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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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ABO BLOOD GROUPS IN RELATION TO ANXIETY, STRESS AND DEPRESSION

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Abstract.

Introduction: People have been suffering from affective illnesses including anxiety, stress, and depression as a result of the lifestyle changes that have occurred in our cultures. Research indicates a connection between specific blood types and several medical or mental illnesses. Stress, anxiety, and depression are common events in life and are more noticeable among college students. The objective of the study is to estimate the relationship of blood groups with stress, anxiety and depression among university students. **Methods:** This is a cross-sectional study, carried out via a web-based online survey, using the DASS-21 questionnaire, pharmacy college students' levels of stress, anxiety, and depression were measured. With a sterile lancet, blood samples were drawn from each participant via finger prick. Participants' ABO blood group phenotype was identified using the slide agglutination method using anti-A, anti-B, and anti-D monoclonal blood group reagents. **Results:** This study shows that 46.2%, 62.5%, and 62.5% of the second-year students of the pharmacy college suffer from stress, anxiety and depression ranging from mild to extremely severe levels. Among the participants, the AB blood group subjects showed the highest prevalence of stress (54.5%), the blood group A had the highest prevalence of anxiety (67.3%), and blood group B demonstrated the highest prevalence of depression (71.4%).

Conclusion: According to this study, there is a high prevalence of stress, anxiety and depression among pharmacy college students. However, there is no statistically significant association between the incidence of these problems and the ABO blood group.

Key words. Anxiety, blood group, depression, stress.

Introduction.

Students are a special group of individuals who have just emerged into one of the most important stages of their lives, during which they encounter several stressful challenges [1]. As students advance in their education, they encounter increasingly stressful situations, such as more difficult coursework, difficult projects and job assignments, and living in dorms. These difficulties must be effectively managed. Educators have a responsibility to assist their students in managing these stressors so that their mental health remains stable [2].

Anxiety and depression are common mental health conditions among college students [3]. Half of all mental illnesses start in adolescence, and the other 25% show up by the middle of their 20s, which corresponds to the typical college years [4]. Stress is characterized as the sense of incongruity between one's ability to meet personal needs and the demands of the environment (stressors). It happens when someone encounters a major circumstance that they cannot handle [5]. While too much stress can lead to physical and mental health problems, it can also be advantageous by increasing motivation [6]. Stress can lead to or affect the development of medical issues such as high blood pressure, poor wound healing, and psychological disorders like anxiety and depression [7].

Anxiety is defined as anticipating a known or perceived threat in the future. It is often associated with vigilance and muscle tension to get ready for future danger and cautious or avoiding behaviours [8]. Depression is characterized by a sad, empty, or irritable mood, along with somatic and cognitive changes that significantly affect the ability of a person to function. Major depressive disorder is the most common type of depression [8]. Particularly in the medical area, studying has become very challenging and stressful, exposing students' lives to danger. An increase in workload reduces students' opportunities for leisure and extracurricular activities. Research has shown that compared to the general population, medical students have the highest levels of stress [9].

The detrimental impacts of depression, anxiety, and stress underscore the necessity of addressing their prevalence among college students. For instance, depression is associated with harmful behaviours including smoking, unhealthy eating, physical inactivity, inadequate sleep patterns, and non-adherence to medical treatment guidelines [10]. Genetic risk factors are now widely acknowledged to be associated with an increased chance of developing numerous neuropsychiatric disorders, as well as variations in how these illnesses appear [11]. As a result of this, more studies have been done on biologically heritable characteristics, such as blood type, that may have an impact on an individual's mental health [12].

The ABO blood type system is defined by the genetic presence or lack of certain carbohydrates known as agglutinogens on the membranes of red blood cells. Research indicates that certain human diseases, such as heart disease, are influenced by this system [13]. Research has also examined how a person's blood type may affect their mental health. Certain ABO blood types may make a person more susceptible to preoperative anxiety, according to a study published in 2019 by Xu et al. On the Hospital Anxiety and Depression Scale (HADS), blood type AB exhibited significantly higher anxiety ratings than other blood types. However, the depression ratings of the research groups did not differ significantly [14].

Evidence indicates that the genes encoding the activity of catechol-O-methyl transferase, arginosuccinate synthetase, and dopamine-beta hydroxylase—all crucial neurohormonal reactions to situations—are probably also linked to the gene controlling blood type expression. It's also interesting to notice that the dopamine's chemical structure resembles that of the ABO antigens [9].

