

Exploring Gabapentin as a Treatment for Pruritus: A Survey of Student Perspectives

Abel Essah¹, Chinedum Igboemeka¹, Bisrat Hailemeskel^{1*}

¹Clinical & Administrative Pharmacy Sciences, College of Pharmacy, Howard University, Washington, DC 20059, United States.

*E-mail ✉ bhailemeskel@howard.edu

Abstract

This study, conducted at the Howard University College of Pharmacy, aimed to assess pharmacy students' understanding and opinions on the off-label use of gabapentin in the treatment of pruritus. Gabapentin is primarily prescribed for conditions such as seizures and neuropathic pain, raising concerns when it is used for pruritus without formal approval. A survey of 39 students found that only 27% were aware of gabapentin's approval for the treatment of seizures, while just 10.8% recognized its use for pruritus related to hemodialysis. Furthermore, only 32.4% of participants were informed about its safety profile concerning dosing. A significant portion of the students (40.5%) expressed reluctance about using non-FDA-approved medications for pruritus, and 37.8% advised against promoting its off-label application. On the other hand, 48.6% preferred the use of established treatments for the management of pruritus. These findings highlight the need for educational initiatives to address misconceptions regarding off-label drug use. However, limitations of this study include a small sample size and potential bias from self-reported data, which may limit the generalization of the results. This study provides a foundation for further exploration into the implications of off-label drug use in medical practice.

Keywords: Gabapentin, Pruritus, Pharmacy students, Survey, Off-label use

Introduction

Gabapentin, a drug approved by the FDA for treating seizures and neuropathic pain, has seen increasing off-label use by patients to treat pruritus, despite its primary indications. Pruritus, often characterized by itching that prompts scratching, can arise from various causes, including dermatologic, systemic, neuropathic, psychogenic, and paraneoplastic conditions [1, 2]. This condition, whether acute or chronic, can significantly affect patients' quality of life, creating substantial challenges for healthcare professionals.

The mechanisms underlying pruritus are multifactorial, involving neurogenic, psychogenic, and inflammatory processes. As such, managing pruritus requires a comprehensive approach that addresses both the underlying causes and the associated psychosocial impact [3].

Although gabapentin is well-established in managing neuropathic pain, its use for pruritus is controversial, primarily due to a lack of robust clinical evidence and the risks of inappropriate use [3, 4]. Traditionally, pruritus is managed with first-line therapies such as topical treatments, antihistamines, and corticosteroids, with gabapentin being reserved for severe cases of neuropathic pain. A study by Sreekantaswamy *et al.* [5] conducted in the Netherlands found that only 38.3% of healthcare providers prescribed gabapentinoids for chronic pruritus, with 86.5% of respondents citing insufficient knowledge or experience with the drugs as the main barrier. Additionally, some healthcare providers were unaware that gabapentin or pregabalin could be applied to pruritus treatment.

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There is also a concern regarding the use of gabapentinoids, especially among older patients who are more susceptible to side effects like dizziness, drowsiness, and potential interactions with opioids due to impaired renal function. This age group requires careful monitoring and dosage adjustments. Gabapentin and pregabalin may alleviate chronic pruritus by binding to the $\alpha_2\delta$ subunit of voltage-gated calcium channels, thereby decreasing the release of pruritogenic neuropeptides like substance P and CGRP.

Given the complexities of pruritus treatment, it is essential to establish clear, evidence-based guidelines for the management of chronic pruritus, particularly in older adults. Healthcare providers must follow strict prescribing practices grounded in current research to ensure effective and safe treatments. Furthermore, increasing provider education on the appropriate use of gabapentin for pruritus is critical to addressing knowledge gaps, especially in more complicated cases involving elderly patients.

This study aimed to assess pharmacy students' understanding and opinions on the off-label use of gabapentin in the treatment of pruritus.

Materials and Methods

The investigation took place at Howard University College of Pharmacy and aimed to explore the perspectives and knowledge of students regarding the off-label application of gabapentin in managing pruritus.

A survey was given to 39 students enrolled in a drug information course, consisting of eight questions focused on demographics and ten that assessed their knowledge and viewpoints. These questions were evaluated on a 4-point Likert scale, ranging from 'strongly agree' to 'strongly disagree.' The demographic section gathered information such as participants' age, gender, state of residence, prior work experience, income, and level of education, which allowed for an analysis of how these factors influenced students' opinions on gabapentin. The data was analyzed using IBM SPSS software, applying frequency distributions, cross-tabulations, and Pearson's chi-square tests to identify correlations between demographic details and the students' responses.

Results and Discussion

The demographic breakdown (**Table 1**) reveals that most participants were young adults, with over 80% in the 18-24 years age range. The majority of respondents were female, hailing from a wide range of states, though most were from areas outside of Washington, Maryland, and Virginia. When it comes to income, most participants reported earning less than \$50,000 annually, with a significant portion making under \$10,000. Nearly half of the respondents had between one to three years of work experience, primarily in pharmacy-related fields. Additionally, a large portion of the participants had completed a four-year degree before starting their studies at the College of Pharmacy.

