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Медицинские новости Грузии
საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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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.

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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. რენტგენოგრაფიების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების 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.

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THE PATTERN AND INFLUENCING FACTORS OF OPIOID-PRESCRIBING BEHAVIOR AMONG EMERGENCY PHYSICIANS IN THE QASSIM REGION: A CROSS-SECTIONAL STUDY

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Abstract.

Background: In recent decades, opioid misuse has become a major global public health concern, with significant contributions to morbidity and mortality. Emergency departments (EDs) are frequent sites of opioid initiation, yet prescribing practices vary widely among physicians. Previous research in the Western region of Saudi Arabia demonstrated variability in prescribing influenced by physician demographics and experience. However, no prior study has assessed these patterns in the Qassim region.

Aim: This study aimed to evaluate the pattern and influencing factors of opioid-prescribing behavior among emergency physicians in the Qassim region of Saudi Arabia.

Methods: A cross-sectional study was conducted in March 2025 among emergency physicians in Qassim hospitals. A self-administered 22-item questionnaire assessed demographic and professional characteristics along with determinants of opioid-prescribing behavior using a five-point Likert scale. An overall agreement score was calculated. Descriptive statistics, t-tests, and one-way ANOVA with Tukey's post-hoc analysis were performed using SPSS v26, with $p < 0.05$ considered significant.

Results: A total of 104 physicians completed the survey. The most highly rated determinants of prescribing were the patient's apparent distress (4.4 ± 0.8), medications already administered (4.3 ± 0.8), reported pain score (4.0 ± 0.9), vital signs/physical exam findings (4.0 ± 1.1), and diagnosis thought to be the cause of pain (4.0 ± 0.9). The least influential factors were family/friends' experiences (1.9 ± 1.0), the belief that EDs are a major source of illicit opioids (2.5 ± 1.2), and colleagues' prescribing culture (2.6 ± 1.2). The agreement score differed significantly by gender ($p = 0.007$), number of shifts per month ($p = 0.004$), and years of practice ($p < 0.001$). Post-hoc analysis confirmed that physicians with >10 years of experience scored significantly higher than those with 1–2 years.

Conclusion: Emergency physicians in Qassim demonstrated prescribing patterns primarily guided by objective clinical indicators of pain. Unlike the Western region, significant variation was observed by gender, workload, and years of practice. These findings highlight the need for structured educational interventions for junior physicians, optimization of shift schedules, and region-specific guidelines to ensure safe and consistent opioid prescribing.

Key words. Opioid prescribing, emergency medicine, pain management, physician behavior, Qassim, Saudi Arabia.

Introduction.

In the last two decades, opioid misuse and overdose have emerged as critical contributors to global morbidity and mortality. In the United States, opioids were implicated in nearly one-third of poisoning deaths in 2013, reflecting a fourfold increase in opioid-related fatalities between 1999 and 2013 [1]. Emergency departments (EDs) play a central role in the initiation of opioid therapy, with more than 420,000 opioid-related ED visits reported in 2011 [2]. Despite this burden, many opioid prescriptions continue to be influenced by clinical judgment rather than evidence-based guidelines [3].

In Saudi Arabia, as in other regions, opioid prescribing is a growing concern. Focused education on opioid administration remains limited in many emergency medicine residency training programs, both locally and internationally [4,5]. Consequently, trainees often adopt the prescribing habits of their instructors, leading to variability in practice patterns [6]. Prior research has demonstrated significant heterogeneity in prescribing behavior, not only across different levels of training but also among physicians at the same training stage [7,8].

A recent cross-sectional study conducted in the Western region of Saudi Arabia found that physician age and years of practice were the strongest predictors of prescribing behavior, while gender, workload, and level of practice were not significant determinants [7]. This study also confirmed that clinical factors such as the patient's pain score, distress level, and previously administered medications were the most influential drivers of prescribing decisions. However, social influences such as colleagues' prescribing culture and family experiences played minimal roles.

