyński's (2) classification of the quality of meals, diets of as many as 38.6% of students did not fulfil class I, II and III requirements for the quality of meals (Table 5). Only every fourth (24.6%) student nourished herself properly, which qualified her for class I.

Table 4. Description of individual meals consumed by female students

Kind of meal	Meals containing (%)				Protein-free meals
	Animal protein	Meat protein	Milk protein and its products	Fruits or vegetables	
Breakfast	97.0	34.3	62.7	40.3	3.0
Lunch	28.3	8.9	19.4	44.8	71.7
Dinner	77.6	58.2	1.4	73.1	22.4
Afternoon snack	8.9	2.9	6.0	20.9	91.1
Supper	74.6	23.9	50.7	50.7	25.4

Table 5. Classification of the quality of meals consumed by students acc. to Szewczyński

Class and kind of meal	Share % (N = 82)
Ist class – animal protein in three meals, including one with milk or its products, vegetables or (and) fruits in two meals, breaks between meals 5 hours at most	24.6
IIInd class – as shown above but breaks between meals more than 5 hrs	10.5
IIIrd class – animal protein in two meals, including one with milk or (and) its products, vegetables or (and) fruits in one meal	26.3
IVth class – products other than in the Ist, IIInd and IIIrd classes	38.6

## DISCUSSION

Examining body mass of the students the height and weight measurements were used (BMI). Although half of the examined had proper body mass, it was extremely alarming that body mass deficiency was a characteristic of the remaining respondents, and what is more, body mass index below 18.5 kg/m<sub>2</sub> was observed in as many as 14% of the students, which is likely to increase future health risk. The study conducted confirm the results obtained at the Warsaw Technical University in the academic year 1999/2000 (3).

In accordance with the rational dietary standards, four or five meals should be consumed within a day and it is absolutely not advisable to eat less frequently than three times a day. Consumption at too long time intervals has an adverse impact on metabolism. What follows, a substantial drop in the blood glucose level can be observed between meals which in turn affects a decrease in physical and mental functioning. Analysing therefore the number of meals consumed by the respondents, the obtained findings can be assessed positively.

The qualitative analysis of dietary habits showed that every third student admitted to snacking between meals, which is likely to cause obesity and its consequences and may endanger future health. The snacking habit (of sweets mainly) is a common phenomenon among the whole society, which was confirmed by earlier studies (4, 5) which correspond to the data reported by other authors (3, 6).

The analysis of consumption of individual meals during the day demonstrated that breakfast and dinner were the most frequently consumed meals whereas supper was skipped by 15% of the respondents. According to rational dietary standards, apart from the three fundamental meals (that is breakfast, dinner, supper) it is always advisable to consume two more meals namely, lunch and afternoon snack (7). The selection of one of the additional meals should be dictated by lifestyle. In case of university students exhaustively doing their intellectual work both in the morning and in the evening, it is advisable to include both these meals in the daily diet. However, published findings corresponding to the data reported by others (6–8), show that lunch and afternoon snack are still underrated by both the students and the whole society. The irregularity of consumed meals as the most frequent dietary error amongst university students is also the centre of attention in the literature.

The presented findings of the composition of individual meals indicate the prevalence of numerous dietary errors which marks limited conformity of students' dietary behaviour with the rational diet recommendations. It was observed that diets of the respondents were low in protein, particularly in milk and its products. Furthermore, on average in half of the analysed diets, milk and its products appeared in breakfast as well as supper, however only every fifth student consumed these products during lunch / every 5<sup>th</sup> student admitted to consuming these products during lunch. Low consumption of fruits and vegetables was also characteristic of food rations of the examined. Most frequently these products appeared as a supplement to dinner and were taken into account by only 1/3 of the respondents. Nearly half of the breakfasts and suppers did not contain any vegetables or fruits in their composition. Too long time intervals between meals were also observed in the study. The obtained findings were in accordance with the ones achieved at the Warsaw Technical University as well as Medical Universities of Warsaw (3, 7) and Wrocław (8).