Table 1. Participants' perspectives on demographic factors

Demographic factor	Category	Frequency (percentage)
Gender	Males	16 (41.0%)
	Females	23 (59.0%)
State	Washington	2 (5.1%)
	Maryland	10 (25.6%)
	Virginia	7 (17.9%)
	Other States	20 (51.3%)
Age (years)	18-24	33 (82.5%)
	25-34	0 (0%)
	35 and older	6 (17.5%)
Prior work experience	Yes	34 (87.2%)
	No	5 (12.8%)
Annual income	Below \$10,000	12 (33.3%)
	\$10,000 – \$19,999	2 (5.6%)
	\$20,000 – \$29,999	5 (13.9%)

	\$30,000 – \$39,999	7 (19.4%)
	\$40,000 – \$49,999	4 (11.1%)
	Above \$49,999	6 (16.7%)
	No response	3 (7.7%)
Work before joining HUCOP	Yes	34 (87.2%)
	No	5 (12.8%)
Years of work experience before HUCOP	Less than 1 year	3 (8.6%)
	1-3 years	19 (54.3%)
	4-5 years	2 (5.7%)
	More than 5 years	11 (31.4%)
	No response	4 (10.3%)
Work type	Pharmacy/Health-related	8 (24.2%)
	Pharmacy-related only	13 (39.4%)
	Pharmacy but health-related	12 (36.4%)
	No response	6 (15.4%)
Highest education before pharmacy school	Some college	4 (10.5%)
	Two-year degree	3 (7.9%)
	Four-year degree	28 (73.7%)
	Professional degree	3 (7.9%)
	No response	1 (2.6%)

Table 2 summarizes the survey responses about participants' understanding of gabapentin. The data reveals a mix of correct knowledge and misconceptions. Gabapentin, an FDA-approved drug for partial seizures in patients aged three years and older, can be used alone or alongside other antiepileptic medications. It works by affecting voltage-gated calcium channels, which helps decrease the release of neurotransmitters in the central nervous system. However, only 25% of respondents correctly acknowledged its approval for seizure treatment, while a larger portion (75%) disagreed, possibly confusing it with its other use for neuropathic pain.

In terms of safety, gabapentin's dosage range is quite broad, varying by condition. For example, treatment for epilepsy typically starts at 300 mg three times a day and can increase to a maximum of 3600 mg per day. Yet, only 32% of participants agreed that gabapentin has a broad safety margin, with the majority disagreeing.

When asked about pruritus in patients undergoing hemodialysis, over 90% of respondents rejected the idea that it significantly increases mortality risk, suggesting that they do not consider pruritus to be directly linked to death. Pruritus is a frequent issue for patients on long-

term hemodialysis, affecting a significant portion of this population and greatly disrupting their quality of life, including causing sleep issues and hindering daily tasks. Regarding the black box warning for gabapentin, 82% of respondents accurately understood that it is important to avoid overdosing and using the medication alongside opioids. The warning is in place due to the serious safety risks associated with combining these substances. Research shows that using gabapentin together with opioids significantly raises the chance of an opioid overdose, with individuals on both medications experiencing a 49% greater risk of fatal overdose compared to those who only use opioids. Around 15-22% of Americans who are prescribed opioids also take gabapentin, which can amplify the euphoric effects of opioids and potentially lead to misuse. Both drugs can depress breathing, and their combined use may result in dangerous respiratory issues, potentially leading to death. Healthcare professionals must carefully monitor patients on this combination, adjust dosages as needed, and educate them about the potential risks of overdose. A notable 82% of survey participants provided accurate answers to these concerns.

Table 2. Survey results on gabapentin knowledge

Survey statement	Strongly agree/agree (SA/A)	Disagree/strongly disagree (DA/SDA)	Correct response
Gabapentin is approved for treating seizure disorders	10 (27%)	27	10 (27%)
Gabapentin has a broad safety profile with flexible dosage options	12 (32.4%)	25	12 (32.4%)
Pruritus related to hemodialysis can significantly worsen itching and raise the risk of death	4 (10.8%)	33	4 (10.8%)
The black box warning for gabapentin advises against overdose and concurrent use with opioids	9 (75.6%)	28	28 (75.6%)
Gabapentin is also approved for neuropathic pain treatment	4 (10.8%)	33	4 (10.8%)

Note: Abbreviations – SA = strongly agree, A = agree, DA = disagree, SDA = strongly disagree; two respondents did not answer each question.

Gabapentin, while not classified as a controlled substance in most areas, has raised concerns due to its potential for misuse, particularly among individuals with a history of substance abuse. It can have psychoactive effects, such as euphoria, especially when taken at high doses or alongside opioids. This has resulted in a growing awareness of the need for careful regulation of the drug. In the survey, 58.9% of participants disagreed with statements suggesting that gabapentin should not be used. Additionally, more than 40% disagreed with the view that the drug should be avoided due to its misuse potential. Similarly, an equal percentage disagreed with the claim that gabapentin should not be utilized for treating pruritus associated with hemodialysis when alternative therapies are available.

