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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 ВИНТИ 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 ВИНТИ 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. Корректур авторам не высылаются, 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 computer-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 საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ 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 შედეგის 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 ფხიხლებში 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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EXPLORING MEDICAL STUDENTS' COMPETENCY IN UNDERSTANDING PRIMARY IMMUNODEFICIENCY DISEASES IN INDIA

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Abstract.

Primary Immunodeficiency Disease (PID) represents a class of diverse illnesses marked by compromised immune system performance. For better patient outcomes, PIDs must be diagnosed and treated quickly. Medical graduates are essential to the detection and treatment of these illnesses. The purpose of this study was to evaluate medical students' knowledge about PIDs in different Indian medical colleges. To perform this analytical investigation, college students from Maharashtra-area universities were enlisted between March and April of 2023. The participants received a questionnaire from mediators from every institution. Of the 500 students in the study, 66% were between the ages of 22 and 24 and 52% were female. Their understanding ratings had an average of 16.3±6.2 and varied between 4 and 32. A set of students classified as below average (86%) and a mean/above average (14%), were separated among the students. The largest percentage of above-average knowledge was demonstrated by VI-year participants ($p < 0.05$). This investigation emphasizes how critical it is to provide focused educational activities to improve medical students' comprehension of PIDs in India.

Key words. PID, medical, understanding, educational activities, early detection.

Introduction.

An immune system that is compromised or malfunctioning, rendering a person more vulnerable to infections and illnesses, is the signature of a set of illnesses known as immunodeficiency diseases [1]. Usually, these illnesses fall into two categories: primary and secondary immune deficiencies. Due to inherited mutations that impair the immune system's growth or operation, primary immune deficiencies are genetic or hereditary in character [2]. Chief among the main immunodeficiency illnesses are Common Variable Immunodeficiency (CVID) and Severe Combined Immunodeficiency (SCID) [3]. Secondary immune deficiencies are brought on by outside causes that impair the function of the immune system, such as diseases, drugs, or infections [4]. A popular instance of a secondary immunodeficiency disease is HIV/AIDS, in which the immune system is attacked and weakened by the human immunodeficiency virus (HIV) [5]. For people with primary or secondary immunodeficiency illnesses to fight infections and keep their health, they need to get specialist medical care. One of the primary reasons for the delayed diagnosis is a low level of understanding about PIDs among doctors and medical

learners [6]. Research [7] proposed a mixed methods approach to evaluate medical students' confidence and competence when doing physical examinations on obese patients. The result demonstrated that medical students were concerned about their absence of confidence in managing obese patients and the absence of training on how to conduct physical examinations for obese patients.

Study [8] investigated the costs associated with administering immunoglobulin therapy to PID patients. It was discovered that patients deal with severe physical, social, emotional, and financial difficulties in addition to demands on their time, effort, preparation and resources. The result indicates that knowing potential "Immunoglobulin" (IG) lifestyle variables can assist PID patients in making educated treatment decisions. The paper [9] proposed that chronic diseases caused by lifestyle were carried out by 4th and 5th-year medical students at the university. The findings reveal students can be prepared for the real world with creative and analytic exercises in the "Chronic Diseases of Lifestyle" (CDL) curriculum. The study [10] determined how well-versed prospective nurses from particular nursing education institutes were regarded to be in managing acquired immunodeficiency syndrome (AIDS) and Human Immunodeficiency Virus (HIV). According to the results, half of the people who took part had sufficient knowledge at the fundamental level and some had sufficient competence in providing healthcare. Research [11] proposed a qualitative descriptive approach and structured reflection reports from final-year students to examine medical students' impressions of major events during integrated primary care block work in primary care settings. Results allow students to examine their observations and suggest capacity-building tactics to deal with observed incidents.

