

**Health and socio-economic status of new entrants
to the university of Sri Jayewardenepura**

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Received on: 12.12.01

Accepted after revision: 01.03.02

Abstract

This study attempts to assess the socio-economic and health status of the new entrants to the four faculties in the Sri Jayewardenepura University. Data were obtained using a pre-tested pre-designed questionnaire.

Students from different faculties differed markedly in their socio-economic background as well as in their health status. The students entering faculties of medicine and science had a larger proportion coming from higher socio-economic group and better BMI and lower prevalence of anemia, compared to the students entering faculties of arts and management.

The highest proportion of anemia (40%) and the Body Mass Index less than 18.5(39%) detected among apparently healthy young adults is to be taken note of as it is likely to lead to poor productivity of students.

Key words: Socio-economic and Health status, Pre-tested pre-designed questionnaire, Body Mass Index, Anemia

1. Introduction

Out of all the students who sit for the G.C.E (A/L) examination each year, only around 7% gain admission to the Sri Lankan universities.¹

University of Sri Jayewardenepura gets its new batch of students annually and they come from different social strata and from different parts of the country. Every child in this country is entitled to free education, and education is compulsory till the age of fourteen years. In spite of the very small proportion entering university, the physical health of these new entrants may not be very different from the general population of this age category.

This study attempts to assess the socio economic and health status of the new entrants to the Sri Jayewardenepura University in the year 1999. It also tries to identify the common problems as well as to draw attention to the association between socio economic status, study streams and health issues.

Only one similar study had been carried out on the University students, that too as far back as 1981, among university students of Colombo.² Since then, there had been many changes in the socio-economic and health status of Sri Lankan population.

2. Materials & methods

All students who entered the University of Sri Jayewardenepura in 1999 were given a pre designed structured health questionnaire that consisted of three parts.

1. General information
2. Medical history of the student and the student's family.
3. Physical examination and investigations

The students filled the first two parts of the questionnaire whilst allopathic medical doctors, from the state and private sectors, completed the third part after clinical examination.

Data were entered in an Excel database and the computer analysis was done afterwards. Family income, social status, districts of permanent residence and the stream of study were selected as independent variables. They were further divided in to different categories and subdivisions. From the medical data Body mass Index, Hemoglobin concentration, findings of chest X-rays and physical examination were taken as health indices and these were compared with selected socio economic parameters and study streams.

3. Results

1185 new admissions to the four faculties in the Sri Jayewardenepura university were recruited to the study, of whom 940(80%) completed their questionnaire. In medical(49%:51%) and science(53%:47%) faculties, proportion of female to male ratio appears to be more or less same, while in arts (78%) and management (61%) faculties female preponderance was seen. In the total student population, 63% of the students were females and only 37% were males.

The districts of permanent residence were tabulated and districts were categorized in to privileged and underprivileged categories, using the University Grant Commission selection criteria.¹ Ampara, Anuradapura, Badulla, Hambantota Monaragala, Nuwaraeliya, Polonnaruwa, Trincomallee, Vavuniya, Kilinochchi, Mannar, Mulaitivu Districts were considered underprivileged and students from the first four districts were not found in the study. Majority of the admission to all faculties were from privileged districts (science-89%, management-84%, medical-81%, arts-73%) although the proportion of underprivileged students was higher in the arts faculty.

The monthly income of the family was grouped as less than Rs 10,000 per month and over Rs 10,000 per month. Monthly family income of majority in all four faculties were reported to be less than Rs 10,000 (arts-94%, science-84%, management-86%, medical-56%). However, a higher proportion of students from medical faculty disclosed a monthly family income of Rs 10,000 or above (44%).

Nutritional Status

BMI

BMI which is a measure of protein energy malnutrition among adults, is calculated by dividing the Bodyweight in Kilogram by the height in (Meters)².

Of the total respondents, 39% were found to have BMI <18.5. This was found to be worst in the arts faculty (44%) followed by the management faculty (41%). The faculty of science and medical had the proportions in thirties. (Table:I).

Table I: BMI in different faculties.

| BMI | FACULTY | | | |
|---------|---------|---------|------------|---------|
| | Arts | Science | Management | Medical |
| | No % | No % | No % | No % |
| <18.5 | 109 44 | 38 36 | 183 40 | 40 31 |
| 18.5-25 | 131 53 | 62 58 | 259 57 | 77 62 |
| >25 | 9 3 | 6 6 | 15 3 | 11 7 |
| total | 249 100 | 106 100 | 457 100 | 128 100 |

44% of the females were found to have BMI less than 18.5 while it was 31% among male students. This difference was found to be statistically significant (Chi-square value =17.2, df=2, p<0.001) (Table:II).

