Arambawattage Nayana Sithara Arambawatta

Scientific Supervisor: Assistant Professor Y. I. Faschenko

Educational Establishment
"Gomel State Medical University"
Gomel, Republic of Belarus

PREVALENCE OF ANAEMIA AMONGST FOREIGN STUDENTS AND IT'S CONNECTION WITH VEGETARIANISM

Introduction

Anemia is a condition where the blood has a low level of hemoglobin, which is the protein that carries oxygen to the tissues. Anemia can cause symptoms such as fatigue, weakness, pale skin, shortness of breath, and dizziness. Anemia can have various causes, such as blood loss, infections, genetic disorders, or nutritional deficiencies. One of the most common causes of anemia is iron deficiency, which occurs when the body does not have enough iron to make hemoglobin. Iron is found in foods such as meat, poultry, fish, eggs, and fortified cereals. Vegetarians and vegans may have a higher risk of iron deficiency anemia if they do not consume enough iron-rich plant foods, such as beans, lentils, tofu, nuts, seeds, and green leafy vegetables [1, 2, 6]. According to the World Health Organization (WHO), anemia is the most prevalent nutritional deficiency worldwide, affecting nearly 25% of individuals globally, or 1.62 billion people [4]. The deficiency is most pervasive in developing countries and more heavily impacts women and children than men. Among pregnant women, iron deficiency anemia is also associated with adverse reproductive outcomes such as preterm delivery, low-birth-weight infants, and decreased iron stores for the baby, which may lead to impaired development [3, 4].

Foreign students are a population group that may be particularly vulnerable to anemia, due to factors such as dietary changes, cultural differences, stress, and infections. However, there is limited research on the prevalence and causes of anemia among foreign students, especially in relation to their dietary patterns and preferences.

Goal

The purpose of this study is to investigate the extent and determinants of anemia in foreign students residing in Belarus and to examine the relationship between vegetarianism and anemia in this cohort. This study seeks to enhance the knowledge of the nutritional and health needs of foreign students and to offer practical suggestions for the management and prevention of anemia in this population.

Material and methods of research

An analytical survey targeting foreign university students aged 18–25 in Gomel, Belarus, was conducted to assess dietary habits, health status, and anemia symptoms. Participants consented to an online questionnaire, which gathered demographic data, food group consumption frequency, vegetarian/vegan diet adherence, and reasons for dietary choices. The study also included a literature review on anemia and vegetarianism, summarizing and comparing the findings, methodologies, and limitations of the most pertinent sources.

The results of the research and their discussion

Recent studies have shown inconsistent results about the relationship between vegetarianism and anemia. While dietary iron deficiency, a common concern in vegetarian diets, has been identified as a leading cause of anemia globally, specific studies found no significant link between vegetarianism and anemia among Zanzibar secondary students or Ethiopian adolescent

girls [1, 5, 4]. A survey was conducted on students, of whom 65% were female and 35% were male. The majority of them were from South Asian and African countries, while only 4.5% were from Eastern Europe. The frequency of consumption of food products was assessed, as well as the adherence to a vegan or vegetarian diet. The use of iron supplements and the hemoglobin levels of the students were also measured. Additionally, the students were asked to report any signs of anemia, such as fatigue, weakness, dizziness, and blackouts.

The results showed that 18.9% of the students had low hemoglobin levels (<12 g/dL), indicating iron deficiency anemia, while 10% had normal hemoglobin levels (15–18 g/dL). Most of the students did not take iron supplements, while 27.6% of them occasionally did. Only 10.3% of the students followed a vegan or vegetarian diet, while 41.4% of them consumed meat, poultry or fish at least 3-4 times a week and 34.5% of them consumed eggs or dairy products 1–2 times a week. Despite the low prevalence of anemia, many students reported signs of anemia, such as fatigue, weakness and dizziness. More than half of the students (58.6%) experienced blackouts when they stood up too quickly.
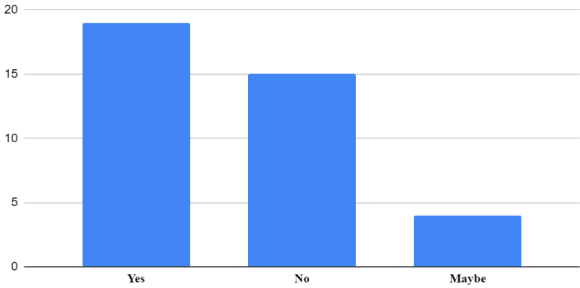

Figure 1 — Count of Students who face Blackouts

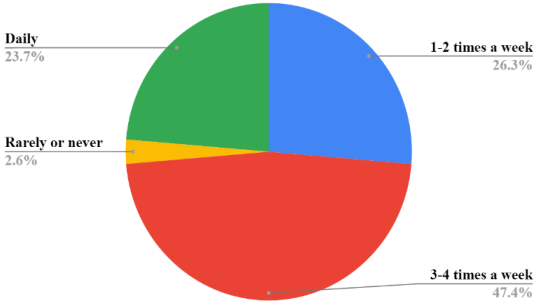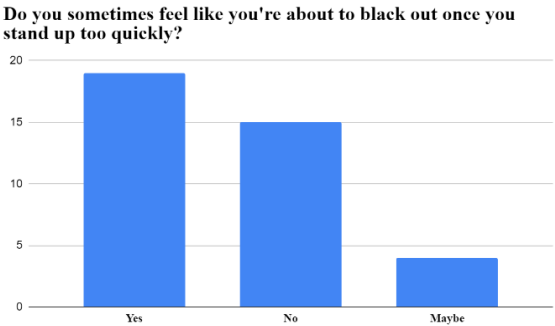**Do you sometimes feel like you're about to black out once you stand up too quickly?**

