Prevalence of Anemia Among Undergraduate Students of Kathmandu Medical College, Nepal

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ABSTRACT

Introduction: Anemia is a public health concern globally. Nutritional anemia is the most common cause of anemia in college students and is one of the major health problems in developing countries like Nepal. The present study aimed to estimate the prevalence of anemia among medical and dental students. The medical and dental students might suffer from anemia because of long hectic schedule in college, clinical postings, and continuous examinations throughout the year. Methodology: A cross-sectional study was conducted from January 2016 to February 2017 among first and second-year MBBS and BDS students between the ages of 17 to 22 years studying at KMCTH, Kathmandu. A total of 288 students age ranging from 17 to 22 years were enrolled in the study. Sahli hemometer method was used for the estimation of hemoglobin. Results: The prevalence of Anemia was 21.8% among the study students. Out of total 288 students, 63 students were found anemic out of which 17 (6%) male students were anemic. And 46 (16%) female students were found anemic in the present study. The cutoff hemoglobin level below 12.0 gm% was considered as anemia. The mean hemoglobin among students was 13.6 gm% with standard deviation of 1.56. Conclusion: Anemia is still relatively common in girls and women of childbearing age. Moreover, these data contribute to the mapping of anemia prevalence in this geographical area of Nepal and therefore may be helpful in planning interventional strategies in making public health policies.

Keywords: Anemia, Hemoglobin, Sahli

1. INTRODUCTION

Anemia is characterized by reduced hemoglobin level or decrease in number of red blood cells(1). It is a worldwide health problem affecting both developed and developing countries. Globally prevalence of anemia is 29% in females with the age group 15-49 yrs(2). Iron deficiency anemia in the adolescent girls is a major risk factor for maternal mortality, high incidence of low-birth weight babies, high perinatal mortality and fetal wastage(3). The situation in Nepal is worse where 36.0% age 15-49, 42.0% pregnant and 40.0% lactating women are reported anemic(4). Medical students are vulnerable groups for anemia because of their sedentary lifestyles, more focused in completing the syllabus, less time for physical exercise and improper dietary habits(5). Anemia is an indicator of poor nutrition and poor health. It affects not only cognitive and physical performance but also work productivity in adults(6). Anemia prevails when the body doesn't have enough iron to produce hemoglobin. Hemoglobin is the constituent of the red
blood cells that gives blood its red color and helps the red blood cells to carry oxygenated blood throughout the body. Consuming less iron or losing too much iron will cause the body deficient in producing enough hemoglobin, and iron deficiency anemia will eventually develop in an individual\(^{(7)}\). Very few studies have been conducted in finding the prevalence of anemia in Nepal, and little is known about anemia among medical and dental college students. The present study is primarily focused on finding the prevalence of anemia among the MBBS and BDS students of pre-clinical science.

2. METHODS

A cross-sectional study was conducted from January 2016 to February 2017 among first and second-year MBBS and BDS students between the ages of 17 to 22 years studying at KMCTH, Kathmandu. A total of 288 students age ranging from 17 to 22 years were enrolled in the study. A detailed clinical history was taken from them for any presenting symptoms regarding anemia, and physical examination was done to look for pallor, icterus, edema, hyperpigmentation, lymphadenopathy, bleeding spots and signs of vitamin deficiency. The systemic physical examination was done to rule out any systemic abnormality. For hemoglobin measurement, blood was drawn by finger prick with lancet after sterilization of the site with 70.0% alcohol. The hemoglobin test was done by using Sahli haemometer. The color comparison was done in the natural light. With each subject verbal consent was taken before drawing a blood sample. The test was done in the Physiology hematology laboratory as a routine practical. World Health Organization’s Guideline was used for interpretation and classification of anemia, the cutoff hemoglobin level below 12.0 gm% was considered as anemia\(^{(8)}\).

The collected data was analyzed statistically by SPSS Version 21. Statistical significance was assessed at a type I error rate of 0.05.

3. RESULTS

The total sample size of the study was 288 medical and dental students. The age of the studied population ranged from 17 years to 22 years. The mean hemoglobin was 13.6 gm% with standard deviation of 1.56. (Table 1) shows the distribution of anemia in different sex of study population.

### Table 1: Distribution of Anemia in different sex of the study population

<table>
<thead>
<tr>
<th>Grades of Anemia</th>
<th>Males=175</th>
<th>Females=113</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Hemoglobin (Hb level ≥ 12 gm/dL)</td>
<td>158 (90.28%)</td>
<td>67 (59.29%)</td>
</tr>
<tr>
<td>Mild (Hb level 10.0-11.9 gm/dL)</td>
<td>14 (8%)</td>
<td>36 (31.85%)</td>
</tr>
<tr>
<td>Moderate (Hb level 7.0-9.9 gm/dL)</td>
<td>3 (1.72%)</td>
<td>10 (8.86%)</td>
</tr>
<tr>
<td>Severe (Hb level less than 7 gm/dL)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The total male and female population was 175 and 113 respectively. The overall prevalence of anemia among students (males and females combined) was found with 21.8%. Among female students, the prevalence was 16 % whereas in males it was only 6 %. Difference between males and females was found strikingly. The females were 40.71%, and males were 9.72 % anemic as compared to their own counterparts. (Figure 1)

![Figure 1: Comparison of Anemia between males and females of the study population](image)

4. DISCUSSION

Anemia has its impact globally. It is one of the major health problems both in developed and developing countries. Prevalence of anemia denotes poor nutrition and poor health. Nutritional anemia is a common entity worldwide, and there are around one billion iron deficient people in the world\(^{(9)}\). Our study showed that the prevalence of anemia in girls were 40.71% which were similar to the different studies done in Nepal which reported that prevalence ranged from 42 to 60.0%\(^{(10,11)}\). The results revealed that anemia constitutes a health problem among female students.
medical and dental students and most of the detected anemia was with mild severity. Also living in the hostel away from parents and homes was reflected upon their dietary habits and had a significant correlation in the prevalence of anemia among the studied group.

5. CONCLUSION
Our study found a quite high prevalence of anemia (41%) among female undergraduate medical students as compared to males (10%). Medical and dental students residing in hostels and having less involvement in physical activities were found to have more anemic. Additionally, these results contribute to find the prevalence of anemia and therefore may be helpful in making public health policies to overcome the problem.

6. LIMITATIONS
The trend of studies in developing countries is only focused in urban areas. The problem of anemia is more in rural areas. So, more and more studies must be conducted in rural areas to find the actual prevalence of the country.

ACKNOWLEDGEMENTS
I express my deep sense of gratitude to my participants, without their cooperation this study might not have been successful.

REFERENCES