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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, ანათალებების შედეგების 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.

Yevchuk YuI, Rozhko MM, Pantus AV, Yarmoshuk IR, Pantus PV. ANALYSIS OF THE CLINICAL EFFECTIVENESS OF USING THE CREATED COMBINED FIBRIN-BONE SCAFFOLD FOR THE RECONSTRUCTION OF BONE TISSUE DEFECTS OF THE JAWS.....	6-13
Anton Yu. Postnov, Tatiana V. Kirichenko, Yuliya V. Markina, Petr V. Chumachenko, Andrey V. Suslov, Alexandra G. Ivanova, Eduard R. Charchyan, Alexander M. Markin. INFLAMMATORY FACTORS IN DISSECTION OF THORACIC AORTIC ANEURYSM.....	14-17
Gohar Arajyan, Qristine Navoyan, Nvard Pahutyanyan, Hovhannes Hunanyan, Anahit Pogosyan, Hrachik Gasparyan. COMPREHENSIVE STUDY OF ANTIOXIDANT ACTIVITY OF OXALIC ACID DIAMIDE DERIVATIVES AND THEIR EFFECT ON THE CONCENTRATION OF MALONIC DIALDEHYDE IN THE BRAIN AND LIVER TISSUES OF WHITE RATS.....	18-23
Nino Abesadze, Jenaro Kristesashvili, Arsen Gvenetadze. LOW 25OHD IN ENDOMETRIOSIS- RISK FACTOR OR CONSEQUENCE?!.....	24-31
Stepanyan L, Lalayan G. STRESS RESILIENCE AND DECISION-MAKING UNDER PRESSURE: ENHANCING ATHLETIC PERFORMANCE IN COMPETITIVE SPORTS.....	32-37
Hasan M. Abed, Abdulameer M. Hussein, Sabah N. Jaber. ENDOVASCULAR INTERVENTIONS: A NEW INSIGHTS AND CLINICAL PRACTICE.....	38-46
Changsheng He, Jian Liu, Linhai Xu, Fanhua Sun, Yan Wang, Jia Lou. THE RELATIONSHIP BETWEEN SERUM INFLAMMATORY CYTOKINES AND HYPERLIPIDEMIC ACUTE PANCREATITIS.....	47-49
Artemov O.V, Lytvynenko M.V, Chumachenko I.V, Bondarenko A.V, Dotsenko N.V, Ostapchuk K.V, Koshelnyk O.L, Gargin V.V. THE INFLUENCE OF THE DEMODEX MITE ON THE MORPHOLOGICAL PICTURE OF EYELID PAPILOMA.....	50-54
Othman K.M. Al-Sawaf, Mahmoud AM Fakhri. CHARACTERIZATION OF SERUM SERINE PROTEASE BIOCHEMICAL PROFILE IN PATIENTS WITH RENAL FAILURE.....	55-58
Sergey Lee, Marat Assimov, Yuriy Ignatiev, Fatima Bagiyarova, Gulbanu Absatarova, Aizhan Kudaibergenova, Sholpan Mardanova, Tatyana Tsapenko, Baimakhan Tanabayev, Assel Ibrayeva, Anel Ibrayeva, Ildar Fakhradiyev. PREVALENCE AND FACTORS OF PROFESSIONAL BURNOUT AMONG PRIMARY HEALTHCARE WORKERS IN THE REPUBLIC OF KAZAKHSTAN: RESULTS OF A NATIONAL STUDY.....	59-68
I.A. Yusubov. RESULTS OF PERCUTANEOUS TREATMENT OF LIMITED FLUID FORMATIONS AFTER ABDOMINAL SURGERY.....	69-74
Nawar M. Abd-alaziz, Ammar L. Hussein, Mohammed M Abdul-Aziz. STUDY THE RELATIONSHIP BETWEEN OSTEOPROTEGERIN AND KIDNEY INJURY MOLECULE-1 AND SOME BIOCHEMICAL VARIABLES IN PATIENTS WITH KIDNEY STONES.....	75-78
Tsisana Giorgadze, Tinatin Gognadze. SUBSTRATE SPECIFICITY OF β -GLUCOSIDASE FROM <i>YUCCA GLORIOSA</i> LEAVES.....	79-82
Sheishenov Zhalil, Kemelbekov Kanatzhan, Joshibaev Seitkhan, Turtabaev Baglan, Zhunissov Bakhytzhani. COMPARATIVE ANALYSIS OF THE CLINICAL RESULTS OF PATIENTS WITH ASD OPERATED VIA RIGHT ANTERIOR MINITHORACOTOMY AND MEDIAN STERNOTOMY.....	83-88
Sosonna L, Ohurtsov O, Piriatska N, Vdovitchenko V, Seleznova R, Kolba O, Gryzodub D, Rozhkova O, Shevtsov O. INDIVIDUAL ANATOMICAL VARIABILITY OF THE SKULL'S FACIAL SECTION CONSIDERING GENDER AND CRANIOTYPE BASED ON COMPUTED TOMOGRAPHY DATA.....	89-95
Osminina M.K, Aslamazova A.E, Podchernyaeva N.S, Khachatryan L.G, Velikoretskaya M.D, Chebysheva S.N, Polyanskaya A.V. SYSTEMIC OR LIMITED IS HEMISCLERODERMA OF FACE IN A PERSON WITH UVEITIS? EXPERIENCE OF 10 CASES OF UVEITIS IN HEMISCLERODERMA OF FACE FROM ONE RHEUMATOLOGY CENTER.....	96-100
F.T. Khalilova, A.A. Kerimov. CLINICAL AND LABORATORY CHARACTERISTICS OF THE LATENT FORM OF POLYCYTHEMIA VERA.....	101-105
Ahlan S. Ibrahim, Sukayna H. Rashed. ISOLATION AND PURIFICATION OF TRANSGLUTAMINASE 1 USING BIOCHEMICAL TECHNIQUES.....	106-111
Tingting Li, Xu Zhang, Baohong Xue, Lianping He, Qiaoqiao Chen, Dexun Zhao. THE RELATIONSHIP BETWEEN MENTAL HEALTH AND PHYSICAL ACTIVITY AMONG STUDENTS FROM A PRIVATE UNIVERSITY: A CROSS-SECTION STUDY.....	112-117
Narkhojayev Nurgali, Turmetov Ibadulla, Kemelbekov Kanatzhan, Bektayev Erkebai, Akhmetov Almasbek, Zhunissov Bakhytzhani. RESULTS OF SURGICAL TREATMENT OF PECTUS EXCAVATUM IN CHILDREN AND ADOLESCENTS.....	118-122