To date, no similar study has been conducted in the Qassim region, which has a distinct healthcare landscape and demographic profile compared to the Western region. Assessing local patterns and determinants of opioid prescribing is essential for guiding region-specific interventions, such as structured physician training, departmental prescribing policies, and evidence-based clinical guidelines. This study aims to evaluate the patterns and influencing factors of opioid-prescribing behavior among emergency physicians in the Qassim region of Saudi Arabia.

Materials and Methods.

This study was designed as a cross-sectional survey and was conducted in March 2025 among emergency physicians practicing in hospitals across the Qassim region of Saudi Arabia. The target population included all physicians working in emergency departments at different levels of training, namely junior and senior residents, staff physicians, and consultants. Participation in the study was voluntary, and confidentiality was assured. All responses were collected anonymously.

Data were obtained using a self-administered electronic questionnaire that was adapted from a validated tool previously employed in similar research on opioid-prescribing behavior in Saudi Arabia [7]. The instrument comprised two main sections. The first section captured demographic and professional characteristics, including age, gender, number of shifts per month, years of practice since graduation, and level of practice. The second section evaluated opioid-prescribing behavior using 22 items. These items assessed the relative importance of clinical, social, and professional factors in shaping prescribing decisions. Responses were measured on a five-point Likert scale, ranging from “strongly disagree” (scored as 1) to “strongly agree” (scored as 5). To quantify overall prescribing tendencies, an agreement score was calculated for each respondent by summing across all 22 items, with higher values indicating stronger endorsement of prescribing determinants.

The study received ethical approval from the Qassim Regional Research Ethics Committee (Approval No. [insert]). Informed consent was obtained electronically from all participants before they completed the questionnaire.

Data analysis was performed using IBM SPSS Statistics, version 26 (Armonk, NY: IBM Corp, USA). Descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated for participant demographics and individual questionnaire items. Inferential statistics were applied to explore associations between prescribing behavior and physician characteristics. The independent-samples t-test was used for comparisons between two groups, such as gender, while the one-way analysis of variance (ANOVA) was applied for comparisons across more than two groups, such as years of practice or number of shifts per month. When ANOVA results indicated significant differences, Tukey’s honestly significant difference (HSD) test was performed for post-hoc pairwise comparisons. In all analyses, a p-value < 0.05 was considered statistically significant.

Results.

A total of 104 emergency physicians from hospitals in the Qassim region participated in the study. The majority of respondents were in the 23–30-year age group (50.0%), and most were male (80.8%). The largest proportion reported working 13–16 shifts per month (65.4%), while almost one-quarter reported 1–2 years of practice since graduation (23.1%). Junior residents (R1) represented the largest subgroup (30.8%), followed by staff physicians/service residents (19.2%), consultants (15.4%), and board-certified emergency physicians (15.4%) (Table 1).

When physicians were asked to rate the importance of factors influencing their prescribing decisions, the highest-rated

determinants were clinical in nature. The patient’s apparent level of distress was rated most strongly (4.38 ± 0.82), followed by the type and amount of medications already administered (4.30 ± 0.81), the reported pain score (3.97 ± 0.93), vital signs and physical examination findings (3.95 ± 1.06), and the diagnosis thought to be the cause of pain (3.91 ± 0.94). By contrast, the lowest-rated influences were friends’ or family’s experiences with opioids (1.88 ± 1.05), the perception that ED providers are a major source of opioids used illegally (2.52 ± 1.21), and colleagues’ prescribing culture (2.63 ± 1.21) (Table 2).

The overall agreement score (sum of 22 items) varied significantly across several subgroups. Female physicians had higher mean scores (77.0 ± 6.7) compared with males (71.7 ± 10.4 , $p = 0.007$). Physicians working ≤ 12 shifts per month had the highest scores (81.5 ± 10.2), compared with those working 13–16 shifts (73.2 ± 7.6) or >16 shifts (68.9 ± 13.0), with the difference reaching statistical significance ($p = 0.004$). Years of practice since graduation also showed strong associations, with physicians having >10 years of experience scoring the highest (79.0 ± 7.2) and those with 1–2 years scoring the lowest (64.2 ± 9.6 , $p < 0.001$). No significant differences were detected by age group or level of practice (Table 3).