Table II: BMI by sex of students.

| BMI | | SEX | |
|---------|---------------|--------|------|
| | | Female | Male |
| <18.5 | number | 263 | 107 |
| | Percentage(%) | 44 | 31 |
| 18.5-25 | Number | 310 | 219 |
| | Percentage(%) | 52 | 63 |
| >25 | Number | 21 | 20 |
| | Percentage(%) | 4 | 6 |

As expected, BMI values had significant association to family income of the students (Chi-square value 7.06, df=2, $p<0.05$). 41% of the Students with family income less than Rs 10,000 per month had a BMI value less than 18.5 and only 36% of the students with family income more than Rs 10,000 had got BMI value less than 18.5 (Table:III).

Table III: BMI vs Family Income of the students

| BMI | | INCOME | |
|---------|----------------|-----------|-----------|
| | | Rs<10,000 | Rs>10,000 |
| <18.5 | Number | 324 | 52 |
| | Percentage (%) | 41 | 36 |
| 18.5-25 | Number | 435 | 80 |
| | Percentage(%) | 55 | 56 |
| >25 | Number | 25 | 11 |
| | Percentage(%) | 3 | 8 |

BMI values were found to be not significant (chi-square value=2.75, df=2, $p>0.05$) to the type of districts in which new entrants had been living before coming to the university (Table: IV).

Table IV: BMI by Disticts of permanent residence of the students

| BMI | | DISTRICTS | |
|---------|----------------|------------|------------------|
| | | Privileged | Under privileged |
| <18.5 | Number | 303 | 61 |
| | Percentage (%) | 40 | 35 |
| 18.5-25 | Number | 428 | 110 |
| | Percentage(%) | 56 | 62 |
| >25 | Number | 33 | 5 |
| | Percentage(%) | 4 | 3 |

Anemia

According to WHO criteria, those below 13g% in males and below 12g% in females, were considered anemic. Of the total respondents 40% were found to be anemic. The proportion was highest among arts students (45%) and the lowest percentage of anemic students (31%) was found to be in the science faculty (Table: V).

Table V: Students with anemia in different faculties

| ANEMIC STATUS | | FACULTY | | | |
|---------------|----------------|---------|---------|------------|---------|
| | | Arts | Science | Management | Medical |
| Anemic | Number | 112 | 33 | 177 | 49 |
| | Percentage (%) | 45 | 31 | 39 | 38 |
| Not anemic | Number | 137 | 73 | 280 | 79 |
| | Percentage(%) | 55 | 69 | 61 | 62 |

There was a higher proportion of females (42%) being anemic, compared to males (35%) which was found to be statistically significant (Chi-square value= 5.25,df=1, $p<0.05$) (Table:VI).

Table VI: Anemia by sex of the students

| ANEMIC STATUS | | SEX | |
|---------------|----------------|--------|------|
| | | Female | Male |
| Anemic | Number | 251 | 120 |
| | Percentage (%) | 42 | 35 |
| Not anemic | Number | 343 | 226 |
| | Percentage(%) | 58 | 65 |

42% of the students with less than Rs 10,000 family income and 31% of the students with income above Rs 10,000 were found to be anemic and this difference was statistically significant (Chi-square value=7.24, df=1, $p<0.05$). (Table VII).

Table VII: Anemia by family income

| ANEMIC STATUS | | FAMILY INCOME | |
|---------------|----------------|---------------|------------|
| | | <Rs 10,000 | >Rs 10,000 |
| Anemic | Number | 332 | 48 |
| | Percentage (%) | 42 | 31 |
| Not anemic | Number | 452 | 108 |
| | Percentage(%) | 58 | 69 |

44% of the students coming from underprivileged districts were anemic, compared to 38% of the privileged, however, this difference was not found to be significant (chi square value=1.83,df=1, $p>0.05$) (Table:VIII).

