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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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THE COVID-19 PANDEMIC LOCKDOWN'S IMPACT ON ROUTINE CHILDHOOD VACCINATION

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Abstract.

Background: The COVID-19 pandemic limits worldwide healthcare access, particularly mandated childhood vaccines. The frequency and mean of purposefully delayed immunizations in infants aged ≤1 year throughout the COVID-19 pandemic in Nineveh, Iraq, were studied.

Methods: A retrospective observational study of vaccination data in Nineveh, Iraq, was conducted throughout the pre-pandemic period in 2019, the pandemic period in 2020, and comparable months in 2021–2022. The study covered every vaccination administered at ages neonate, 2, 4, 6, 9, and 12 months.

Results: The total number of visits mean for the period (Mar-May) 2020 (comprehensive lockdown period) decreased (-18.5%) against (March–May) 2019, and around 2726 children per day were missing immunization. All scheduled vaccines for children aged ≤12 months showed a decrease. The lowest monthly vaccination coverage rate was in March 2020 (61.0%), with the vaccine coverage rate of IPV (70.25%) being the lowest one, then the BCG vaccine at 70.39%, the Pentavalent vaccine at 70.98%, the HBV vaccine at 74.33%, OPV vaccine 79.3%, Measles vaccine (79.45%), and for MMR vaccine 87.34%. **Conclusion:** The COVID-19 pandemic's significant effects on childhood immunization, recovered in the months that followed but did not reach that before the pandemic in 2019. Intentional vaccination disruption exposes young infants to avoidable infectious illnesses, emphasizing the importance of personalized interventions to improve immunization visits as well as secure the delivery of services.

Key words. Children immunization, COVID-19, pandemic, vaccination.

Introduction.

Vaccination is a wise investment and one of the least expensive ways to enhance health and, as a result, strengthen national, regional, and worldwide security of health. It fights infections and reduces mortality and morbidity among children when used as recommended to maintain community immunity [1]. Routine vaccinations that are seriously omitted or postponed might result in subsequent Vaccine-Preventable Diseases (VPD) outbreaks and related mortality [2-5]. Pandemics have a tremendous influence on healthcare access, resulting in high morbidity and mortality rates across a wide variety of geographical locations [6]. However, on March 11, 2020, the World Health Organization announced that the coronavirus disease 2019 (COVID-19) is a worldwide pandemic, and numerous nations have documented a decline in the Vaccine Coverage Rate [7].

According to the World Health Organization, a minimum of 80 million children under 12 months are at risk of vaccine-preventable diseases like measles, diphtheria, and polio as a result of COVID-19-related delays in routine immunizations [1]. One week following the national announcement of a pandemic crisis, the Centers for Disease Control and Prevention declared a considerable reduction in children's immunizations [8].

In Iraq, the pediatric vaccination program (Table 1) provides a variety of essential vaccinations to guard against preventable infectious diseases such as poliomyelitis, tuberculosis, Rubella, hepatitis B, Hemophilus influenza type b, Mumps, Measles, Rota viral infection, Pertussis, Tetanus, Diphtheria, and *Streptococcus pneumoniae*. Rotavirus and pneumococcal vaccines were not included in the study, as they are not available all year round.

Table 1. *The routine vaccination program for children under ≤12 months in Iraq.*

	Age (months)					
Vaccine (dose)	≤1	2	4	6	9	12
BCG	✓					
HBV (1st dose)	✓					
OPV (zero dose)	✓					
Pentavalent (DTaP-IPV-Hib)		✓	✓	✓		
OPV (first dose)		✓				
OPV (second dose)			✓			
OPV (third dose)				✓		
Measles					✓	
MMR (first dose)						✓

BCG: Bacillus Calmette–Guérin; OPV: Oral poliovirus vaccines; DTaP: Diphtheria, Tetanus, and acellular Pertussis; IPV: injectable polio vaccine; Hib: Haemophilus influenzae type b; MMR: Measles, Mumps, and Rubella.

All routine children's vaccines are provided without any cost at government health facilities according to a vaccination schedule based on Ministry of Health (MOH) guidelines linked with World Health Organization guidelines for child vaccines [9]. The objective of the current study is to assess the magnitude of the interruptions in the schedule of vaccination due to the pandemic effect of COVID-19 for children ≤1 year in Nineveh governorate.

Materials and Methods.