Post-hoc Tukey tests confirmed these differences. Physicians with >10 years of experience scored significantly higher than those with 1–2 years ($p = 0.014$), and physicians with 3–4 years of practice also scored significantly higher than those with 1–2 years ($p = 0.009$). Regarding workload, physicians working >16 shifts per month scored significantly lower than those working ≤ 12 shifts (mean difference = -12.6 , $p = 0.021$) (Table 4).

Discussion.

This cross-sectional study evaluated the pattern and determinants of opioid-prescribing behavior among emergency physicians in the Qassim region of Saudi Arabia. Consistent with earlier studies, the most influential factors guiding prescribing decisions were objective clinical indicators, including the patient’s distress, vital signs, pain score, diagnosis, and medications already administered [6,7,9]. This suggests that emergency physicians in Qassim, like their peers elsewhere, prioritize immediate clinical assessment in pain management. Conversely, the least influential determinants friends’ or family members’ experiences, colleagues’ prescribing culture, and perceptions of EDs as sources of illicit opioids were also the lowest in Western region physicians, underscoring the limited role of social and cultural influences in prescribing patterns [7,12].

Several unique findings emerged in this study. Unlike the Western region, where gender and workload were not significant [7], physicians in Qassim demonstrated significant gender differences, with female physicians scoring higher on the agreement scale than males. While this requires further exploration, prior research suggests that differences in empathy, risk perception, and communication style may influence pain management approaches between genders [13]. Another novel observation was the role of workload: physicians working more than 16 shifts per month had significantly lower agreement scores compared to those working ≤ 12 shifts. Fatigue and time pressure are well-established factors that can negatively affect

Table 1. Demographic and professional characteristics of physicians (n = 104).

Variable	Sub-group	N (%)
Age group	23–30 years	52 (50.0%)
	31–35 years	16 (15.4%)
	36–40 years	12 (11.5%)
	41–50 years	24 (23.1%)
Gender	Male	84 (80.8%)
	Female	20 (19.2%)
Shifts per month	≤12 shifts	8 (7.7%)
	13–16 shifts	68 (65.4%)
	>16 shifts	28 (26.9%)
Years of practice	1–2 years	24 (23.1%)
	3–4 years	36 (34.6%)
	5–10 years	20 (19.2%)
	>10 years	24 (23.1%)
Level of practice	Resident R1	32 (30.8%)
	Resident R2	8 (7.7%)
	Resident R3	8 (7.7%)
	Resident R4	4 (3.8%)
	Staff physicians / service residents	20 (19.2%)
	EM Consultant	16 (15.4%)
	EM Board-certified (assistant, associate)	16 (15.4%)

Table 2. Assessment of opioid-prescribing behavior among emergency physicians (n = 104).

Behavior statement	Mean ± SD
Patient's apparent level of distress	4.38 ± 0.82
Type and amount of medications already given	4.30 ± 0.81
Patient's reported pain score	3.97 ± 0.93
Vital signs and physical examination findings	3.95 ± 1.06
Diagnosis thought to be the cause of pain	3.91 ± 0.94
Concern about possible side effects	3.97 ± 0.97
Concern about promoting addiction	3.15 ± 1.28
Concern about "doctor shopping"	3.09 ± 1.27
Concern about non-medical use (addiction, illegal uses)	3.10 ± 1.29
I can identify patients addicted to opioids	3.28 ± 1.03
I can accurately identify doctor shopping	2.95 ± 0.99
I would rather over-prescribe than under-treat pain	3.31 ± 1.19
Patient's opioid prescription history/reputation	3.33 ± 1.12
Documented history of substance abuse/dependence	3.64 ± 1.11
Patient's other current medications	3.53 ± 1.01
Patient's specific request for opioids	2.95 ± 1.29
Patient's overall satisfaction	3.33 ± 1.10
Patient's age, gender, or nationality	2.49 ± 1.19
Laboratory or imaging results	2.66 ± 1.17
ED providers as a source of illegal opioids	2.52 ± 1.21
Prescribing behavior affected by colleagues' culture	2.63 ± 1.21
Prescribing behavior affected by family/friends' experience	1.88 ± 1.05

decision-making quality in the emergency setting [14], and the present findings suggest that these pressures may also influence opioid-prescribing behavior.