Krushelnyska HL, Batryn OV, Ryzhenko LM, Lytvyn NA, Dobrianska NV, Lyga AI. INFORMATION FACTORS OF MEDIA INFLUENCE ON THE FORMATION OF STATE POLICY IN THE FIELD OF LEGAL REGULATION OF BIOMEDICAL TECHNOLOGIES.....	123-129
Vahe Ashot Ter-Minasyan. EVALUATION OF KNOWLEDGE AND ATTITUDE REGARDING CERVICAL CANCER SCREENING PRACTICE: A MULTICENTER REGIONAL STUDY.....	130-136
Muhsin S.G. Almozic'1, Abbas A. Khudhair, Falah Hassan Shari. REMEDIAL INTERVENTION OF FERTILITY AGENT AND GENE 35 ON INDUCED CYSTIC OVARY IN RATS.....	137-141
Rongzheng Yuan, Hui Wang, Jing Chen. THE EFFECT OF LOW MOLECULAR WEIGHT HEPARIN SODIUM IN THE TREATMENT OF ACUTE EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE COMORBID WITH PULMONARY HEART DISEASE ON PROMOTING THE BALANCE OF BLOOD VESSELS.....	142-146
Arailym Maikenova, Alexander Nersesov, Elmira Kuantay, Mukhtar Kulimbet, Massimo Giuseppe Colombo, Chavdar Pavlov, Yerkezhan Yerlanova. EVALUATION OF PREDICTORS OF INEFFECTIVENESS OF ANTIVIRAL THERAPY FOR CHRONIC HEPATITIS C IN THE REPUBLIC OF KAZAKHSTAN: A MATCHED CASE-CONTROL STUDY.....	147-154
Ahmed N. Ali, Muna A. Kashmoola. EVALUATION OF PROTEIN C AND S IN β -THALASSEMIA MAJOR.....	155-160
Sh.Tsiklauri, N.Nakudashvili, M.Lomaia. EFFECT OF INTRANASAL ELECTROPHORESIS WITH 5% POTASSIUM IODATE SOLUTION ON CLINICAL OUTCOME OF PATIENTS WITH HYPERTROPHIC RHINITIS.....	161-164
Fang Xu, Zhijuan Xu, Ming Li. INTRAVITREAL INJECTION CONBERCEPT IMPROVES THE BEST-CORRECTED VISUAL ACUITY IN PATIENTS WITH WET AGE- RELATEDMACULAREDEMA.....	165-167
Lilit Darbinyan, Margarita Danielyan, Vergine Chavushyan, Karen Simonyan, Michael Babakhanyan, Lilia Hambardzumyan, Larisa Manukyan, Kristine Karapetyan, Lusya Hovhannisyan. THE PROTECTIVE EFFECTS OF SELENIUM-ENRICHED HYDROPONIC RADISH ON PARACETAMOL-INDUCED LIVER DAMAGE IN RATS.....	168-172
Grygorova A.O, Grygorov S.M, Yaroslavska Yu.Yu, Mykhailenko N.M, Demyanyk D.S, Steblianko A.O, Rak O.V, Voloshan O.O, Nazaryan R.S. SIGNS OF ORAL CAVITY MICROCIRCULATORY DISORDERS IN ADOLESCENTS WHO SMOKE.....	173-177
Ali H. Kadhim, Nihad N. Hilal, Taghreed AH. Nassir. A COMPARATIVE STUDY ON THE VARIABLE EFFECTS OF ALCOHOL AND NON-ALCOHOL-RELATED FATTY LIVER DISEASE ON METABOLIC AND INFLAMMATORY BIOMARKERS.....	178-182
Papoyan Varduhi, Galstyan Alina, Sargsyan Diana. FACTOR ANALYSIS OF THE COMPETENCIES OF PERSONAL RESOURCES OF SPECIALIST.....	183-189
Chulpanov Utkir, Turdaliyeva Botagoz, Buleshov Myrzatai, Zhanabaev Nurlan, Kanatzhn Kemelbekov. COMPARATIVE EVALUATION OF THE EFFECTIVENESS OF INNOVATIVE HIGH-TECH CARDIAC SURGERY IN PATIENTS WHO HAVE SUFFERED AN ACUTE MYOCARDIAL INFARCTION.....	190-195
Tea Charkviani, Jenara Kristasashvili, Tamar Barbakadze, Mariam Gabadze, Tamar Kbilashvili, Mariam Makharadze. THE RELATIONSHIP BETWEEN FOLLICLE SIZE, OOCYTE MATURATION, BLASTOCYST FORMATION, BLASTOCYST PLOIDY, AND PREGNANCY OUTCOMES IN YOUNG WOMEN UNDERGOING IVF.....	196-203
Yunfei Wu, Koulong Wu, TianhuaDu. STUDY ON THE EFFECTS OF ART PAINTING COMBINED WITH SPORTS ON MYOPIA PREVENTION AND VISION IMPROVEMENT.....	204-207
Lulëjeta Ferizi-Shabani, Shefqet Mrasori, Valbona Ferizi, Gonxhe Barku, Milazim Gjocaj, Blerim Krasniqi, Basri Lenjani. EVALUATION OF DENTAL AND PERIODONTAL STATUS IN CHILDREN WITH TYPE 1 DIABETES MELLITUS.....	208-212
Rana Dawood Salman Al-kamil, Mustafa Ragheb Abed, Sanaryh Mohammed Al-awad, H. N. K. AL-Salman, Hussein H. Hussein, Dawood Chaloob Hilyail, Falah Hassan Shari. ISOLATION, CHARACTERIZATION, AND ANTIHYPERTENSIVE ACTIVITY ALKALOIDS EXTRACTED FROM THE LEAVES OF THE ALSTONIA SCHOLARIS PLANT.....	213-217
Tchernev G, Broshtilova V, Kordeva S. SHARK PEDICLE ISLAND FLAP FOR BASAL CELL CARCINOMA OF THE PERIALAR ZONE OF THE NOSE: PHOTOTOXICITY AND PHOTOCARCINOGENICITY MEDIATED BY POTENTIALLY NITROSAMINE CONTAMINATED DRUG INTAKE -A NEW EXPLANATION FOR THE SKIN CANCERS PATHOGENESIS?	218-222

