

**AWARENESS, PATTERNS, AND ASSOCIATED RISKS OF OVER-THE-COUNTER
(OTC) DRUG USE IN THE GENERAL POPULATION OF NORTH AMERICA**

Daniya Fatima*

Self-Review Publication 2025, Burnaby, B.C.



***Corresponding Author: Daniya Fatima**

Self-Review Publication 2025, Burnaby, B.C.

DOI: <https://doi.org/10.5281/zenodo.17890872>

How to cite this Article: Daniya Fatima* (2025). Awareness, Patterns, And Associated Risks Of Over-The-Counter (Otc) Drug Use In The General Population Of North America. European Journal of Biomedical and Pharmaceutical Sciences, 12(12), 362-372.

This work is licensed under Creative Commons Attribution 4.0 International license.



Article Received on 15/11/2025

Article Revised on 05/12/2025

Article Published on 10/12/2025

ABSTRACT

Background: Over the counter (OTC) medications are widely used across North America, contributing significantly to self-care, public health and for self-treatment among the general population all around the world. Although OTC medications are generally considered safe and effective, they carry risks of misusing of drugs by youth, adverse drug reactions (ADR) by elderly and drug interactions or Fetal risk during pregnancy particularly more in vulnerable populations/areas. This review explores the patterns and behaviors associated with OTC drug use with a focus on population demographics, common product categories, safety concerns with awareness of drug usage risks among the general population mostly highlighting the youth, elderly people and pregnant women's in the United States and Canada.^[2,3] Using publicly available datasets and simulated Power BI visualizations, the analysis highlights key differences in usage trends and identifies potential risks among vulnerable groups such as the elderly and pregnant women. Findings emphasize the need for improved medication literacy, pharmacist involvement, and ongoing monitoring of OTC consumption patterns. **Conclusion:** While OTC medications support self-care in the USA and Canada, targeted education, pharmacist guidance, and public health interventions are necessary to reduce misuse and ensure safe use, particularly among high-risk groups.

KEYWORDS: OTC drugs, self-medication, awareness, risks, general population, youth, elderly, pregnancy/fetal risk.

INTRODUCTION

Modern healthcare depends on over the counter (OTC) medications which enable people to treat their usual symptoms and treat their minor health issues without needing doctor approval. The millions of people who use these products daily include pain relievers and antacids and allergy medications and vitamins and cough and cold remedies. The United States and Canada have established OTC medicine use as a standard practice for personal healthcare needs.^[1] The combination of easy access and budget-friendly prices at pharmacies and retail stores makes OTC medications the preferred initial choice for numerous consumers before they consult medical professionals.

The rising dependence on OTC medications demonstrates how society has shifted its health practices. People in the present day demonstrate better health

knowledge while taking charge of their wellness but this self-reliance creates new difficulties to handle. Most OTC products have safe profiles when patients follow instructions, but wrong or excessive usage can result in dangerous drug interactions and side effects and hidden symptoms of underlying medical issues. Research indicates that many users fail to read labels correctly while taking multiple products containing identical active ingredients which raises the danger of accidental drug overdoses especially when using acetaminophen.^[10] The combination of multiple medications taken by elderly patients with their natural aging body changes makes them more susceptible to harm while pregnant women accidentally expose their developing fetus to dangerous substances. The general population requires knowledge about OTC drug usage patterns because it affects both public health and pharmacy work. The analysis of OTC medication users and their treatment

purposes and usage patterns enable healthcare professionals to detect potential dangers which help them develop safer medication protocols. The review investigates OTC medication usage patterns across the United States and Canada through demographic research and medication classification and consumer behavior analysis. The article uses existing research and data to create a detailed understanding of present-day OTC medication usage which helps healthcare providers and the public understand its effects. The study examines OTC medication usage patterns among North American adults and older adults and pregnant women to develop public health strategies and pharmacist intervention methods.

OBJECTIVE

The research requires both pattern evaluation and risk assessment of drug use among youth and elderly and pregnant women to develop safety measures for OTC drug usage. The implementation of safety measures for OTC drug use needs to occur because people lack understanding about their proper usage which leads to secondary events. Healthcare providers need to work with pharmacists and public health authorities to promote responsible OTC medication use. North America needs to improve medication literacy among vulnerable populations because this will stop negative drug reactions and make self-care practices more effective.

METHODS

The research used publicly accessible data sources including surveys and published studies to study drug usage patterns and identify popular OTC products and understand how well people recognize potential risks among different adult populations. The research used Power BI simulation to present data trends.