Study [12] investigated and describes the clinical support received by nursing students. Results indicate that improving clinical learning in the nursing education institution (NEI) and producing competent nurses can be accomplished by implementing clinical assistance policies, strengthening supervision, yet assigning clinical instructors and accompanists in student nursing facilities. The paper [13] investigates the elements that affect Lesbian Gay Bisexual Transgender Queer or Questioning Intersex Asexual or Ally (LGBTQIA+) people's daily life and promotes a more thorough and efficient nursing education. Results suggest with including LGBTQIA+ communities in the study of nursing, it is certain that recent graduates will be able to treat a variety of populations in a secure,

efficient, and humane manner. Research [14] presented how a medical student seeking a Master of Medicine and Master of Surgery degree learn and retain anatomy that was carried out. The result indicated that anatomical knowledge declined over time in the last two medical years and that areas with better retention were associated with more exposure and encouragement. The study [15] proposed the views of nursing students regarding AIDS and HIV as well as how these mindsets affect their readiness to provide care for persons who are infected with the disease. Results showed that certain awareness of HIV had risen as a result of education in their nursing courses. Research [16] assembled 4 teams of 6 to 9 university-based dentistry students.

A questionnaire was filled out by participants before selecting a group. The study found obstacles for testing HIV in dental offices and recommended incorporating Aids studying, counseling for patients and channels for referral into dentistry curricula. The study [17] investigated pharmacy technicians in Australia's expertise in treating LGBTI patients. The outcome shows a need for further professional training on LGBTI-related treatment among Australian pharmacists. Research [18] looked at perspectives from a variety of stakeholders to identify and evaluate the elements influencing worldwide health awareness in India. The study [19] determined whether a quick educational measure helped to understand dental college deans' opinions about the quality of teaching of oral hygiene and AIDS/HIV as well as their desire to take part in related. Article [20] interviews that was semi-structured with initial throughout fourth-year medical learners at the university to answer questions about clinical communication abilities.

The aim of the research was to evaluate Indian medical students' understanding of PIDs. One of the primary reasons for the delayed diagnosis is a low level of understanding about PIDs among doctors and medical learners.

Materials and Methods.

Between March 2023 and April 2023, a cross-sectional study enrolled III, IV, V and VI-year medical trainees from four universities in Maharashtra, India, was carried out. The PIDs lectures were not included in the curriculum for the medical students in their first and second year of preparation; as a result, they were dropped from the study.

Through mediators who took part in the study, the questionnaire was distributed to both men and women students. A calculator available online (found on the Raosoft webpage of <http://www.raosoft.com/samplesize.html>) was used to calculate the size of the sample. The sample size was determined to be 475 students with a level of trust of 95%, a five percent margin of mistake and it was considered as the likelihood of possessing a sufficient degree of comprehension on PIDs was 52% based on the data from all four universities, which indicated that there were 4,431 total students.

The self-administered questionnaire asked the participants about their demographics and their level of PID knowledge. Two specialists in the study's team examined and reduced the questionnaire, which was derived from the literature. After that, thirty participants who were not included in the research sample underwent preliminary analysis to evaluate the reliability as well as the validity of the questionnaire. To evaluate

internal dependability, Cronbach's alpha was utilized. Internal consistency was considered sufficient in the results, having Cronbach's alpha equal to 0.69 as shown in Figure 1.

The analysis was performed using the Stata 15 software program. The sample's demographic features were described using descriptive statistics. The results were summarized using the mean and standard deviation (SD) if the knowledge scores for each item were distributed and the median as well as the inter quartile range (IQR). The data was analyzed into percentages and frequencies for categorical variables. The Fisher's exact test or the chi-square test was applied when needed to examine the association between information score divisions and socioeconomic variables. P-values were deemed significant when they were less than 0.05.

Results.

There were 500 samples in all. Most of them (66%) belonged to the age group of 22–24, with 52% of the participants as female. III-year students made up the largest percentage (42%) and they were followed by IV-year students (23.2%), as shown in Table 1.

Eighty-four (84%) percent of the sample learned about PIDs through the institution and sixteen (16%) percent learned about them from sources outside the university. Of the sample as a whole, 96 people answered on an optional basis where they got their knowledge. Of those, 32% cited social media, books (30%) and websites (24%). 14% of the population interacted with PID sufferers, as shown in Figure 2.