Meruert T. Orazgalieva, Meyrbek J. Aimagambetov, Zhanna D. Bryzhakhina, Serik D. Zhanybekov, Ainash S. Orazalina. RISK FACTORS FOR THE DEVELOPMENT OF COAGULOPATHY DURING SURGERY IN MECHANICAL JAUNDICE.....	223-228
Noor N. Noori, Nawal A. Murtafha. UNCONTROLLED TYPE 2 DIABETES MELLITUS MODULATED PLASMA LEVELS OF LIPID CATABOLIC PROTEINS.....	229-233
Ling-Ling Zhou, Zhou-Zhou Lin, Lian-Ping He. PREVALENCE OF DEPRESSION AMONG UNIVERSITY STUDENTS IN CHINA: A PROTOCOL FOR A SYSTEMATIC REVIEW AND META-ANALYSIS.....	234-236
Nadine Khayyat, Sima Kalalfeh, Suha Khalifa. OPTIMISING THE CLINICAL ASSESSMENT OF CHILDHOOD AND ADOLESCENT OBESITY IN JORDAN.....	237-241
Shuasheva Y.A, Buleshov M.A, Kemelbekov K.S. CLINICAL, IMMUNOLOGICAL AND THESIOGRAPHIC CHARACTERISTICS RHEUMA-TOID ARTHRITIS AND CHRONIC RHEUMATICHEARTDISEASE.....	242-248
Sana A. Abdulmawjood, Eman S. Mahmoud, Rana T Altaee. ASSESSMENT OF CIPROFLOXACIN EFFECTS ON SOME CHICKS' ORGANS: A COMPREHENSIVE BIOCHEMICAL AND HISTOLOGICALSTUDY.....	249-254
Knarik V. Kazaryan, Naira G. Hunanyan, Margarita H. Danielyan, Rosa G. Chibukchyan, Yulia Y. Trofimova, Arus V. Mkrtychyan, Kristine V. Karapetyan, Karwan H. Syan, Tatevik A. Piliposyan. REGULATION OF SPONTANEOUS ELECTRICAL ACTIVITY IN THE ORGANS OF RE-PRODUCTIVE SYSTEM BY OXYTOCIN.....	255-259
Lantukh I.V, Kucheriavchenko V.V, Yurko K.V, Bondarenko A.V, Merkulova N.F, Mohylenets O.I, Gradil G.I, Bondar O.Ye, Bodnia I.P, Burma Ya.I, Tsyko O.V, Tkachenko V.G. PSYCHOLOGICAL FEATURES OF REHABILITATION OF HIV-INFECTED PATIENTS.....	260-264
Serikbayeva Saltanat, Shaimerdenova Gulbanu, Ormanov Namazbai, Ormanov Talgat, Abuova Gulzhan, Kaishibayeva Gulnaz, Kemelbekov Kanatzhan. PEROXIDATION OF SALIVA LIPIDS IN PATIENTS WITH POSTCOVID SYNDROME DURING HIRUDOTHERAPY.....	265-269
M.V. Poghosyan, H.Y. Stepanyan, Avetisyan Z.A, J.S. Sarkissian. THE EFFECTS OF HYDROCORTISONE ON SYNAPTIC PROCESSES IN PARKINSON'S DISEASE UNDERLYING THE POTENTIAL THERAPEUTICSTRATEGIES.....	270-277
Changsheng He, Jian Liu, Linhai Xu, Fanhua Sun. THE EFFECT OF PERCUTANEOUS CATHETER DRAINAGE COMBINED WITH SOMATOSTATIN ON INFLAMMATION AND PLASMA THROMBOXANE 2, PROSTACYCLIN I2 LEVELS IN PATIENTS WITH SEVERE PANCREATITIS.....	278-283
Tea Chitadze, Nino Sharashidze, Tamar Rukhadze, Nino Lomia, Giorgi Saatashvili. EVALUATION OF LEFT VENTRICULAR SYSTOLIC FUNCTION IN POSTMENOPAUSAL WOMEN WITH BREAST CANCER RECEIVING ADJUVANT ANTHRACYCLINE AND TRASTUZUMAB THERAPY: A 2-YEAR FOLLOW-UP STUDY.....	284-293