The objective of this study is to assess the prevalence of anxiety, stress, and depression among university students and to evaluate the potential association between these psychological conditions and ABO blood group types.

Materials and Methods.

This is a cross-sectional study using an online survey that was prepared on the Google Forms platform. Study participants include both male and female students. A total of 160 students were included in the present study and the sample size was calculated based on the following equation.

Sample Size = $[z^{2*} p(1-p)] / e^2/1 + [z^{2*} p(1-p)] / e^{2*} N]$

- N= population size
- z= z-score
- e= margin of error
- p= standard of deviation

Data were collected using the self-administered Depression, Anxiety, and Stress Scale (DASS-21) questionnaire. The three self-report scales that make up the DASS are intended to assess the negative emotional states of stress, anxiety, and depression. Indian studies have previously employed the DASS questionnaire [15].

Lovibond and Lovibond-21 created the DASS to measure the primary symptoms of stress, anxiety, and depression. It has also been used for determining how well patients are responding to treatment [16]. The DASS is comparable to other trusted scales and has shown excellent psychometric qualities [17,18].

Inclusion criteria include participants (male and female) with ages above 18 years, agreements to participate in this study, and healthy individuals with no psychiatric conditions. Exclusion criteria include the history of any psychiatric disorder or participants taking any psychotropic drugs (antidepressants, anxiolytics, or antipsychotics), participants with chronic diseases such as (diabetes mellitus, cancer, or cardiovascular disease), females with pregnancy or taking oral contraceptive drugs, abuse of alcohol, a subject that rejects to participate in this study.

All participants had their fingers pricked with a sterile, disposable lancet to draw blood. Using the slide agglutination approach, participants ABO blood group phenotype was identified using anti-A, anti-B, and anti-D monoclonal blood group reagents. Anti-D serum was used to determine the Rh antigen. Agglutination is verified under a microscope when the antigen titer is low.

Analysis Plan: The three self-report measures that make up the DASS-21 are designed to evaluate depression, anxiety, and stress. The three DASS-21 scales each have seven items, which are further subdivided into subscales with related material. This scale divides depression, anxiety, and stress into five categories: normal, mild, moderate, severe, and extremely severe (Table 1). The sum of the scores for the associated items determines the scale score. Included in the anxiety scale are questions 2, 4, 7, 9, 15, 19, and 20. The stress scale has 1, 6, 8, 11, 12, 14, and 18 questions, whereas the depression scale has 3, 5, 10, 16, 17, and 21 questions. Next, the severity rating index (DASS-21) score for each pertinent item must be multiplied by two.

Table 1. *Analysis scale for scores of stress, anxiety, and depression.*

Domain	Normal	Mild	Moderate	Severe	Extremely Severe
Stress	0-10	11-18	19-26	27-34	35-42
Anxiety	0-6	7-9	10-14	15-19	20-42
Depression	0-9	10-12	13-20	21-27	28-42

The depression scale assesses a person's lack of interest or involvement, anhedonia, dysphoria, hopelessness, and lethargy. Autonomic arousal, skeletal muscle effects, situational anxiety, and the subjective experience of anxious affect are all assessed by the anxiety scale. The stress scale can be impacted by levels of long-term nonspecific arousal. Evaluations are conducted on anxiety arousal, difficulties relaxing, and being easily agitated, irritable, overactive, and impatient. The sum of the scores for the pertinent items determines the scores for stress, anxiety, and sadness [16]. The body mass index (BMI), which is currently used to classify adults (underweight 15–19.9, normal weight 20–24.9, overweight 25–29.9, and obese 30–40), has been determined using the formula:

BMI = Weight (kg) / (Height)2 (cm) [19].

Statistical analysis: The SPSS 25.0 for Windows program (was used to analyze the data. Frequencies and percentages are used to display descriptive data. Stress, anxiety, and depression were compared between blood groups using the chi-square test, with a p-value of less than 0.05 being deemed significant.

The Ethics Committee's approval: The Research Ethics Committee gave their approval to the study. Each participant provided a written agreement after being made aware that participation is entirely voluntary.

Results.

The study included 160 students. The sex distribution shows that females (63.1%) are more than males (36.9%), making up nearly two-thirds of the total sample. Concerning blood group distribution, the most common blood type is the O blood group (36.3%), while the AB blood group (6.9%) is the least common (Table 2). In addition, the majority of students which is 87.5% have a Rh-positive blood group, while only 12.5% of the students have a Rh-negative blood group (Figures 1 and 2).