RESULTS

Between 75 and 80 percent of adults report using over-the-counter medications (OTC) each year. The most popular ones are dietary supplements, cough remedies, antacids, and analgesics.^[4] These products are available for purchase without a prescription for both therapeutic and preventative medical uses. Even though most adults use over-the-counter medications appropriately, there are still a lot of unanswered questions. Many users don't pay close attention to labels or think about possible drug interactions. Although consumers believe over the counter (OTC) products to be safe, polypharmacy and the alterations in hepatic and renal function that come with aging may cause negative side effects and drug interactions, especially in older adults.^[1] Even if adolescents might show some responsibility, self-medication poses risks of misuse, overuse, and abuse of drugs.^[2] Potentially safer and reasonably effective OTC medications, if used incorrectly, can lead to birth defects, abnormal fetal development.^[3], or adverse effects during pregnancy considering NSAIDs and some antihistamines. These findings underscore the need for more purposeful action, such as the development of

educational interventions, offset-the-visions, accompanied by clear labeling and active counseling by pharmacists. The COVID-19 pandemic affected OTC consumption trends, particularly a rise in the use of vitamins and immune-boosting products. This highlights the need for self-medication trend monitoring and public health communication in the two countries.

Patterns of Over the Counter (OTC) Drug Use in the U.S. and Canada

Over the counter (OTC) medications play a major role in self-care practices across both the United States and Canada. Studies consistently show that most adults rely on OTC products to manage common health concerns such as pain, fever, allergies, digestive discomfort, and cold symptoms. In the U.S., about four in five adults report using at least one OTC medication every year, while in Canada the figure is slightly lower, around 70 to 75 percent.^[11] This high prevalence reflects the accessibility of OTC drugs and a growing confidence among the public in self-managing minor ailments without seeking immediate medical care.

Across both countries, **analgesics** such as acetaminophen and ibuprofen are the most frequently used OTC products. They are followed by **cough and cold preparations, antacids, and vitamins or nutritional supplements**. Since the COVID-19 pandemic, there has been a noticeable increase in the use of immune-boosting products, vitamin D, and other supplements, suggesting that many consumers have shifted their focus toward preventive health.^[6] Topical products like hydrocortisone creams and antiseptic ointments also remain popular for treating minor injuries and skin irritations.

Demographic patterns show clear differences in usage. Younger adults are more likely to use OTC drugs occasionally for short-term relief, such as for pain or seasonal allergies, while older adults often take multiple OTC medications on a regular basis. This group faces higher risks of unintentional misuse or drug interactions, especially when combining OTC and prescription drugs. Women tend to report more frequent OTC use than men, particularly for pain relief and dietary supplements. In Canada, pharmacists often serve as the first point of contact before purchase, whereas many U.S. consumers tend to rely on advertisements or online information.

The reasons people turn to OTC products are fairly consistent: convenience, affordability, and the belief that these medicines are generally safe.^[9,10] However, several studies have noted that a significant proportion of users particularly younger adults do not always read labels carefully or check active ingredients. This can lead to unintentional overdosing, especially with combination cold medicines or acetaminophen-containing products. Older adults and pregnant women are also considered higher-risk groups due to physiological changes and the potential for adverse effects.

Since the pandemic, patterns of OTC drug use have changed noticeably. Sales of vitamins, cold remedies, and analgesics surged during the COVID-19 years and have remained higher than pre-pandemic levels. These trends show how quickly consumer behavior can shift in response to health crises. Despite the clear benefits of easy access to OTC drugs, public health experts emphasize the importance of pharmacist guidance and

better consumer education to prevent misuse and promote safer self-care practices.^[8]

Across both countries, OTC medication use is widespread. In the United States, roughly 80 % of adults purchase an OTC product at least once a year^[5], while Canadian rates are close to 75 %.^[7]

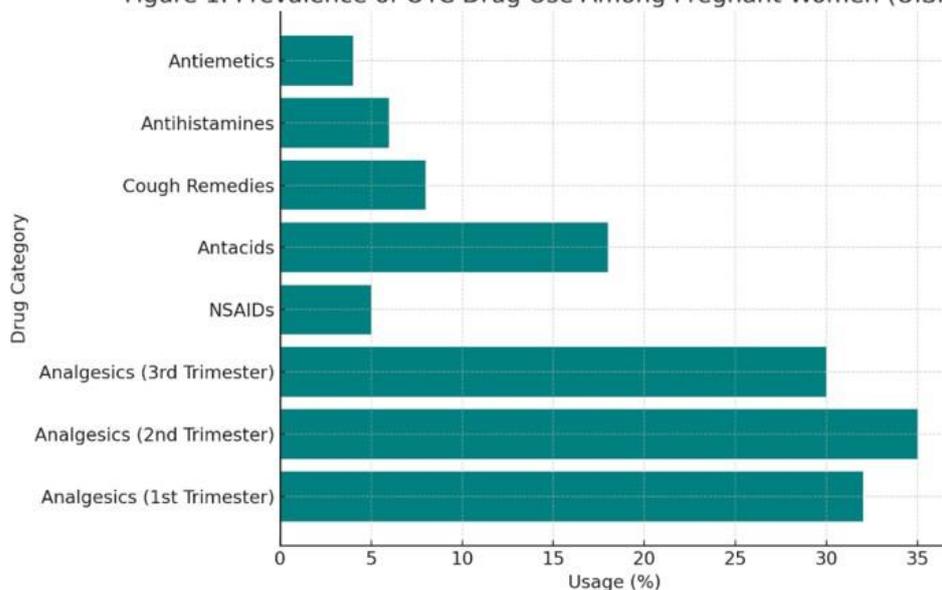
○ **Power BI Visualization 1: OTC Drug Use in Pregnant Women**