OPTIMISING THE CLINICAL ASSESSMENT OF CHILDHOOD AND ADOLESCENT OBESITY IN JORDAN

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Abstract.

Background: Clinical practice guidelines aim to facilitate early diagnosis, implement early treatment and minimise gaps in care regardless of physician expertise or level of seniority. Consensus guidelines must be adapted to meet local and regional differences allowing for optimum benefit with what is available in terms of diagnostics and treatments. Childhood and adolescent obesity are no exception to this.

Aim: In this survey we aim to understand practice variation and gaps to better advocate for a regional and local care plan for obesity care in the young. **Methods:** A questionnaire was conducted between July 2024 and August 2024, aimed at healthcare professionals of all medical specialties. It consisted of 104 questions.

Results: Family medicine consultants treat most obese youth in Jordan. Several gaps were identified in the assessment and care of patients, including but not limited to psychosocial effects of obesity and efficient multidisciplinary teamwork.

Conclusion: Clear consensus guidelines are necessary to tackle childhood and adolescent obesity in Jordan.

Key words. Childhood, adolescent, obesity, Jordan.

Introduction.

Childhood and adolescent obesity have long been established as a detrimental risk factor for adult obesity and its sequelae. Focus has now shifted to effective and early diagnosis and treatment. International guidelines recommend that healthcare practitioners diagnose the condition, screen for obesity-related comorbidities and complications, discuss obesity treatment options, refer patients for multi-disciplinary team (MDT) care, and provide health education regarding obesity and its implications on health and well-being.