The study also demonstrated a strong effect of years of practice, with more experienced physicians (>10 years) scoring significantly higher than those early in their careers (1–2 years). This aligns with international literature showing that clinical maturity enhances structured prescribing practices and confidence in pain management decisions [9,10]. Post-hoc

analysis further confirmed that differences were particularly pronounced between physicians with >10 years and those with 1–2 years of experience. This highlights the need for structured opioid education in residency training to bridge the gap between novice and experienced physicians [4,5,11].

From a policy perspective, the findings call for several region-specific interventions. First, junior physicians would benefit from enhanced training in opioid prescribing, emphasizing guideline-based decision-making, safe alternatives, and risk

Table 3. Agreement scores according to demographic and professional characteristics.

Factor	Sub-groups	Mean ± SD	p-value
Gender	Male	71.7 ± 10.4	0.007*
	Female	77.0 ± 6.7	
Shifts per month	≤12	81.5 ± 10.2	0.004*
	13–16	73.2 ± 7.6	
	>16	68.9 ± 13.0	
Years of practice	1–2 years	64.2 ± 9.6	<0.001*
	3–4 years	74.6 ± 8.9	
	5–10 years	72.0 ± 8.4	
	>10 years	79.0 ± 7.2	
Age group	23–30, 31–35, 36–40, 41–50	ns	ns
Level of practice	Residents, staff, consultants, board-certified	ns	ns

*ns = not significant; *p < 0.05

Table 4. Post-hoc analysis of agreement scores.

Comparison	Mean Difference	p-value
>10 years vs. 1–2 years	+14.8	0.014*
3–4 years vs. 1–2 years	+10.4	0.009*
≤12 shifts vs. >16 shifts	+12.6	0.021*

*Significant at p < 0.05

assessment. Second, workload optimization through equitable shift distribution may mitigate the negative effects of fatigue on prescribing practices. Finally, the observed variability reinforces the importance of implementing national and departmental prescribing guidelines to standardize opioid use across hospitals and minimize inappropriate prescribing [14].

Strengths and Limitations.

The present study has several strengths. It is the first to investigate opioid-prescribing behavior specifically in the Qassim region, using a validated survey instrument and a sample covering multiple hospitals. The use of statistical methods, including post-hoc analysis, allowed for robust identification of significant demographic and professional predictors. However, certain limitations should be acknowledged. The cross-sectional design prevents causal inference, and reliance on self-reported data may introduce recall and social desirability bias. Furthermore, while the sample size (n = 104) provides valuable insights, larger multi-regional studies would be beneficial to confirm these findings. Incorporating objective prescription audit data in future research would also strengthen the evidence base.

Conclusion.

Emergency physicians in the Qassim region demonstrated prescribing behaviors primarily guided by objective clinical factors, such as patient distress, vital signs, pain score, diagnosis, and medications already administered. However, unlike findings from the Western region, this study identified significant differences in prescribing behavior based on gender, years of practice, and workload. Female physicians, those with longer clinical experience, and those working lighter schedules scored higher on the prescribing agreement scale. These findings highlight the importance of structured training for junior physicians, optimization of shift schedules, and the development of region-specific clinical guidelines to ensure safe, consistent, and evidence-based opioid prescribing

practices. Further multicenter studies incorporating prescription audits are warranted to validate these results and strengthen the evidence base for policy-making.

Ethics Approval and Consent to Participate.

This study was approved by the Qassim Regional Research Ethics Committee (Approval No. 607-46-9182). Electronic informed consent was obtained from all participants before completing the questionnaire.

Conflicts of Interest.

The authors declare that they have no conflicts of interest related to this work.

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