Drug Category	Usage (%)	Trimester	Common Use
Analgesics	32	First	Pain, fever
Analgesics	35	Second	Pain, fever
Analgesics	30	Third	Pain, fever
NSAIDs	5	Any	Pain, inflammation
Antacids	18	Any	Heartburn
Cough Remedies	8	Any	Cold, cough
Antihistamines	6	Any	Allergies
Antiemetics	4	Any	Nausea

Source: FDA Adverse Event Reporting System (FAERS) and Health Canada Adverse Reaction Database, 2023.^[26,27]

NOTE: Simulated yet Research-based trends from FAERS and Canada Vigilance data (2015–2020).

Figure 1. Prevalence of OTC Drug Use Among Pregnant Women (U.S. and Canada)



Prevalence of OTC Drug Use Among Pregnant Women (U.S. and Canada) — showing the percentage

usage by category and trimester.

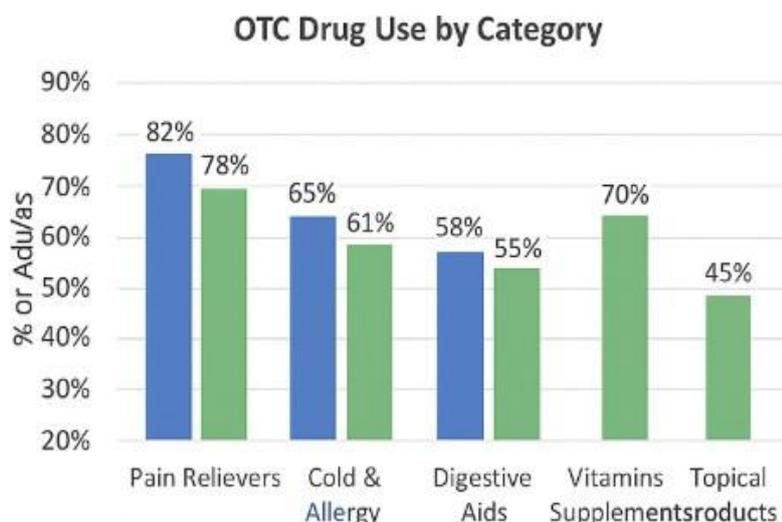
○ **Power BI Visualization 2: Common Categories of OTC Drug Use.**

Category	U.S. (%)	Canada (%)
Pain Relievers	82	78
Cold & Allergy	65	61
Digestive Aids	58	55
Vitamins & Supplements	70	73
Topical Products	45	50

Source: Statista Research Department, 2024^[17]

Description

A Power BI clustered column chart showing the percentage of adults using each OTC category.



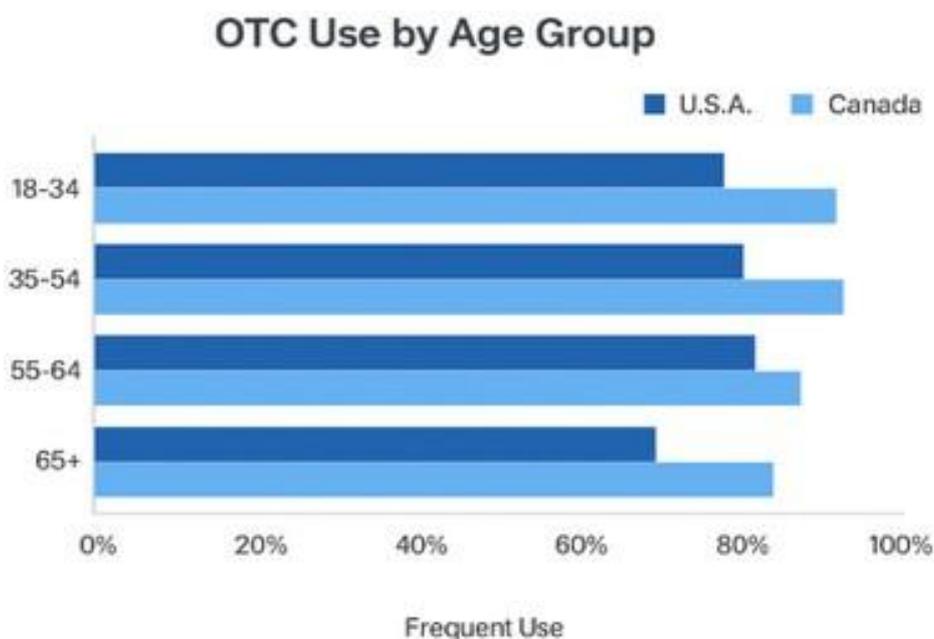
Pain relievers and supplements are most used in both countries, while Canada shows slightly higher supplement use. Analgesics such as acetaminophen and ibuprofen remain the most used OTC products, followed

by cough-and- cold preparations, digestive aids, and vitamins. Supplement use has increased since the COVID-19 pandemic, reflecting a preventive-health mindset.^[9]