Low- and middle-income countries (LMIC) such as Jordan lack clear consensus guidelines to aid clinicians in comprehensive assessment of obesity in the youth. This paper will analyse existing childhood obesity guidelines and discuss necessary LMIC adjustments. Guidelines in high-income countries (HIC) are not applicable to the Jordanian population, due to the genetic, environmental and socio-economic variations [1,2]. These variations apply to the wider Middle East and North Africa (MENA) area [1,2].

Jordan is among the Eastern Mediterranean countries that have seen a shift from communicable to non-communicable diseases [3]. It has a population of 11.5 million, 40% of whom are under 18 years of age [3]. Prevalence of obesity reached 17.8% in 5–19-year-olds as of 2022, and 2.2% in under 5-year-olds as of 2019 [3]. Failure to adequately address this issue means that these figures continue to increase yearly [3-6].

This cross-sectional study aims to analyse the current physician approach to childhood and adolescent obesity in Jordan. Additionally, the study aims to encourage the establishment of consensus guidelines for Jordan, extrapolated from existing regional and international guidelines.

Materials and Methods.

A questionnaire was conducted between July 2024 and August 2024. Data was gathered from 103 healthcare professionals. It was aimed at junior doctors, speciality trainees, consultants and allied healthcare professionals in both the private and public healthcare sectors. The study was not exclusive to a single medical speciality to include all healthcare professionals involved in the care of obese youth.

The questionnaire was designed to assess the following categories: comprehensiveness of clinical examination, effective screening for comorbidities, screening for obesity risk factors, variety of treatment options offered, involvement of other disciplines and attentiveness to the psycho-social impact of obesity. This was done through a total of 104 questions. Questions included both yes and no and Likert scale questions.

Based on existing data regarding obesity risk factors, comorbidities and long-term impacts in the MENA region, the study can analyse where the gaps in current practice lie. Areas of improvement can be attributed to initial assessment and screening, individual patient-tailored short and long-term treatment and/or effective MDT work.

Results.

Of the 103 healthcare professionals 72.3% were consultants, 11.9% junior doctors, 9.9% speciality trainees and 5.9% allied health care professionals. 57.4% of clinicians work under the private sector, and 42.6% under the public sector. The specialities included family medicine (35.3%), endocrinology (22.5%), paediatrics (14.7%), internal medicine (2%) and other (25.5%).

In relation to adolescent obesity, clinicians report that on a weekly average they encountered <20 patients (73.2%), >20 patients (17.5%), >30 patients (6.2%) and >40 patients (3.1%).

Clinicians reported that the primary group of patients seen in the clinic were either 18 and older (29.7%), 18 and younger (20.8%), or both (49.5%). Figure 1 illustrates how often the following parameters are measured on initial assessment: blood pressure, blood sugar, acanthosis nigricans, waist circumference and sexual staging. Blood pressure was often (76.5%), sometimes (19.4%) and rarely (4.1%) measured. Similarly, blood sugar (65%, 26%, 9%), acanthosis nigricans (46.5%, 30.7%, 22.8%), waist circumference (11.8%, 30.4%, 57.8%) and sexual staging (33%, 31%, 36%) were measured.

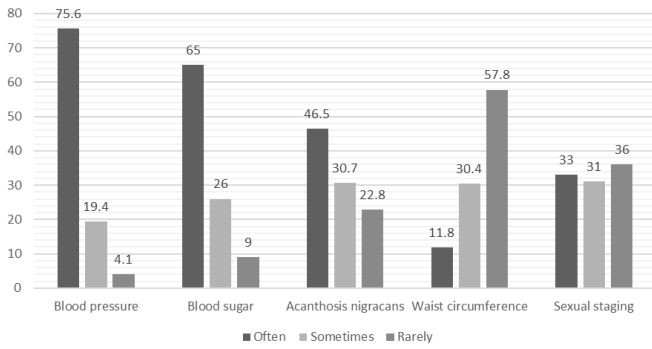


Figure 1. Frequency by percentage of how often blood pressure, blood sugar, acanthosis nigricans, waist circumference and sexual staging are measured. Frequency is defined as occurring often, sometimes or rarely.

Table 1. Frequency by percentage of how often comorbidities were screened for. Frequency is defined as occurring often, sometimes or rarely.

	Often (%)	Sometimes (%)	Rarely (%)
Fatty Liver	43.1	35.3	21.6
Hyperlipidaemia	64.4	25.7	9.9
Diabetes	84	12	4
Polycystic Ovaries	58.9	23.2	17.9
Insulin resistance	67	20.6	12.4
Cushing's Disease	26.1	47.8	26.1
Thyroid Disease	86.2	11.5	2.3

Clinicians were asked how often they screen for comorbidities during their initial workup of the patient. These included fatty liver, hyperlipidaemia, diabetes, polycystic ovaries, insulin resistance, Cushing's disease and thyroid disease. Table 1 demonstrates whether the co-morbidities are screened for often, sometimes, or rarely.