After measuring the body mass index (BMI), the result shows that a significant percentage of the students (53.8%) are in the underweight category, which may indicate potential malnutrition or health concerns. A considerable percentage (43.4%) have a normal weight, while very few individuals are in the overweight (1.9%) or obese (0.6%) category, suggesting that obesity is not a major issue in this population (Figure 3).

The result explores the relationship between the level of stress and blood groups among 160 percipients, classifying stress as normal, mild, moderate, severe, and extremely severe according to the DASS-21 scales. The result shows that more than half of the individuals do not have stress (53.8%), whereas the remaining 46.2% experience stress with variable degrees. The blood group AB has the highest percentage of individuals with stress (54.5%), suggesting a possible higher stress susceptibility. Blood group B also shows a notable incidence of moderate and severe stress cases. In contrast, blood group A has the lowest overall stress levels, with most individuals in the normal category (Figure 4).

The p-value (0.986) in the Chi-square test shows that there is no statistically significant association between the blood groups and the stress level (Table 3).

Table 2. *The demography of student participants in the present study.*

		Total	A group	B Group	AB Group	O group
Age (Year)		18-25	18-25	18-25	18-25	18-25
Sex	Male	59(36.9%)	25(51%)	12(28.6%)	2(18.2%)	20 (34.5%)
	Female	101(63.1%)	24(49%)	30(71.4%)	9(81.8%)	38(65.5%)
Smoking status	No	146(91.3%)	43(87.8%)	41(97.6%)	10(90.9%)	52(89.7%)
	Yes	14(8.8%)	6(12.2%)	1(2.4%)	1(9.1%)	6(10.3%)
Educational level		College students	College students	College students	College students	College students

Table 3. *The relation between the stress status and blood group among the students.*

Blood Group	Normal	Mild	Moderate	Severe	Extremely Severe	p-value
A	30 (61.2%)	3 (6.1%)	9 (18.4%)	3 (6.1%)	4 (8.2%)	
B	20 (47.6%)	3 (7.1%)	8 (19.0%)	7 (16.7%)	4 (9.5%)	
AB	5 (45.5%)	1 (9.1%)	2 (18.2%)	2 (18.2%)	1 (9.1%)	0.986
O	31 (53.4%)	4 (6.9%)	11 (19.0%)	8 (13.8%)	4 (6.9%)	
Total	86 (53.8%)	11 (6.9%)	30 (18.8%)	20 (12.5%)	13 (8.1%)	

Table 4. *The relation between the anxiety status and blood group among the students.*

Blood Group	Normal	Mild	Moderate	Severe	Extremely Severe	p-value
A	16 (32.7%)	6 (12.2%)	17 (34.7%)	6 (12.2%)	4 (8.2%)	
B	16 (38.1%)	4 (9.5%)	11 (26.2%)	4 (9.5%)	7 (16.7%)	
AB	4 (36.4%)	1 (9.1%)	2 (18.2%)	3 (27.3%)	1 (9.1%)	0.533
O	24 (41.4%)	8 (13.8%)	14 (24.1%)	2 (3.4%)	10 (17.2%)	
Total	60 (37.5%)	19 (11.9%)	44 (27.5%)	15 (9.4%)	22 (13.8%)	

Table 5. *The relationship between depression levels and blood groups among students.*

Blood Group	Normal	Mild	Moderate	Severe	Extremely Severe	p-value
A	18 (36.7%)	2 (4.1%)	16 (32.7%)	7 (14.3%)	6 (12.2%)	
B	12 (28.6%)	1 (2.4%)	16 (38.1%)	6 (14.3%)	7 (16.7%)	
AB	6 (54.5%)	0 (0.0%)	1 (9.1%)	0 (0.0%)	4 (36.4%)	0.373
O	24 (41.4%)	3 (5.2%)	16 (27.6%)	3 (5.2%)	12 (20.7%)	
Total	60 (37.5%)	6 (3.8%)	49 (30.6%)	16 (10.0%	29 (18.1%)	

The results show that from the total 160 participants, 60 individuals which represent 37.5% are normal, while the residual 62.5% show varying degrees of anxiety. The O Blood group has the highest number of individuals with extremely severe anxiety, followed by the B blood group, representing that there is a higher susceptibility to extreme anxiety in these blood groups. Blood group A shows the highest percentage of anxiety where 67.5% of them have anxiety with varying degrees and has the highest number of individuals with moderate anxiety (Figure 5). There is no significant association between the anxiety and blood groups since the p-value is 0.533 which is higher than 0.05 (Table 4).