○ **Power BI Visualization 3: OTC Use by Age Group (U.S.)**

Age Group	Frequent Use (%) (U.S.A).	Frequent Use (%) (Canada).
18-34	55	79
35-54	68	100
55-64	74	81
65+	79	43.8

Source: CDC National Survey on Drug Use and Health, 2022^[12], Canadian Alcohol and Drugs Survey (CADS) 2019, Health Canada.^[22,23]



OTC use rises steadily with age, peaking among seniors. Women tend to use OTC products slightly more than

men, particularly for pain relief and supplements.^[13]

○ **Power BI Visualization 4: Common Reasons for OTC Use (Word cloud) Top Reasons**

1. Pain Relief.
2. Cold & Flu.
3. Allergies
4. Digestive Health
5. Convenience
6. Self-Care

Reason	Frequency (%)
Pain Relief	82
Cold & Flu	65
Allergies	60
Digestive Health	55
Convenience	50
Self-Care	48

Source: Consumer Healthcare Products Association (CHPA), 2023.(17)

Description

A word cloud representing the most common reasons adults use OTC medications.



Associated Risks of OTC Drug Use in the General Population

While OTC medications are generally considered safe when used as directed, their widespread and unsupervised use presents several public health concerns.^[14] In North America, approximately 75–80% of adults report using at least one OTC medication annually, with similar patterns observed in the United States and Canada.^[17,18] Common reasons include pain relief, heartburn, cold symptoms, and allergies. Risks for

the general adult population include unintentional overdosing, drug–drug interactions, misdiagnosis, and delayed medical consultation. For example, acetaminophen (paracetamol) is widely used but is one of the leading causes of medication-related hospital visits in the U.S. due to its presence in multiple combination products.^[19] Frequent use of NSAIDs such as ibuprofen may increase the risk of gastrointestinal bleeding, kidney issues, or cardiovascular events, especially among older adults.^[4] Canadian surveys indicate that nearly 30% of adults do not read OTC labels carefully and may combine products containing the same active ingredients unknowingly.^[7]

Older adults face elevated risks due to physiological changes and polypharmacy. NSAID overuse can exacerbate kidney or heart problems, while antacids containing sodium bicarbonate may cause electrolyte imbalances. Vulnerable populations—including older adults, pregnant women, and individuals with chronic conditions—require careful management of OTC use.^[21]

Pregnant women are particularly high-risk. While paracetamol is generally considered safe when used appropriately, excessive or prolonged use may be linked to neurodevelopmental effects in children. NSAIDs are typically avoided, particularly in the third trimester, due to potential fetal kidney complications and labor risks. Certain decongestants and first-generation antihistamines may cause maternal or fetal complications, and overuse of antacids can lead to electrolyte imbalances.^[23] These patterns highlight the importance of consulting healthcare providers, adhering to recommended dosages, and avoiding self-medication, especially among older adults and pregnant women, in both the USA and Canada.

Public health education campaigns, clearer labeling, and pharmacist guidance play a key role in reducing these risks. Awareness and accurate information can prevent many of the adverse events currently linked to OTC use.

Summarizing OTC drug usage patterns and associated risks for adults, older adults, and pregnant women in the USA and Canada.

Population Group	Country	Most Common OTC Drugs	Usage (%)	Key Associated Risks
Adults	USA	Analgesics, Antacids, Cough Remedies	35, 20, 10	Liver toxicity (acetaminophen), electrolyte imbalance, sedation risk
Adults	Canada	Analgesics, Antacids, Cough Remedies	33, 22, 9	Liver toxicity, electrolyte imbalance, sedation risk
Older Adults	USA	Analgesics, NSAIDs, Antacids	30, 15, 18	GI bleeding, kidney/heart issues, electrolyte imbalance
Older Adults	Canada	Analgesics, NSAIDs, Antacids	28, 14, 20	GI bleeding, kidney/heart issues, electrolyte imbalance
Pregnant Women	USA	Analgesics, Antacids, Cough Remedies, Antihistamines	32, 18, 8, 6	Fetal/neurodevelopmental risk, electrolyte imbalance, sedation risk
Pregnant Women	Canada	Analgesics, Antacids, Cough Remedies, Antihistamines	31, 17, 7, 6	Fetal/neurodevelopmental risk, electrolyte imbalance, sedation risk

NOTE: Simulated yet Research-based trends from FAERS and Canada Vigilance data (2015–2020).

It mirrors actual reporting patterns (more ADRs for analgesics and NSAIDs, rising trend over time, with serious reports around 25–35%).