Similarly, risk factors associated with obesity in children and adolescents were asked about. These include birth weight, family history of chronic illness, sleeping habits, physical activity, screen time length and bullying at school. 60% of clinicians enquire about birth weight, 99% about family history of chronic illness, 74% about sleeping habits, 97% about physical activity, 62.6% about length of screen time and 46.9% about bullying at school.

Comprehensiveness of patient-tailored management plans offered was assessed. Simultaneously the study evaluated involvement of multiple specialties as part of an MDT. 78.4% of healthcare professionals provided patients with a dietary plan. Additionally, 73% would refer to a dietician often, 25% sometimes and 2% rarely.

Of the participants, 17.8% would often prescribe medications, 35.6% sometimes and 46.5% rarely. Metformin was reported as often (23%), sometimes (48%) and rarely (29%) prescribed in the management of childhood and adolescent obesity. With reference to the dose of metformin, 40.4%, 23.2%, 24.2%, and 12.1% would usually opt for 500mg, 750mg, 850mg and 1000mg, respectively.

Alternatively, participants would often (9%), sometimes (29%) and rarely (62%) prescribe glucagon-like peptide-1

(GLP-1) agonists. Criteria for starting GLP-1 agonists included BMI for 61.6% of participants, age for 19.2% and patient request for 19.2%. Conversely, participants cited intolerance to medication (49%), cost (29%) and lack of weight loss (22%) as reasons for withdrawing GLP-1 treatment. Physicians reported that they would continue GLP-1 agonists for 6 months (46.5%), 3 months (24.8%) and "other" (28.7%) before stopping due to reasons mentioned previously.

When asked about frequency of referral to surgeons, 2%, 34.3% and 63.6% reported that they often, sometimes and rarely refer to surgeons. The youngest age for referral to a surgeon was quoted as 16, 15, 14 and 13 by 68.8%, 7.5%, 11.8% and 11.8% of clinicians, respectively. The clinicians' criteria for referral to the surgical team included comorbidities (78.2%), BMI (61.4%), patient request (29.7%), and parental request (20.8%). With regards to BMI, 84.2% of clinicians cited a BMI of 40 and above before referral to a surgeon, and 15.8% cited a BMI of 35 and above. The comorbidities that would make clinicians more inclined to refer to a surgeon included sleep apnoea for 92.6%, diabetes for 75.5%, hyperlipidaemia for 40.4%, prediabetes for 30.9% and "others" for 23.4% of participants. When asked about how many of their patients opt for surgery, 89.6% participants quoted less than 10%, 8.3% quoted more than 10% and 2.1% quoted more than 20% of their patient base opt for bariatric surgery.

66% of physicians stated that they practise as part of an MDT when their patients are referred to or having bariatric surgery. 23%, 32% and 45% get consulted before surgery often, sometimes and rarely, respectively. Physicians were also asked to rate how confident they are in managing their patients following bariatric surgery. The results are summarised in Figure 2.

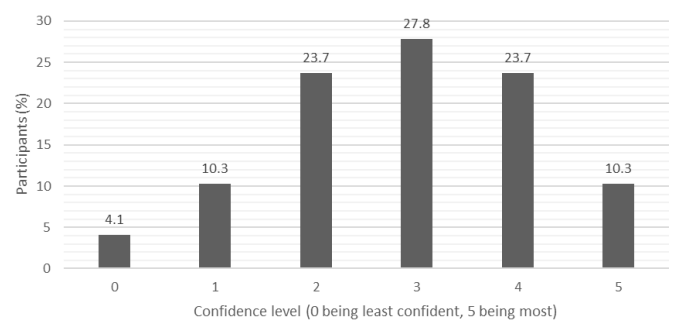


Figure 2. Confidence level of healthcare professionals in managing their obese patient's post-bariatric surgery. Confidence is rated on a Likert scale.

80% clinicians assess the patient with their parents, and 20% assess the patient individually.

Mention of psychosocial negative effects by patients was cited occurring often (46.4%), sometimes (36.1%), rarely (11.3%) and unknown (6.2%). On asking the participants for their opinions on how frequently their patients suffer from bullying, 44.4%, 41.4%, 7.1% and 7.1% stated that bullying occurs often, sometimes, rarely, and "unknown" in their patient groups.