The results show that 60 individuals (37.5%) are normal and do not suffer from depression, while the majority (62.5%) experience variable degrees of depression. Blood group B has the highest percentage of individuals with depression, followed by blood group A. In contrast, blood group AB has the lowest overall depression levels, with most individuals in the normal category and only one person experiencing moderate depression (Figure 6).

Since the p-value (0.373) is higher than 0.05, this means there is no statistically significant association between the blood group and depression severity (Table 5).

Discussion.

The ABO blood groups physiological role in humans remains unclear. Despite several theories, there is no concrete proof of a supposed biological role. Following over a century of research, it is now evident that a person's blood type can have a major impact on their health and well-being. ABO blood group is also linked to conditions like diabetes, venous thrombosis, and particularly cardiovascular disorders [20]. There is no finding of a statistically significant association between ABO blood groups and levels of anxiety, stress, or depression. However, in descriptive analysis, the distribution of these psychological conditions among different blood types was noted. Subjects with AB blood type had the highest levels of stress. While higher levels of anxiety were observed in the A blood type participants with the B blood group have the highest levels of depression.

The achievement of a college degree has become recognized as a prerequisite to success [21], and since many students travel to attend a college or university, the move itself may contribute to stress, anxiety, and depression [22,23]. The college years are pleasurable, but students also face many challenges. For example, they lack time to prepare for tests due to an overweight syllabus, worry about whether they will receive the grades they want and others. They constantly consider their future, which

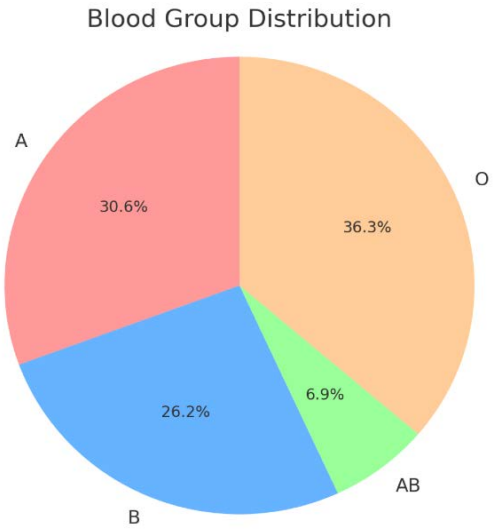

Figure 1: Blood group distribution among university students

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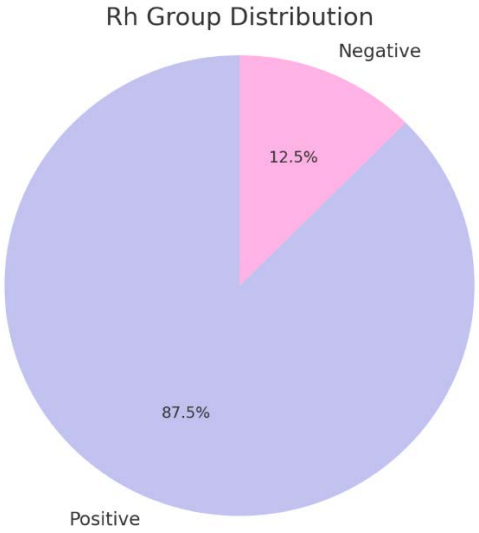

Figure 2: Rh distribution among the university students

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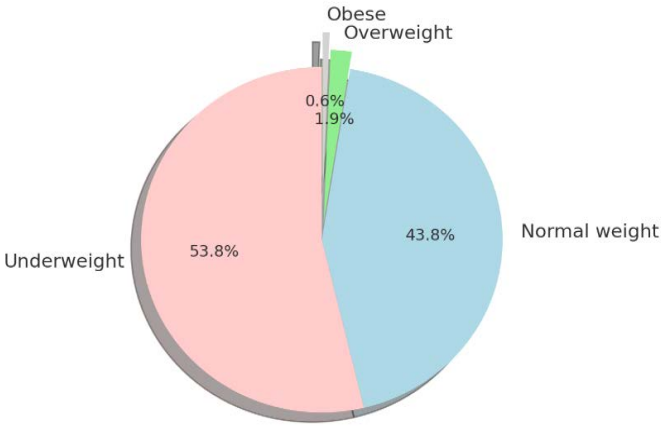