The knowledge score had a mean of 16.3 ± 6.2 and varied from 4 to 32. The correct answers from participants for each aspect of PID understanding, including warning signals, illnesses examples, tests in laboratories and PID management, were calculated to determine the median, mean and SD, as shown in Figure 3 and Table 2.

Just 35 participants (7%) answered correctly about the fact of family records of PIDs, whereas 370 individuals (74%) recognized the requirement for an intravenous antibiotic to cure the disease as a warning indication for PIDs in the first knowledge component. A third of the participants, or about 170 (34%) people, believed obesity was a warning sign for PIDs, as shown in Table 3.

Severe combined immunodeficiency was the single correct answer identified by over half of the respondents (65%) in the second knowledge component. Nearly half of the individuals (47%) named acquired immunodeficiency syndrome (AIDS) as a condition that best embodies PIDs, as shown in Table 4.

Three PID examples Hypogammaglobulinemia, mixed PID and neutrophil disorder were chosen to assess information for testing in laboratories and management for the third as well as the fourth skill components. 410 (82%) of the participants in the laboratory test for hypogammaglobulinemia understood the significance of serum immunoglobulin values. 125 (25%) participants indicated variation in the blood cell count, as shown in Table 5.

Moreover, for the fourth factor, nearly 2-3rds of respondents were unsure that prophylactic antibiotics were an essential component of the care for the chosen PID scenarios, as shown in Table 6.

86% of the sample (n = 430) fell into the below-average category, whereas 14% (n = 70) belonged to the average/above-average category. Comparing the VI-year to the other academic years, the proportion of participants in both groups who were judged to be above average in knowledge was at the top, as shown in Table 7 and Figure 4.

The application of MTE is infectious.

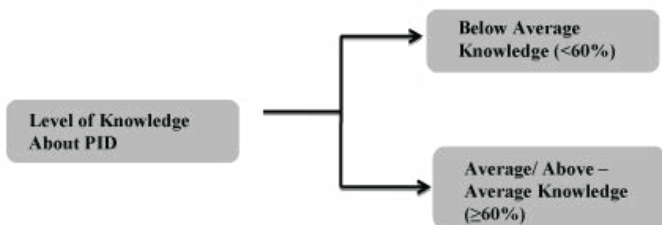


Figure 1. Level of knowledge about PIDs.

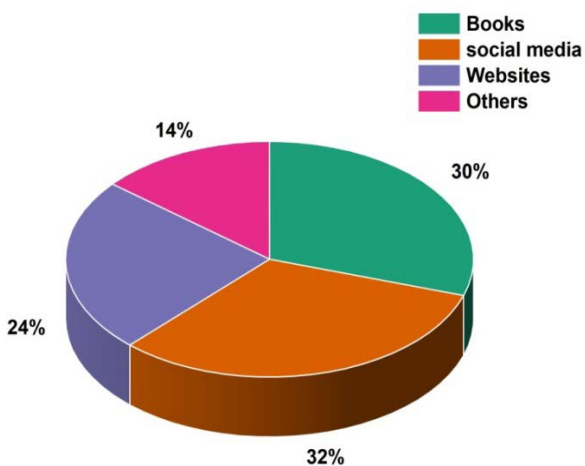


Figure 2. Informational source regarding PIDs.