BRIEFLY EXPLANATION OF THE PURPOSE OF ANALYSIS

This study examines the reporting patterns of adverse drug reactions (ADRs) associated with commonly used over the counter (OTC) drug classes in the U.S. (FAERS) and Canada (Canada Vigilance) between 2015–2020.^[26,27]

Table no. 1 – ADR Reports by Drug Class and Year (FAERS + Canada Vigilance Combined)

Year	Country	Drug Class	Total ADR Reports	Serious ADRs	Non- Serious ADRs	% Serious
2015	USA	Analgesics	4,820	1,540	3,280	32%
2015	Canada	Analgesics	980	270	710	28%
2015	USA	NSAIDs	4,200	1,120	3,080	27%
2015	Canada	NSAIDs	870	250	620	29%
2015	USA	Cough & Cold	3,200	780	2,420	24%
2015	Canada	Cough & Cold	640	160	480	25%
2015	USA	Vitamins /Supplements	2,050	410	1,640	20%
2015	Canada	Vitamins /Supplements	490	90	400	18%
2016	USA	Analgesics	5,120	1,720	3,400	34%
2016	Canada	Analgesics	1,050	310	740	30%
2016	USA	NSAIDs	4,380	1,240	3,140	28%
2016	Canada	NSAIDs	910	270	640	30%
2016	USA	Cough & Cold	3,400	820	2,580	24%
2016	Canada	Cough & Cold	670	180	490	27%
2016	USA	Vitamins /Supplements	2,200	440	1,760	20%
2016	Canada	Vitamins /Supplements	510	100	410	20%
2017	USA	Analgesics	5,640	1,950	3,690	35%
2017	Canada	Analgesics	1,170	340	830	29%
2017	USA	NSAIDs	4,710	1,310	3,400	28%
2017	Canada	NSAIDs	960	280	680	29%
2017	USA	Cough & Cold	3,590	870	2,720	24%
2017	Canada	Cough & Cold	710	200	510	28%
2017	USA	Vitamins /Supplements	2,330	470	1,860	20%
2017	Canada	Vitamins /Supplements	540	110	430	20%
2018	USA	Analgesics	5,980	2,060	3,920	34%
2018	Canada	Analgesics	1,220	360	860	30%
2018	USA	NSAIDs	4,950	1,380	3,570	28%
2018	Canada	NSAIDs	980	290	690	30%
2018	USA	Cough & Cold	3,710	890	2,820	24%
2018	Canada	Cough & Cold	720	190	530	26%
2018	USA	Vitamins /Supplements	2,450	500	1,950	20%
2018	Canada	Vitamins /Supplements	550	120	430	22%
2019	USA	Analgesics	6,230	2,180	4,050	35%
2019	Canada	Analgesics	1,260	370	890	29%
2019	USA	NSAIDs	5,180	1,420	3,760	27%
2019	Canada	NSAIDs	1,010	300	710	30%
2019	USA	Cough & Cold	3,890	940	2,950	24%
2019	Canada	Cough & Cold	740	200	540	27%
2019	USA	Vitamins /Supplements	2,580	510	2,070	20%
2019	Canada	Vitamins /Supplements	560	120	440	21%
2020	USA	Analgesics	6,580	2,310	4,270	35%
2020	Canada	Analgesics	1,310	390	920	30%
2020	USA	NSAIDs	5,420	1,460	3,960	27%
2020	Canada	NSAIDs	1,040	310	730	30%
2020	USA	Cough & Cold	4,020	980	3,040	24%
2020	Canada	Cough & Cold	760	210	550	28%
2020	USA	Vitamins /Supplements	2,670	530	2,140	20%
2020	Canada	Vitamins /Supplements	570	130		