Figure 3. *BMI distribution among the university students.*

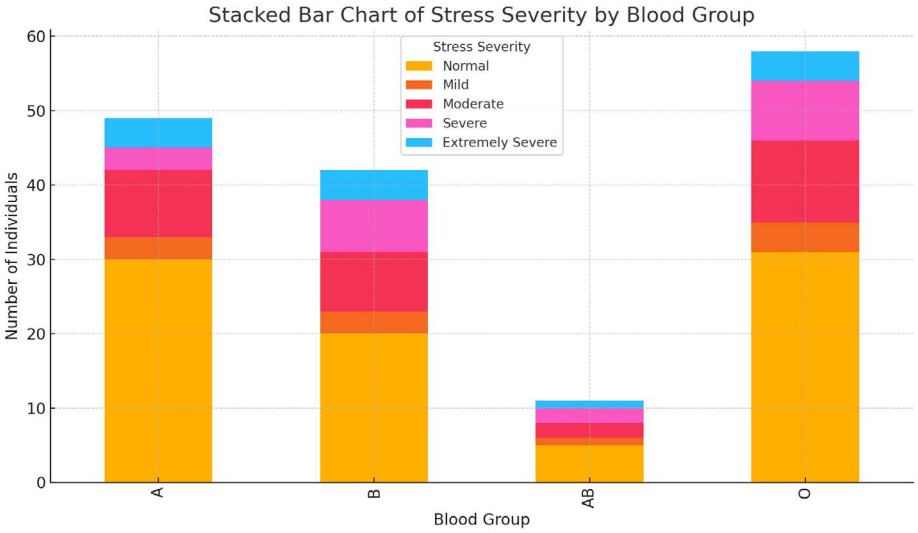

Figure 4. *Stress levels in individuals with different blood groups.*

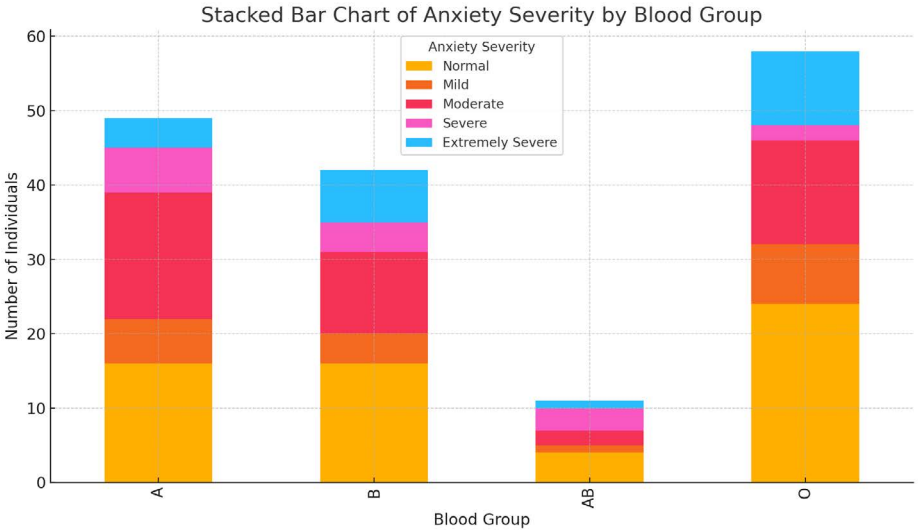

Figure 5. *Anxiety levels in individuals with different blood groups.*

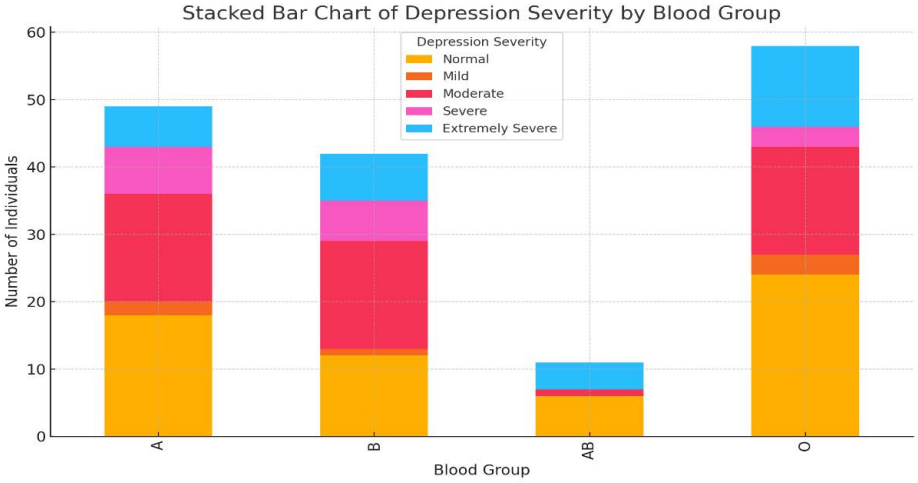

Figure 6. *Depression levels in individuals with different blood groups.*

causes them to experience anxiety, tension, melancholy, and even suicidal thoughts. Suicide is currently the second most common cause of death among college students and the third most common cause of death among teenagers [24].

A feeling of hopelessness that the majority of students experience is also determined to be the most significant indicator of suicide. Researchers discovered that psychological issues such as stress, anxiety, and depression had a detrimental effect on the quality of life, self-esteem, and even academic achievement of the students. Academic achievement is negatively impacted by depression [25]. According to studies, smoking is more common among depressed college students [26].

This study shows that 46.2%, 62.5%, and 62.5% of the second year students of the pharmacy college suffer from stress, anxiety and depression ranging from mild to extremely severe levels, these results are similar to the findings of the study of Kumar et al. (2019) [27], who have produced an observational study in Pakistan on medical students they found the prevalence of stress, anxiety and depression to be 57.7%,74%, and 57.6%,

A study by Basudan et al. (2017) [28], conducted in Saudi Arabia in dental school shows comparable results for stress, anxiety, and depression with 54.7%, 66.8% and 55.9% respectively which is similar to the result of this study, also this finding is in agreement with earlier research on stress in dentistry students conducted in Saudi Arabia [29,30] and other nations [31-33].

Another study in Pakistan revealed that 43% of medical students in a public institution and 60% of medical students in a private institution had anxiety and depression [34,35], whereas 24% of medical school students in the UK had depression [36], numerous factors can be linked to the high incidence of anxiety and depression-like the students' burden, clinical requirements, exams, and grades throughout their education [37,38].