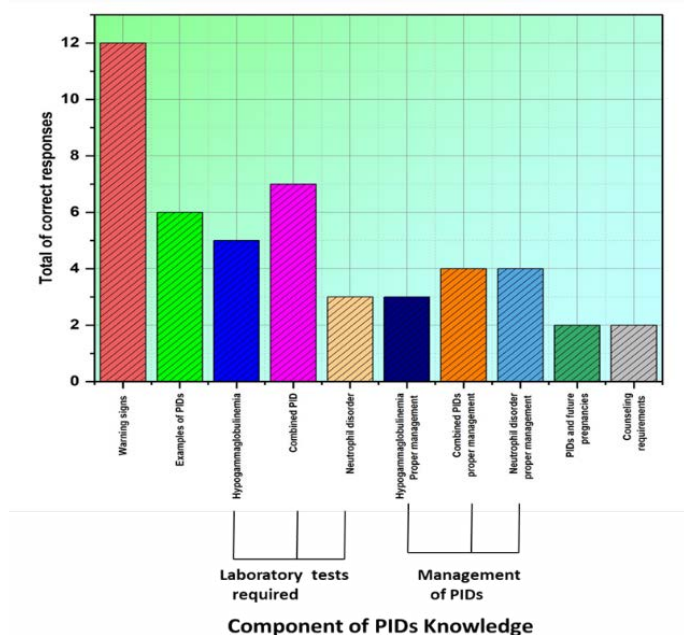


Figure 3. Relationship of total correct response and components of PIDs knowledge.

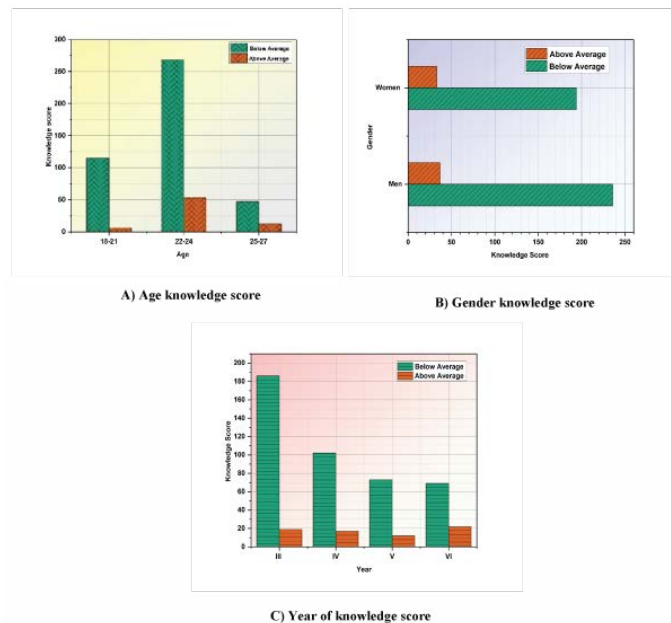


Figure 4. (A-C) Result of knowledge score.

Table 1. Statistics about the sample's demographics (n = 500).

Contents	Frequency	percentage
Gender		
Men	202	40.4%
Women	298	59.6%
University		
MUHS	116	23.2%
GMC	162	32.4%
GSMC & KEMH	151	30.2%
BJGMC	71	14.2%
Current year of college		
III year	210	42%
IV year	116	23.2%
V year	73	14.6%
VI year	101	20.2%
Age categories		
18-21	98	19.6%
22-24	330	66%
25-27	72	14.4%

Table 2. SD stands for standard deviation and IQR for interquartile range.

Mean (SD)	Median (IQR)
4.5 (2.2)	5 (3-7)
2.5 (7)	3 (2-4)
1.9 (0.8)	2 (2-3)
2.4 (1.5)	3 (2-4)
0.8 (0.7)	2 (1-2)
1.2 (0.7)	2 (2-2)
1.5 (0.6)	2 (2-2)
1.5 (0.5)	2 (2-2)

Discussion.

The results of this investigation showed that medical students from Maharashtra's four main universities knew very little about PIDs. The group of individuals with below-average

Table 3. PID's warning indicator percentage of responses.

PID Warning Signs Items	Percentage
Fungal infection on the skin or persistent thrush in the mouth	15 %
Family history of a Primary immunodeficiency	7%
Obesity	34%
>2 pneumonias per year	20%
Antibiotics used intravenously are necessary to treat illnesses	74%
>2 months' treatment of antibiotics with little effect	60%
Chronic diarrhea due to giardiasis	17%

Table 4. Percentage of answers pertaining to PID instances.