## CONCLUSIONS

1. The findings obtained indicate that every third student has body mass index below the established norm (BMI < 20 kg/m<sup>2</sup>), which results in underweight. It may be supposed

that body mass deficiency may arise due to displayed dietary errors. Such a long-term condition is likely to pose a health risk.

2. Although the findings suggest that the number of meals was appropriate but breakfast and afternoon snack are still found to be underrated.

3. The qualitative analysis showed numerous dietary errors. It was observed that there was a deficiency of vegetables, fruits and protein, particularly milk and its products, in the students' diets. Meals were consumed at too long time intervals mostly. According to Szewczyński's classification, the composition of diets of every third student was considered to be inappropriate.

4. The findings in the questionnaire as well as those obtained by other authors, indicating the spread of incorrect dietary behaviour among university students, constitute a reason for including the literature on balanced diet in health education obtained in the course of studies.

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#### SUMMARY

The main aim of the study was to assess qualitatively the dietary habits of female students of the Medical University of Lublin in the academic year 2006/2007. The study was conducted among 82 students in autumn (October–November) 2006. The 24-hour dietary questionnaire and the album of photos of products and meals of various size portions designed in the Institute of Nutrition in Warsaw were used. The number of meals and their qualitative composition were assessed in the study and

next they were submitted to classification suggested by Szewczyński. Moreover, the nutrition condition was established calculating height and weight measurements (BMI). The conducted studies revealed that every third student had body mass below the established norm ( $BMI < 20 \text{ kg/m}^2$ ), which may result from the pointed dietary errors. The number of meals consumed by the respondents was appropriate, however both lunch and afternoon snack still remain underrated. The analysis of qualitative composition indicated a number of dietary errors. The deficiency of vegetables and fruits as well as protein, especially milk and its products, was observed in students' diets. Meals were consumed at too long time intervals mostly. Diet composition of every third respondent was classified as inappropriate, according to Szewczyński's classification. The findings included herein as well as the ones obtained by other authors, indicating the spread of incorrect dietary behaviour among university students, constitute a reason for including the literature on balanced diet in health education obtained in the course of studies.

#### Ocena jakościowa sposobu odżywiania się studentek Akademii Medycznej w Lublinie w roku akademickim 2006/2007.

Głównym celem pracy była ocena jakościowa sposobu odżywiania się studentek Akademii Medycznej w Lublinie w roku akademickim 2006/2007. Badania przeprowadzono w okresie jesiennym (październik – listopad) 2006 r. wśród 82 studentek. Do oceny sposobu żywienia zastosowano metodę wywiadu żywieniowego z ostatnich 24 godzin przed badaniem z wykorzystaniem albumu fotografii produktów i potraw o różnicowanej wielkości porcji, opracowanego przez IŻŻ w Warszawie. W pracy oceniono liczbę posiłków oraz ich skład jakościowy, który następnie poddano klasyfikacji zaproponowanej przez Szewczyńskiego. Ustalono również stan odżywienia badanych studentek, obliczając wskaźnik wagowo-wzrostowy (BMI). Przeprowadzone badania wykazały, że co trzecią studentkę charakteryzował wskaźnik masy ciała poniżej przyjętej normy ( $BMI < 20 \text{ kg/m}^2$ ), co może wynikać z wykazanych błędów dietetycznych. Liczba posiłków spożywanych przez ankietowane była prawidłowa, jednak w dalszym ciągu nie w pełni docenione były drugie śniadania i podwieczorki. Analiza składu jakościowego wykazała szereg błędów żywieniowych. W dietach studentek występował niedobór warzyw i owoców oraz pełnowartościowego białka, a zwłaszcza mleka i jego przetworów. Posiłki w większości były spożywane w zbyt długich odstępach czasu. Według klasyfikacji Szewczyńskiego skład jadłospisu co trzeciej studentki był nieprawidłowy. Wyniki badań własnych oraz innych autorów, wskazujące na rozpowszechnienie wadliwych zachowań żywieniowych w środowisku młodzieży akademickiej, stanowią przesłankę do włączenia treści z zakresu higieny żywienia w edukację zdrowotną realizowaną w trakcie studiów.