Alzahem et al. (2011) divided stresses into five categories in their systematic review: housing arrangements, the environment of learning, and academic, clinical, and personal elements. Along with a lack of leisure time, exams and grades are often cited as the most stressful elements. Furthermore, studies have shown that stressors are impacted by local and cultural characteristics and are not universally equal [39].

The results of this study show that there is no correlation between the blood groups and anxiety, stress and depression and these results agree with the finding of Selvi et al. (2017) [40], study who found that there is no correlation between the blood group and mood change in his study on 400 participants using DASS-42 to evaluate the relation between blood group and stress, anxiety and depression.

According to another study by Nawata (2014) [41], the blood type only accounted for 0.3% of the total variations in these data sets. This finding implies that a person's blood type only partially explains their personality. The conclusion reached by Nawata was that blood type has no bearing on personality. Additionally, a study on type personality by Sundarakumar et al. (2012), found no relationship between personality and blood groups [42].

Conclusion.

According to this study, there is a high prevalence of stress, anxiety and depression among college students. However, there is no statistically significant association between the incidence of these problems and the ABO blood group. Among the participants, the AB blood group subjects showed the highest prevalence of stress (54.5%), the blood group A had the highest prevalence of anxiety (67.3%), and blood group B demonstrated the highest prevalence of depression (71.4%). Based on this finding more than half of college students suffer from mental health challenges which can affect their academic performance, grades, and well-being these findings suggest the need for preventive approaches to improve the academic environment and provide psychological support to the college students. The study's mean limitation is the sample size was relatively small, and the study population was limited to a narrow age range (18–20 years), which may not represent the broader college student population. Furthermore, the dependence on self-reported may include reporting bias, and other potentially confounding factors, such as socioeconomic status, academic workload, sleep patterns, and previous psychiatric history—were not controlled for. Future studies with larger, more diverse samples and longitudinal designs are recommended to validate and extend these findings.

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