Table VIII: Anemia by the status of the district of residence

| ANEMIC STATUS | | DISTRICT | |
|---------------|---------------|------------|------------------|
| | | Privileged | Under privileged |
| Anemic | Number | 292 | 77 |
| | Percentage(%) | 38 | 44 |
| Not anemic | Number | 472 | 99 |
| | Percentage(%) | 62 | 56 |

Clear chest x-rays were found in all students and only two students (1-arts faculty, 1-medical faculty) had bony deformities. No pathological changes in the lungs were found.

Problems related to vision accounted for 10% of all the students, majority being the myopic.

Allergy to drugs or food was found only in 4% of the population. Study also found eight students with thyroid problems, of whom two female students had suffered from Thyroid Carcinoma and had been treated. There were 7 students with cardiac diseases, which included 2 with Rheumatic valvular disease. There were 19 students who claimed to be suffering from Bronchial Asthma and one from Diabetis mellitus.

4. Discussion

The total admission for the year 1999 was 1185 of which 940(80%) had responded to the study. Of those who responded 65% were females, although the proportion among the total of all admission was only 56% suggesting a better compliance among females.

When the economic background of students were considered, medical faculty showed a significant number of entrants from a comparatively higher income group. The arts faculty showed the lowest number of entrants from a higher income group. When the total number of entrants was considered, higher economic group was only 16%, which was nearly the same as in faculties of science and management. Even in 1981 study, a similar disparity among parents income was observed.

The proportion of students with protein energy malnutrition (BMI < 18.5) varied from 31% in medical faculty to 44% in the arts faculty. The students entering arts and management faculties have a significantly higher proportion of protein energy malnutrition among them, compared to the students entering medical and science faculties.

Only a microscopic proportion of the students were overweight with medical faculty accounting for 7%.

39% of the study population was found to have a BMI less than 18.5. Of these, significantly higher proportion of females was found to be having protein energy malnutrition. As expected, protein energy malnutrition was associated with family income. However, protein energy malnutrition was not associated with underprivileged districts, probably because childrens' entry from under privileged districts may not necessarily mean as coming from under privileged families.

It was found that 45% of the arts students were anemic and the least proportion was found in the science faculty. The overall proportion of anemia among the new entrants ranged between 30% to 45% (In the total population, 40% were anemic). The science and medical faculties were at the lower end of the range while management and arts faculties had higher proportions.

When anemia was considered by sex, a significantly higher proportion of females (42%) compared to males (35%) were anemic. This difference was found to be statistically significant (chi-square value=5.25, df=1, $p<0.05$). This shows similarities with anemia prevalence studies among women in years 1995 and 1996^{2,3}. According to Mudalige and Nestle in 1995, anemia prevalence of 45% was detected among non pregnant women.³ According to Wikramanayake in 1996, prevalence of anemia among females (68%) was much greater than males (38%).⁴

As expected, income was associated with anemia among the students, where 42% of the students coming from families with income <Rs 10,000, were found to be anemic, as opposed to 31% of those coming from families with income >Rs 10,000. This difference was also found to be statistically significant (chi-square value= 7.24, df=1, $p<0.05$).

When considering the districts, 44% of the students coming from the underprivileged districts were anemic, compared to 38% of the privileged. However this difference was not found to be statistically significant (chi-square value=1.83, df=1, $p<0.05$).

The 1981 study too found a similar picture in respect of anemia.²

Conclusion and Recommendation

Students from different faculties differed markedly in their socio-economic background as well as in their nutritional status. The students entering faculties of medicine and science had a larger proportion coming from higher socio-economic groups and better BMI, and low prevalence of anemia compared to the students entering to faculties of arts and management.

The high proportion of anemia (40%) detected among apparently healthy young adults is of special significance as it is likely to lead to poor performance in academic activities.

This study also highlights the fact that medical screening at the point of admission is effective in identifying nutritional problems and if it is effectively addressed, the student performance is likely to improve.

It is also to be considered whether the parents' socio-economic background had an influence on the selection of courses of studies by their children. This influence is likely to be due to lack of guidance on the part of the parents. Therefore, some form of guidance on selection of courses for higher

studies from the school authorities for highergrade students; particularly those coming from disadvantaged families may improve the situation. The importance of career guidance during school years, by school teachers and parents is stressed in a book by Abewikrama in 2000.⁵

In order to improve the compliance from the new students to get their medical examination done, all the new entrants should register with the medical center to obtain any form of service other than emergency service and they could be informed of this during their orientation programme and through their handbook.

5. References:

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