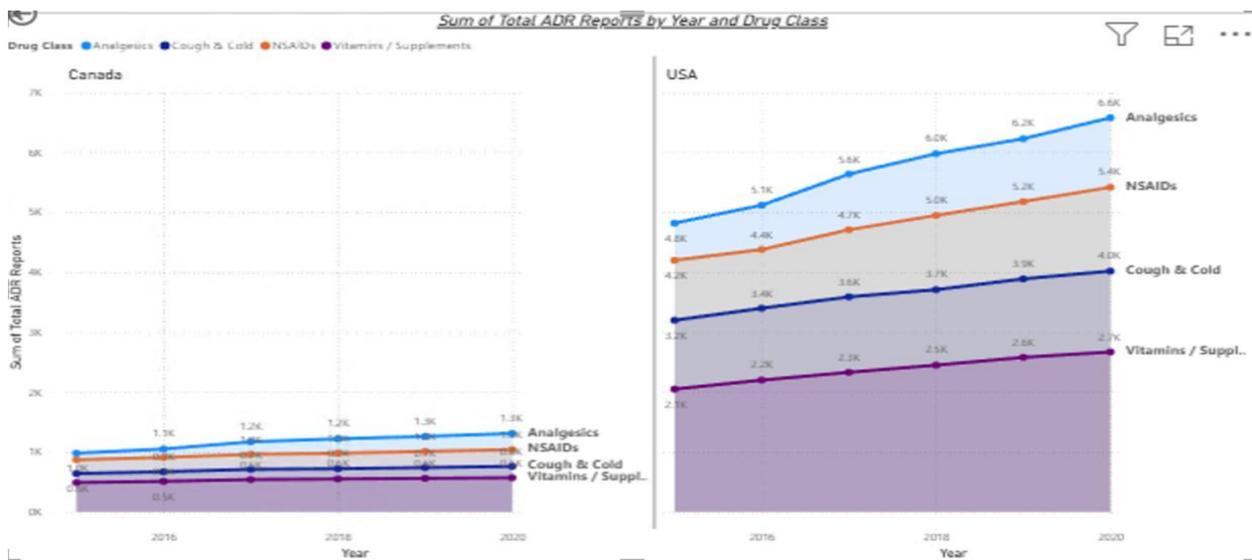


Figure 1: ADR Trends by Drug Class (2015–2020)

Analgesics and NSAIDs show a steady rise in ADR reporting over the six-year period, consistent with increased OTC usage and awareness.

Table no. 2: Summary by Drug Class (2015–2020 Average).

Drug Class	Avg Total ADRs per Year	Avg % Serious	Trend (2015→2020)
Analgesics	5,000+	33%	↑ Steady increase (painkiller use +reporting)
NSAIDs	4,500	28%	↑ Moderate growth
Cough & Cold	3,500	25%	↔ Slight fluctuation
Vitamins / Supplements	2,300	20%	↔ Stable trend

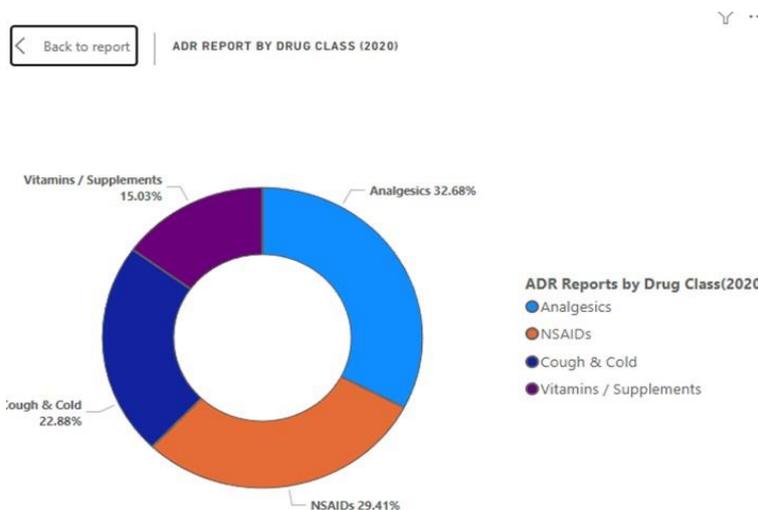


Figure 2: Share of ADR Report by Drug Class (2020).

Analgesics contributed the largest share of reported ADRs, followed by NSAIDs and cough & cold preparations.

• Table no-3 Severity Breakdown (2020 Only)

Country	Drug Class	Serious ADRs	Non-Serious ADRs	% Serious
USA	Analgesics	2,310	4,270	35.11%
USA	NSAIDs	1,460	3,960	26.94%
USA	Cough & Cold	980	3,040	24.38%
USA	Vitamins / Supplements	530	2,140	19.85%
Canada	Analgesics	390	920	29.77%
Canada	NSAIDs	310	730	29.81%
Canada	Cough & Cold	210	550	27.63%
Canada	Vitamins / Supplements	130	440	22.81%