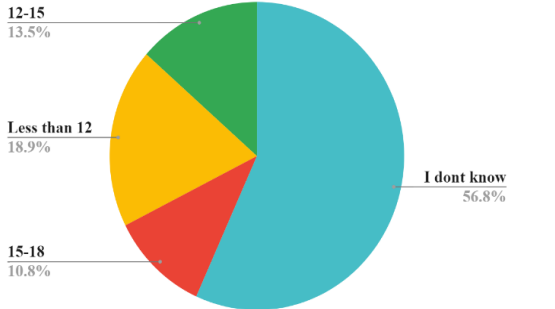Figure 2 — Amount of Meat Poultry and Dairy Consumption

Figure 3 — Haemoglobin Count of Students

A high proportion of the students reported frequent consumption of caffeine and energy drinks. Energy drinks are drinks that contain high amounts of caffeine, sugar, and other stimulants. They are commonly used by students to enhance their energy, concentration, and alertness. However, energy drinks may also have adverse effects on health, such as elevated blood pressure, heart rate, and anxiety. Furthermore, energy drinks may impair iron levels and absorption, as caffeine can inhibit the absorption of minerals in the body, including iron. This can result in fatigue and cardiac arrhythmias.

Conclusion

Anemia, affecting a quarter of the global population, is caused by low hemoglobin levels that hinder oxygen delivery. Iron deficiency, often due to inadequate dietary intake, is a primary cause. Vegetarians and vegans may be at higher risk if their diet lacks iron-rich foods. This

study focused on foreign students living in Belarus, a population that may be susceptible to anemia due to various factors, such as changes in diet, cultural barriers, stress, and infections. This study aimed to evaluate anemia and its factors among foreign students in Belarus, particularly the link with vegetarianism. It found 18.9% of students had low hemoglobin levels, indicating iron deficiency anemia, and 10.3% followed a vegan or vegetarian diet. Many students showed anemia symptoms like fatigue and weakness. More than half of the students reported experiencing orthostatic hypotension, or fainting when standing up too fast. A notable finding was that a large proportion of students consumed caffeine and energy drinks frequently, which may interfere with iron absorption and cause fatigue and heart problems. This study emphasizes the importance of dietary education and the encouragement of balanced, iron-rich diets, especially for vegetarians and vegans, to prevent anemia. It also draws attention to the potential health hazards of consuming caffeine and energy drinks. More research is required to fully comprehend the relationship between dietary habits, including vegetarianism, and anemia among foreign students.

LITERATURE

1. Burden of anemia and its underlying causes in 204 countries and territories, 1990–2019: results from the Global Burden of Disease Study 2019 // Journal of Hematology & Oncology. – Mode of Access: https://jhoonline.biomedcentral.com/articles/10.1186/s13045-021-01202-2 – Date of Access : 05.02.24

2. Anaemia in women and children (who.int) – Mode of Access: https://www.who.int/data/gho/data/themes/topics/anaemia_in_women_and_children – Date of Access – 10.02.24

3. Comparative Study of Prevalence of Anaemia in Vegetarian and Non Vegetarian Women of Udaipur City, Rajasthan (longdom.org) – Mode of Access https://www.longdom.org/open-access/comparative-study-of-prevalence-of-anaemia-in-vegetarian-and-non-vegetarian-women-of-udaipur-city-rajasthan-2155-9600-S3-001.pdf – Date of Access: 10.02.24.4. Prevalence and associated factors of anemia among adolescent girls in Ethiopia: A systematic review and meta-analysis // PLOS ONE. – Mode of Access: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0264063 – Date of Access: 20.02.24

5. Factors associated with anemia among school–going adolescents aged 10–17 years in Zanzibar, Tanzania: a cross sectional study // BMC Public Health – Full Text (biomedcentral.com) – Mode of Access: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-023-16611-w – Date of Access: 05.02.24

6. Evaluation of Prevalence of Anemia and Its Sociodemographic Correlation among Undergraduate Medical College Students – A Cross Sectional Study (sciepub.com) – Mode of Access: https://pubs.sciepub.com/jnh/5/2/6/index.html – Date of Access: 23.02.24

УДК 615.849-052(476.2)

Ashmini Thejani Abhayawardana

Scientific leader: Ph.D., Associate Professor Y. V. Visenberg

Educational Establishment
"Gomel State Medical University"
Gomel, Republic of Belarus

ANALYSIS OF THE NUMBER OF MEDICAL PROCEDURES USING SOURCES OF IONIZING RADIATION IN THE GOMEL REGION FOR THE PERIOD FROM 2013 TO 2021

Introduction

Radiation dose is a measurement of ionizing radiation exposure is the amount of energy absorbed as a result of radiation exposure.

Radiation dose affects tissue. The amount of radiation dose depends on the following factors: activity, type of radiation, distance, time, shielding. There are several types of radiation doses: absorbed dose (calculated in mGy), equivalent dose (calculated in mSv) and effective dose (calculated in mSv). The effective dose refers to a person's long-term risk and used in most medical procedure [1].