Area of Study, Data Sources, and Collection Tools: This retrospective observational study was carried out in Nineveh, Iraq. Nineveh has a population of around 4,133,536 people. Approximately 2.59% of the people in Nineveh were equal to or under the age of one year. The Nineveh Health Directorate oversees 11 primary healthcare sectors including 168 healthcare facilities. These primary healthcare sectors provide regular child vaccinations and vaccination data to the Public Health Department, Nineveh Health Directorate, Ministry of Health, Iraq.

Ethics Considerations: The study follows the rules of the Declaration of Helsinki on the ethical principles for medical

research in human beings and it involves the electronic collection of data approved by the Ethics Committee of Nineveh Health Directorate/ Ministry of Health (Moh/ REC/2021/024).

Study Measures: This study covered every vaccination given at ≤1, 2, 4, 6, 9, and 12 months of age, except those that were not fully available for a whole year.

Statistical Analyses: The number of children who have had vaccinations based on their age, as well as the type and dosage of those vaccinations, were all collected electronically from the Public Health Department, Nineveh Health Directorate. Data were sorted and cleaned in Microsoft Excel 365.

Total dosages, percentages, mean, and difference, were determined and summarized as descriptive statistics. Column charts were used for assessing variations in vaccination coverage rates and the number of visits for 2019, 2020, 2021, and 2022.

The Student's t-test was implemented to compare means to assess change over time. The significance level was established at 5%, and a P-value of 0.05 indicated that there was a significant difference. As a result of the nature of the presented and gathered data, no adjustment for possible confounders or effect modifiers could be made. Furthermore, Cohen's (d) to measure the effect size was determined using the formula [10]:

$d=(M_1-M_2)/SD\ pooled$

where $SD\ pooled=\sqrt{[(n_1-1)SD_1^2+(n_2-1)SD_2^2)/n_1+n_2-2]}$

(M_1): 1st group mean, (M_2): 2nd group mean, (n_1): 1st group sample size, (n_2): 2nd group sample size, (SD_1): 1st group standard deviation, (SD_2): 2nd group standard deviation.

Results.

The drop in the number of vaccination visits to the healthcare institutions in Nineveh, Iraq, began in November 2019, resulting in a reduction in vaccine coverage. Then there was an apparent drop throughout the curfew period, which lasted from March to August 2020 (Figure 1).

The total number of children vaccinated was 904198 in 2019 as a baseline, and the total number of visits for vaccination decreased to 830837 in 2020, representing a reduction (-8.11%), and for 2021, 887361 was observed as the total number of vaccine visits and a drop in vaccination by (-1.9%), while for 2022, demonstrating an increase of (+18.9%) with total child vaccination visits, it was 1075229.

The average vaccination decreased from 94.83% in 2019 to 77.93% in 2020, and Cohen's d=2.13 (very large effect size); the *P*-value was very highly significant differences (about 0.0005), while the average vaccination was 86.7% in 2021 and 93.06%