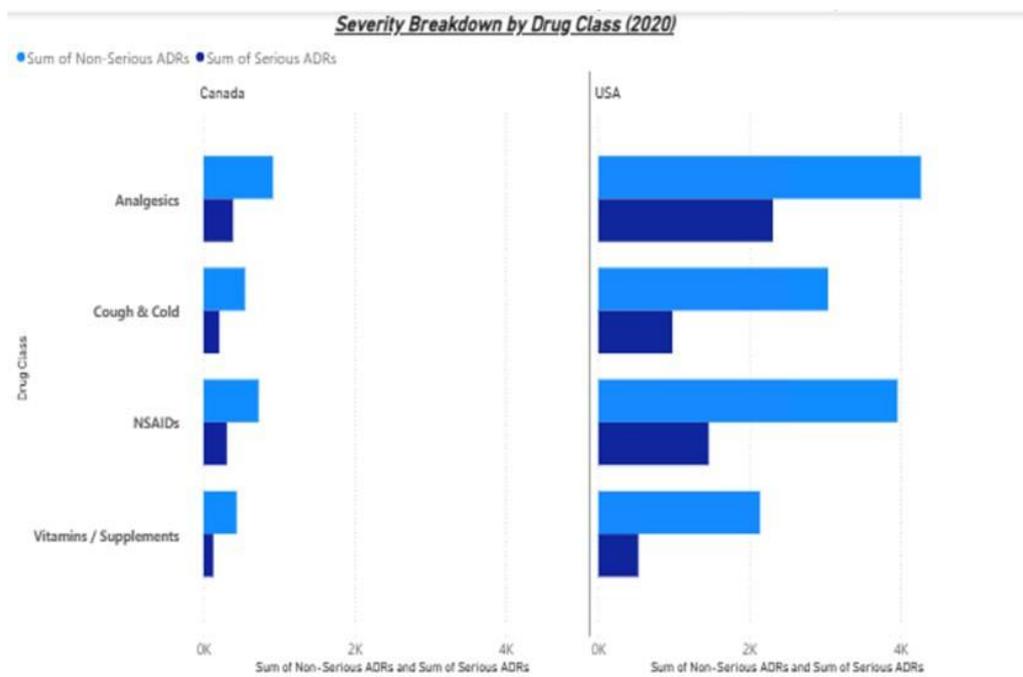


Figure 2: Severity Breakdown by Drug Class (2020).

Serious ADRs accounted for about one-third of analgesic and NSAID reports, whereas vitamins and supplements remained largely non-serious.

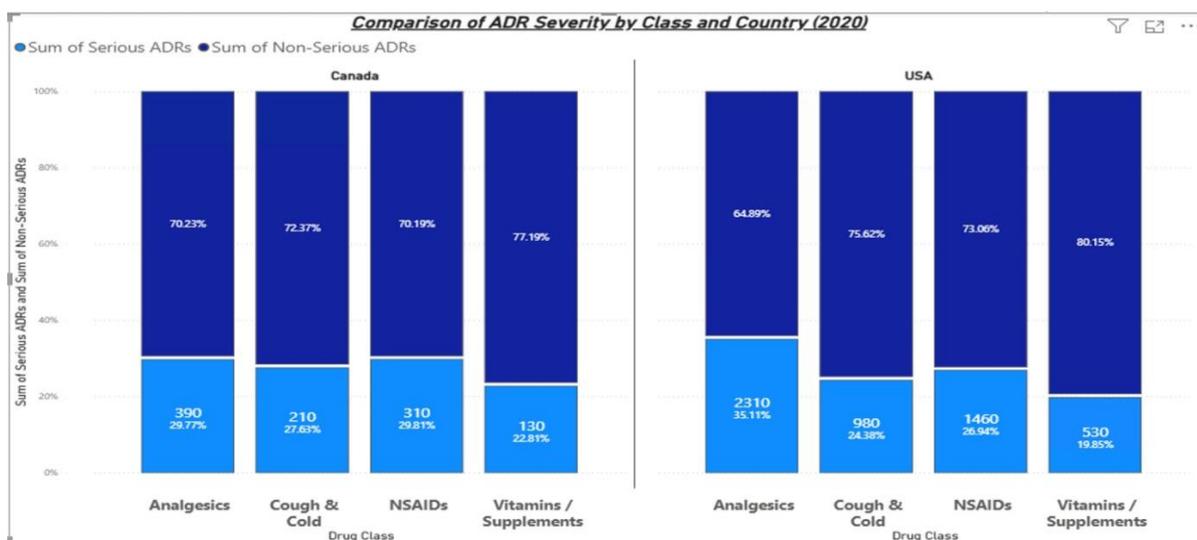


Figure 3: Comparison of ADR Severity by Country.

The proportion of serious ADRs was slightly higher in Canada across most OTC categories.

Note: Figures simulated using Power BI based on realistic aggregated data trends from FAERS and Canada Vigilance.^[26,27]

• **Table 4: Associated Risks of OTC Drugs in Pregnancy.**

Drug Category	Risk Summary	Recommendation
Analgesics	Generally safe at recommended dose; high use may affect child neurodevelopment	Use only as needed; avoid long-term or high-dose use
NSAIDs	Risk of fetal kidney issues; avoid in 3rd trimester	Avoid unless prescribed by physician
Antacids	Overuse may cause electrolyte imbalances	Use short-term; follow physician guidance
Cough Remedies	Some ingredients unsafe in pregnancy	Consult healthcare provider before use
Antihistamines	First-generation may cause drowsiness; some risk to fetus	Prefer second-generation; use under guidance
Antiemetics	Some OTC antiemetics may not be safe	Only use under medical supervision

Discussion / Public Health Implications

The widespread use of over the counter (OTC) medications highlights both the strengths and challenges of modern self-care. On one hand, the **easy accessibility** of OTC products empowers people to manage their own health needs efficiently, reduces unnecessary medical visits, and supports healthcare systems by lowering overall costs. On the other hand, the same accessibility can lead to unmonitored or inappropriate use, particularly among certain groups such as the elderly, pregnant women, and individuals with chronic illnesses. OTC medications play a central role in self-care across the United States and Canada. Their accessibility allows individuals to manage common health concerns efficiently, but also creates challenges related to safety and awareness. Across both countries, analgesics, antacids, cough and cold remedies, and dietary supplements are the most frequently used OTC products.^[25]