The patients' home situations were also assessed via four questions. Participants were asked how often their patients

had dysfunctional family dynamics. 19.2%, 55.6%, 7.1% and 18.2% stated that their patients were often, sometimes, rarely and “unknown” subject to a dysfunctional family background. It was also reported that patients’ often (66%), sometimes (31%), rarely (2%) and “unknown” (1%) had another obese family member. Clinicians stated that their patients’ often (37.8%), sometimes (38.8%), rarely (9.2%) and “unknown” (14.3%) have both parents working. 12.1%, 64.6%, 17.2% and 6.1% of clinicians reported that patients often, sometimes, rarely and “unknown” come from lower socio-economic classes.

As for follow-up, 45.9%, 33.7%, 8.2% and 12.2% of participants would see their patients every 3 months, 1 month, weekly, and “other” in the clinic.

82.8% of clinicians reported that they struggled with insurance cover for weight loss medications.

Discussion.

Clinicians from both the private and public healthcare sector were similarly represented in this study, with an aim to reduce bias and equally represent practice across the two sectors. A variety of healthcare professionals across different specialties were included to reduce sample bias. Most of the participants in this questionnaire were consultants in family medicine, who act as a sieve for such a large patient pool. These consultants, like general care practitioners, see patients of all age groups in the primary care setting. Patients can present to family medicine doctors with a variety of presenting complaints. It is the duty of the family medicine doctor to either refer the patient to the appropriate specialty for specific care, or to treat. Presenting complaints such as obesity, diabetes-related symptoms, community acquired infections, and many others can be treated first hand in primary care.

Blood pressure, blood glucose, acanthosis nigricans and sexual staging were all included in the Obesity Services for Children and Adolescents (OSCA) adjustments to the National Institute of Health and Clinical Excellence (NHS) guidelines [7]. Waist circumference was also touched on in the American Academy of Paediatrics (AAP) guidelines [8]. In this study, blood pressure, blood glucose and acanthosis nigricans were tested for often by most of the participants. Waist circumference and sexual staging were neglected by majority of participants, as 57.8% rarely measure waist circumference, and 36% rarely complete sexual staging.

Fatty liver, hyperlipidaemia, diabetes, polycystic ovaries, insulin resistance, Cushing’s disease and thyroid disease were all among the comorbidities that the AAP included in its recommended screening process [8]. Most participants screened for fatty liver disease, hyperlipidaemia, diabetes, polycystic ovaries, insulin resistance and thyroid disease often. Only 26.1% would often screen for Cushing’s disease. The majority 47.8% only sometimes screen for Cushing’s disease.

Several studies analysed the risk factors of childhood obesity in the MENA region [9-13]. With regards to physical activity, the consensus is that sedentary lifestyle increases risk of obesity, bar a systematic review which inversely links vigorous activity with higher rates of obesity [9-13]. Reassuringly, 97% of participants in this study enquire about physical activity on initial assessment. Only 62.6% of participants ask about

screen time, despite it being strongly linked to higher obesity rates [9,11-13]. Few studies analysed the association of sleep duration and obesity [9]. There is a negative correlation between hours of sleep and BMI, which 74% of participants assess for in their patients [9]. Although 99%, 60% and 46.9% of clinicians enquire about family history of chronic disease, birth weight and bullying, respectively, this is not widely discussed in the literature. However, the AAP clinical practice guidelines recommend comprehensive assessment of family history as well as psychosocial health [8]. It also recognises birth weight as a risk factor for obesity [8]. On average, birth weight and bullying were very poorly assessed, for lack of clear clinical practice guidelines.

Overall, physicians on average poorly assessed psychosocial factors. Although a majority 46.4% of physicians stated that their patients often report bullying, and 44.4% of physicians themselves report their patients suffer from bullying, bullying was not well assessed as previously established. 56% also reported that their patients’ family dynamics were sometimes dysfunctional. This highlights the importance of enquiring about both school and family life.

Increasing rates of obesity with increased educational attainment of both parents was reported [9,14]. 37.8% of participants reported that patients often have both parents working, and 38.8% cited this as only sometimes occurring. In parallel, higher socio-economic status puts children and adolescents at risk of obesity [9,11,14]. This is not reflected in this study, which demonstrates that only 17.2% of participants’ patients rarely were of lower socio-economic background. 64.6% of participants claimed that their patients were sometimes of lower socio-economic classes, indicating that economic standard of the patients’ families is not a strong predictive factor of obesity risk in Jordan.

78.4% of participants provide patients with a dietary plan, and 73% refer to a dietician. An MDT approach to tackling childhood obesity should be mandatory given the high risk of adult obesity and life-long health issues [15]. Given the association between poor diet and obesity, clinicians should aim for 100% of their patients to have a form of dietary intervention [13,14].