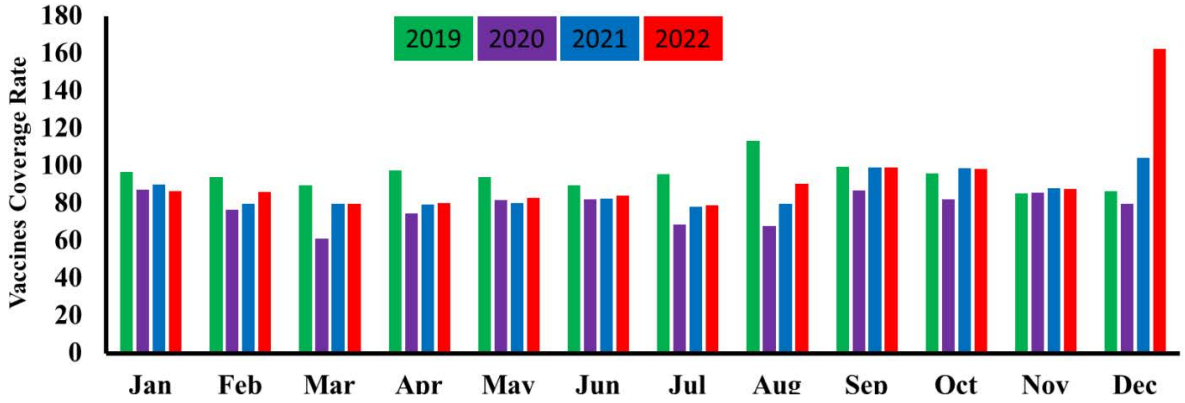

Figure 1. *Vaccines Coverage Rate per month for 2019, 2020, 2021, and 2022.*

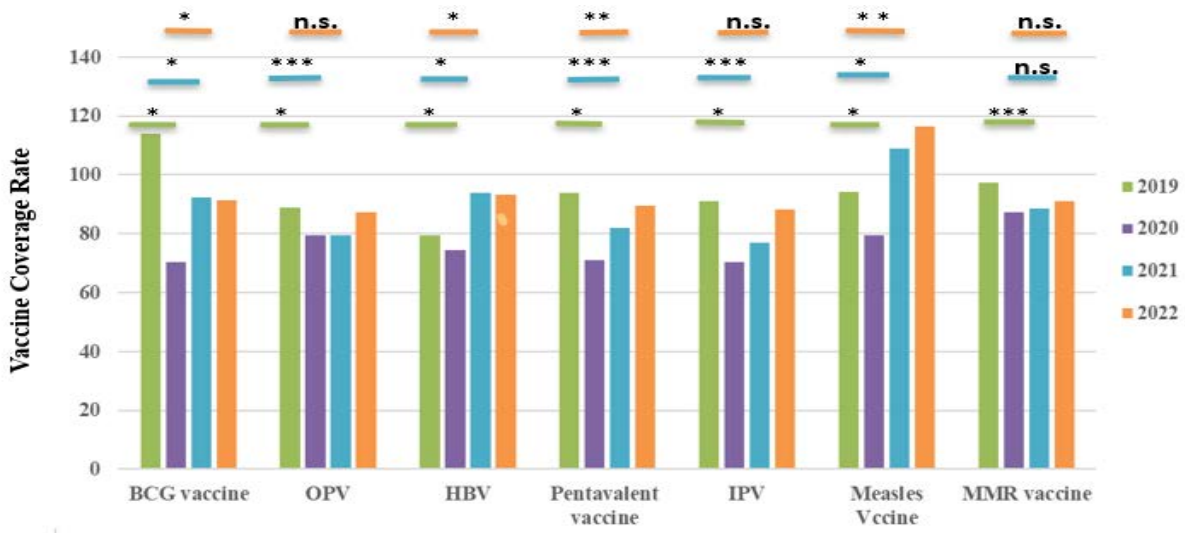

Figure 2. *Vaccine coverage rate for BCG, OPV, HBV, Pentavalent IPV, Measles, and MMR vaccines during 2019, 2020, 2021, and 2022. (n.s.= P-value not significant, * very highly significant difference with P-value <0.001, ** highly significant difference with P-value <0.01, *** significant difference P-value <0.05).*

for 2022, and Cohen's d=0.99; the *P*-value was 0.0014 (highly significant) for 2020-2021, and Cohen's d=0.87 (moderate effect size); and the *P*-value was 0.018 (significant differences) for 2020-2022 (Table 2).

Table 2. *Routine vaccination overage for children under or equal to one year throughout the COVID-19 pandemic (2020 in comparison to 2019, 2020, and 2022).*

	Vaccine Coverage Rate %			
Month	**2019**	**2020**	**2021**	**2022**
Jan	96.94	87.31	89.93	86.32
Feb	94.11	76.57	79.8	86.06
Mar	89.58	61.0	79.95	79.96
Apr	97.74	74.78	79.48	80.27
May	93.9	81.8	80.12	82.88
Jun	89.67	82.1	82.55	84.26
Jul	95.61	68.77	78.3	78.80
Aug	113.57	67.92	79.6	90.41
Sep	99.39	87.07	99.94	99.07
Oct	95.86	82.33	98.94	98.29
Nov	85.21	85.59	88.25	87.84
Dec	86.38	79.94	104.37	162.54
For all months	94.83	79.93	86.7	93.06
P-value	2020 vs 2019 *		2020 vs 2021 **	2020 vs 2022 ***

* *p*-value <0.001 indicates very highly significant differences.
** *p*-value <0.01 indicates highly significant differences.
*** p-value <0.05 indicates significant differences.

In March 2020, a comprehensive curfew was announced. All routine vaccinations for children aged ≤1 year demonstrated a decrease in vaccination doses provided and the vaccine coverage was (61.0%), vaccinations had the biggest decrease in HBV vaccine (45.8%), then IPV vaccine (54.4%) for the 1st, and 2nd doses, Measles vaccine (58.5%), Pentavalent vaccine (62.2%), and MMR vaccine (73.2%), and OPV vaccine (88%) for all doses of OPV vaccine.

The analysis of vaccine coverage for each vaccine in 2020 in comparison with 2019, 2021, and 2022 is demonstrated in Figure 2.