PID Examples of Diseases	Percentage
Severe combined immunodeficiency	65%
AIDS	47%
Common variable immunodeficiency	38%
Severe malnutrition	17%
Wilson disease	12%
Stevens-Johnson	9%
Hyperimmunoglobulin D disorder	21%

Table 5. Percentage of answers pertaining to the necessary lab testing.

Required laboratory tests	Hypo-gammaglobulinemia	Combined PID	Neutrophil Disorder
Serum immunoglobulin levels	82%	53%	17%
Blood cell count with differential	25%	32%	59%
Serum-specific antibody titres	31%	43%	21%
AH50 assay (alternative pathway haemolytic activity)	7%	13%	21%
CH50 assay (total haemolytic complement activity)	11%	19%	15%
Blood cell count with differential	23%	31%	59%
In vitro proliferative response to mitogens and a	9%	11%	8%

Table 6. Percentage of answers pertaining to PID control.

Management Of PIDs	Hypo-gammaglobulinemia	Combined PID	Neutrophil Disorder
Prophylactic antimicrobial	17%	31%	41%
Bone marrow transplantation	22%	48%	46%
Recombinant interferon	16%	31%	29%
Immunoglobulin replacement therapy	78%	37%	14%

Table 7. p-values.

Demographic variables	p-value
Age score knowledge (years)	0.022*
Gender score knowledge	0.98
Current year score of college knowledge	0.001*
Total score	0.121

understanding comprised most of the participants. Nearly half of the study's sample identified AIDS as a case study of a PID, supporting the idea that PIDs should be highlighted in medical curricula in Maharashtra medical colleges. When future changes to the curriculum that is considered, it is important to take this into account. The outcomes demonstrated that college students in their VI-year scored higher. This implies that after the students began their rotations as medical clinic-level students, they acquired more knowledge regarding PIDs.

A small number of research looked into medical students' understanding of PIDs. The research studies that were presented evaluated doctors' knowledge levels. In the present study, medical graduates in Maharashtra, India, had their understanding of PIDs evaluated. Both research findings demonstrated that students knew very little about PIDs when it came to recognizing their warning indicators. A review of the two studies' findings highlighted the need for medical students' understanding of PIDs to be improved. Enhancing undergraduate understanding would enable students to identify PIDs in their professional futures. To make the curriculums better, it is suggested that the content regarding kinds, laboratory testing and PID management be reviewed.

The observational nature of this study and some of its limitations can have reduced the reliability of the findings. First off, because the study is observational, bias can be introduced into participant responses. Different study years and various colleges were considered to reduce the probability. By adding the four comparable universities, the demographic base was expanded and the chance to include a more varied sample increased.

Regarding the positive aspects, several tactics were used to guarantee a self-created survey that was validated (sufficient internal reliability and consistency; "Cronbach's alpha was 0.69"). To avoid creating tension between the universities, a comparison of the results of the survey was not done. Instead, the study's primary objective was to evaluate the medical students' general knowledge.

Conclusion.

This study might contribute to expanding the body of information about medical students' understanding of PIDs and highlighting their critical importance. The study's findings showed that medical students were ignorant of PIDs. It is advised that PIDs are given more attention in Indian medical curricula and that medical students be exposed to more PID patients in clinics. To grasp the extent of PID-related training and education, more research is needed. It indicates that medical students in India have a weakness in their understanding and cognizance of primary immunodeficiency disorders (PIDs). This lack of

information is alarming because PIDs are an uncommon group of disorders that can be severe yet require prompt diagnosis and treatment. For the Indian healthcare system to guarantee early identification and improved treatment for PID patients, this problem must be resolved. Initiatives to increase awareness among aspiring medical professionals must be undertaken and medical school programs must be redesigned to encompass rare disorders like PIDs. It emphasizes how urgent it is to change education and keep working to close the knowledge gap on PID among medical students.

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