The mainstay of treatment for obesity lies in lifestyle changes, which is evident in this study. 46.5% of clinicians rarely prescribe medication, with 48% only sometimes opting for metformin. When metformin is opted for, 500mg once daily dose is most often chosen (40.4%). 62% rarely opted for GLP-1 agonists. The most common reason for starting a GLP-1 agonist was BMI (61.6%), and the most common reason for withdrawing treatment was cited as intolerance to medication by 49% of participants. GLP-1 agonists were continued for 6 months by 46.5% before withdrawal.

Few obese patients are managed surgically in Jordan. Those who are, are usually 16 and older, have a BMI of 40 and above, and are comorbid. Physicians are far more inclined to refer obese youth with sleep apnoea to the surgical team. Future guidelines should include criteria for surgical referral to ensure all eligible patients are offered appropriate treatment options. When left to the expertise of physicians, some patients may be denied life-changing treatment such as bariatric surgery.

It is gold-standard for complex cases such as bariatric paediatric patients to be discussed and managed as part of an MDT [16-19]. Although the majority 66% of physicians report working as part of an MDT with bariatric surgeons, numbers should be closer to 100%. Furthermore, as many as 45% of physicians rarely get consulted before bariatric paediatric surgery. Working as part of a team has many benefits, such as reducing physician bias, comprehensive patient care, and increased physician support in management of complex cases [16]. If implemented nationwide, the MDT approach could potentially increase physician confidence in managing post-operative bariatric cases. MDT care is especially important in paediatric care as it is vital in delivering patient-centred care [18].

Involving the family of the obese child positively impacts the patient and expedites their weight loss progress [20]. This is also reflected in the AAP guidelines [8]. It is therefore reassuring that 80% of clinicians see their patients with the parents present, as it can encourage the family's involvement. Family intervention may also benefit other obese family members, as 66% of physicians report multiple obese members in a single-family unit. This is reflected in the literature as a risk factor for childhood obesity [9,11,14]. Perhaps there is room for family-based intervention in future Jordanian obesity guidelines.

45.9% of clinicians conduct follow-up consultations at 3-monthly intervals, 33.7% at monthly intervals, and few at weekly intervals. AAP guidelines do not specify follow-up timings but leave it to the discretion of the physician and patient [8]. This may not be appropriate for LMIC patients as they are subject to different risk factors [1,2]. Suggested follow-up timings may be based on BMI and rate of progress, with higher risk patients screened more often.

Patients of LMIC countries experience severely restricted access to healthcare due to high costs [21]. High costs may deter patients of lower socio-economic backgrounds in seeking medical advice. Improving access and availability of healthcare in Jordan is a separate burden that should be independently explored [22]. 82.8% of clinicians struggle with insurance cover for weight loss medications. Efforts should be made to include obesity as an insurable disease to encourage the public to seek medical assistance.

Although most participants reported seeing <20 obese young patients a week, it can be argued that as few as several patients weekly, combined with the alarming rise in obese children and adolescents' year-by-year, solicits a push to develop clearer consensus guidelines.

Limitations of this study included sample bias, as participants were mostly from the capital city of Amman. Better representation of the Jordanian population could be achieved by increasing participant responses from other cities. The study also failed to consider breastfeeding vs bottle-feeding and breastfeeding length, despite their associations with higher rates of obesity [12]. Consideration should also be given to psychiatric conditions such as bulimia nervosa and binge-eating behaviours. It would also be beneficial to analyse the percentage of successfully treated, unsuccessfully treated, and relapsed cases to further assess efficacy of current practice.

Future research is vital to determine gaps in childhood and adolescent obesity management in other MENA countries. Similar studies should be conducted to analyse physician shortcomings in said countries. Collated data should be used to guide development of future national and regional guidelines on childhood and adolescent obesity.

Conclusion.

Reducing the rates of childhood and adolescent obesity could prove beneficial in decreasing the disease burden in Jordan. A multi-sectoral approach should be utilised, involving health care professionals, the ministry of health, the national aid fund and public health organisations. National guidelines on childhood and adolescent obesity are key in earlier diagnosis and management and could reverse the upward trajectory of childhood and adolescent obesity prevalence in Jordan.

Authorship confirmation statement.

Nadine Khayyat: Software, formal analysis, writing- original draft, visualisation. **Sima Kalaldehy:** Conceptualisation, validation, investigation, writing- review and editing, supervision. **Suha Khalifa:** methodology

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Impact statement.

An alarming rise in obesity in youth in Jordan has come at a cost to the country and its citizens. Discrepancies in clinical practice raises the question of whether clear consensus guidelines for obesity in youth are needed in Jordan. This study suggests key considerations for future guidelines based on existing literature.

Ethical approval.

Ethical approval was not required for this study as participants were asked to provide information for which they were not the subjects. This included their practices and views, which were anonymized.

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