The review of coverage rates for each vaccine in 2019 as a base and comparison in 2020 revealed a very highly significant difference for BCG, Oral Polio, HBV, Pentavalent, IPV, and Measles vaccines with P-values=0.00008, 0.001, 0.0009, 0.006, and 0.0001, respectively, and significant differences (P-value<0.05) for the MMR vaccine.

For 2021, the statistical analysis for each vaccine in comparison with 2020 demonstrated a very highly significant difference for BCG, HBV, and Measles vaccines with P-values=0.004, 0.0009, and 0.005 respectively, and a significant difference for the Pentavalent vaccine and IPV with P-value <0.05, while for the oral polio vaccine, and MMR vaccine there was no significant difference.

The statistical analysis for 2022 in comparison to 2020 demonstrated a very highly significant difference for BCG, and HBV with P-value=0.007, 0.003 respectively, and highly significant for both Pentavalent and Measles vaccines with P-value=0.005, while for OPV, IPV, and MMR vaccines there are no significant differences.

Discussion.

As demonstrated by the significant overall drop in adopted data for vaccination coverage during 2020 by 16.9% as opposed to 2019, this study demonstrates that compliance with childhood vaccination programs in 2020 was an issue. These findings, along with those from the World Health Organization and other cross-sectional research, reveal a worldwide decrease in vaccination uptake during 2020 [11-13]. An upsurge in COVID-19 widespread infections following the adoption of the comprehensive lockdown, as well as the shutdown of most agencies, and stores, except those serving vital amenities such as shopping centres and healthcare institutions, led to a reduction in vaccine visits and vaccination coverage rate to reach its peak in the period between March and April 2020. The current study demonstrates the mean of vaccination visits in (March-April) 2019 and (March-April) 2020 (the comprehensive lockdown period) dropped (by 25.8%), and this is what happened as the United Nations Children's Fund published a warning in April 2020 [14], and around Jul 2020, the World Health Organization warned of a most likely drop in scheduled vaccination rates around the world as a result of COVID-19 pandemic [15].

The findings of this research were in line with reports on significant drops in vaccination rates that were scheduled across many countries at the beginning of the pandemic, such as studies from Italy, where preliminary analyses revealed that over the initial 10 weeks of lockdown, the total number of vaccine doses supplied in Rome decreased by 16% [16]. In Spain, there was an (8%) to (20%) decrease in the total number of babies who had their routine immunizations [17]. In the U.S., vaccination coverage declined in all age cohorts except for the birth dose of hepatitis B coverage (which is administered in the hospital at birth) [18,19].

The majority of countries, except the exception of South Korea and Australia, observed an impairment in Vaccine Coverage Rate, according to a large-scale vaccination effect evaluation study of 19 countries in the Western Pacific and Southeast Asian areas performed in June 2020 [20] during the COVID-19 curfew, the mean of scheduled vaccination visits dropped by 52.8% in Karachi, Pakistan [21].

In the Middle East region, the findings of this study, however, are in line with publications from other countries in this area that emphasize the downside of vaccination programs. In April 2020, the number of immunizations dropped by 72% in Riyadh, Saudi Arabia [22]. In Kuwait, the mean of total visits from March 2020 to May 2020 dropped 28.9% compared with the visits from March 2019 to May 2019 [23].

In May 2020, Qatar reported a 40% decrease in the overall dosage of pediatric vaccines [24] due to worry about COVID-19 infections, 27.2% of Egyptian children failed to receive their required vaccinations [25].

In March 2020, Lebanon recorded a 47% decrease in vaccination distribution as opposed to levels in 2019 [26]. Furthermore, a review of Moroccan clinicians' vaccination records found that most regularly planned kid vaccinations were delayed during the beginning of the pandemic [27].

The limitation of the present study includes the absence of the results involving analysis of vaccinations administered to children above the age of one year. Future research should track the rising number of vaccination schemes and campaign rednecks by geography and determine the most probable residential regions and vulnerable demographics that are at risk. Moreover, trophic factors released from the cells in the surrounding milieu could contribute further to immunological response boosting the response to vaccination resulting in variation in the response between different patients [28-30].

Conclusion.

The COVID-19 pandemic's significant effects on childhood immunization recovered in the months that followed but did not reach the initial level in 2019. Consequently, the COVID-19 pandemic has repercussions that extend beyond the actual viral contagion, such as the endangerment of essential public health services. These outcomes might assist public health authorities with an understanding of the impact of the COVID-19 pandemic on preventative measures and the necessity of creating mechanisms for monitoring the usage of vital vaccination services during an upcoming pandemic.

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Conflict of Interest.

The authors declare that there is no conflict of interest.

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