Regarding the benefits and side effects of gabapentin, 51% disagreed with the idea that its potential side effects outweigh its benefits. While gabapentin does have associated risks, many respondents felt that its positive therapeutic effects justify its use, with healthcare providers considering individual patient needs.

A significant portion (56.4%) agreed with the opinion that the off-label use of gabapentin should be limited. The survey also asked about the use of alternative treatments such as antihistamines, corticosteroids, or phototherapy to manage pruritus related to conditions like red blood cell breakdown. The most substantial agreement (56%) was found regarding the treatment of pruritus caused by hemolysis, indicating respondents' strong knowledge in this area (**Table 3**).

Table 3. Responses to opinion-based survey questions on gabapentin

Survey statement	Agree (n, %)	Disagree (n, %)
I don't believe in using gabapentin due to its high abuse potential outside its approved indications	14 (35.9%)	23 (58.9%)
Hemodialysis-associated pruritus has other treatment options; I don't recommend using a non-approved drug.	14 (35.9%)	23 (58.9%)
Using gabapentin shouldn't be encouraged as the benefits don't outweigh its adverse effects.	15 (38.5%)	22 (56.4%)
I believe pruritus is easy to treat with other drugs and non-FDA-approved drugs like gabapentin should be discouraged.	17 (43.6%)	20 (51.3%)
I am familiar with hemolysis-induced pruritus and its management.	22 (56.4%)	15 (38.5%)

Note: Respondents who did not provide answers were excluded from the calculations.

The data from **Table 4** highlights the results of statistical analysis from the survey, revealing that three out of ten questions relating to knowledge and opinions showed

significant differences. Specifically, these pertained to students' views on the use of non-approved medications for treating pruritus linked to hemodialysis, gabapentin's

potential for abuse, and concerns about its side effects. The p-values for these questions were 0.015, 0.018, and <0.001, respectively, indicating notable variations in opinions based on gender or other demographic factors.

These findings underscore the need for specialized educational strategies to correct misunderstandings and improve clinical knowledge.

Table 4. Crosstab analysis results

Demographics	Knowledge/opinion question	N (%)	P-Value
Gender (male and female)	I believe there are alternative treatments for hemodialysis-related pruritus and do not recommend non-approved drugs	15 (40.5%)	0.015
Gender (male and female)	I do not support the use of gabapentin due to its high potential for misuse outside its approved indications	14 (37.8%)	0.018
Gender (male and female)	I think pruritus can be managed easily with other medications, and the use of non-FDA-approved drugs like gabapentin should be discouraged	18 (48.6%)	<0.001

Research overview

The objective of this study was to explore how various factors influence respondents' knowledge and perceptions regarding the use of gabapentin for treating pruritus. The literature review, combined with cross-tab and regression analyses, highlighted significant opinion differences between male and female participants, revealing potential gender-based disparities in views on medication and healthcare choices. The study also found that income played a role in clinical decision-making, with those earning higher incomes being more likely to support the use of gabapentin for managing pruritus. Furthermore, prior work experience, particularly in healthcare, appeared to shape respondents' beliefs about gabapentin's effectiveness for treating pruritus. This suggests that a person's background—whether professional or socio-economic—can influence their stance on medication, treatment options, and prescribing practices. Healthcare providers should consider these factors when making decisions about medication prescriptions, especially for over-the-counter treatments. The study acknowledges several limitations, including the reliance on self-reported data, which may be subject to recall biases or social desirability effects. Furthermore, the sample was limited to students at Howard University, which restricts the generalizability of the findings to a broader population, including healthcare professionals or patients from diverse demographic and socioeconomic backgrounds. Additionally, the study's relatively small sample size may have impacted the statistical power, limiting the detection of smaller but meaningful relationships. Other important factors, such as cultural beliefs, previous healthcare experiences, and access to

healthcare resources, were not fully addressed but may have influenced participants' opinions.

Conclusion

In conclusion, this research has provided valuable insights into the understanding and perceptions of Howard University College of Pharmacy students regarding the off-label use of gabapentin for pruritus management. With 39 participants, the study revealed notable gaps in knowledge about the safety range, approved indications, and risks associated with off-label gabapentin use. Most respondents were cautious about using gabapentin off-label, favoring alternative treatments due to concerns about potential adverse effects.

The study underscores the necessity of educational programs to fill these knowledge gaps, especially among future healthcare professionals, to promote safer and more informed medication practices. Although the study's limitations—such as the self-reported nature of the data and the limited sample—impacted its scope, the significant p-values in three of the ten survey questions stress the need for deeper discussions and education about off-label drug use within the pharmacy field. This research sets the stage for future studies to further explore these critical issues and contribute to evidence-based clinical practices.

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