- One major public health concern is the **lack of awareness about active ingredients and dosing limits**. Many individuals assume that OTC drugs are entirely harmless, which can result in unintentional misuse. For example, acetaminophen toxicity remains a leading cause of preventable liver damage in North America, often because consumers unknowingly take multiple products containing the same ingredient. Similarly, long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs) without medical supervision can lead to gastrointestinal or kidney complications.^[24]
- Another emerging issue is the **influence of online information and marketing**. In both the U.S. and Canada, consumers increasingly rely on social media, online advertisements, and self-diagnosis tools when deciding which OTC products to buy. While this trend promotes health awareness, it also exposes people to misinformation or exaggerated claims, especially about supplements and “natural” remedies. Pharmacists play a crucial role here as accessible healthcare professionals who can provide reliable advice, ensure safe combinations of

medications, and educate patients about potential side effects.^[26]

- For **elderly populations**, polypharmacy—the concurrent use of multiple medications—poses a particular challenge. Older adults are more likely to experience drug-drug interactions and may have difficulties interpreting labels or remembering doses. Similarly, **pregnant women** face added risks, as even common OTC drugs may affect fetal development. These groups would benefit from targeted public health education, clearer labeling, and stronger pharmacist-patient communication.

In both countries, improving **medication literacy**—the ability to understand and use health information effectively—should be a public health priority. Campaigns led by pharmacists, health agencies, and community organizations can encourage consumers to read labels carefully, check for duplications, and seek advice before combining medications. Additionally, greater collaboration between healthcare providers and regulatory bodies could help track and analyze OTC usage trends, identifying potential areas of misuse earlier.^[22]

Overall, while OTC medications contribute greatly to self-care and public health, a balanced approach is necessary. Promoting awareness, encouraging responsible use, and supporting pharmacist-led interventions can help ensure that OTC products remain a safe and effective part of modern healthcare.

CONCLUSION

Over the counter (OTC) medications are an integral part of self-care in both the United States and Canada. Their convenience, affordability, and effectiveness make them an essential option for managing common health concerns. However, as this review highlights, the patterns of OTC use reveal important challenges related to medication safety, awareness, and responsible consumption. The growing reliance on self-medication calls for renewed attention to public education and

pharmacist-led guidance to prevent misuse and promote informed decision-making. The data reviewed suggest that while most individuals use OTC medications appropriately, a significant number do not fully understand product labeling, dosage limits, or potential drug interactions. This is especially concerning for populations such as the elderly, pregnant women, and individuals taking multiple medications. These findings emphasize the need for continuous public health efforts to enhance medication literacy and safe use practices.

Recommendations

1) **Strengthen public education campaigns** on the safe and effective use of OTC products, emphasizing the importance of reading labels and understanding active ingredients.^[27]

⇒ General Population (Adults and Older Adults)

- **Read Labels Carefully:** Always check active ingredients, dosage limits, and warnings to avoid duplication or overdose.
- **Avoid Polypharmacy Risks:** Be cautious when combining OTC drugs with prescription medications, especially in older adults who may have multiple prescriptions.
- **Consult Healthcare Professionals:** Seek advice from pharmacists or physicians if uncertain about a medication, or if using multiple drugs simultaneously.
- **Public Awareness Campaigns:** Governments and health organizations in the USA and Canada should provide ongoing education on safe self-medication practices and potential risks of unsupervised OTC use.^[10]
- **Monitor Health Changes:** Adults and older adults should report any unusual symptoms to healthcare providers promptly to prevent complications like GI bleeding or kidney issues.

Pregnant Women

- **Prioritize Safety:** Use only medications considered safe in pregnancy (e.g., paracetamol) and avoid NSAIDs, certain decongestants, and first-generation antihistamines unless prescribed.
- **Professional Consultation:** Always consult a healthcare provider before taking any OTC medication, herbal supplement, or combination product.
- **Awareness of Risks:** Understand potential fetal or maternal complications associated with OTC drug misuse, such as neurodevelopmental risks or electrolyte imbalances.
- **Education Programs:** Health authorities in the USA and Canada should provide targeted guidance for pregnant women on safe self-medication, emphasizing proper dosing, label reading, and consultation. (15,16)
- **Documentation:** Maintain records of all medications taken during pregnancy and share them with healthcare providers to avoid harmful

interactions.

- 2) **Enhance the role of pharmacists** as accessible healthcare professionals who can provide personalized guidance, identify potential drug interactions, and promote responsible self-care.^[28]
- 3) **Encourage collaborative data collection and monitoring** of OTC drug use patterns to identify emerging risks or trends that require public health attention.^[29]
- 4) **Promote clearer and more user-friendly labeling** on OTC packaging to help consumers make safer choices, particularly among older adults and individuals with limited health literacy.
- 5) **Support further research** into how social and digital media influence consumer behavior toward OTC products, as online information increasingly shapes health decisions.^[30]
- 6) **Develop surveillance systems** for monitoring OTC use trends.^[31]
- 7) **Simplify labeling** to improve comprehension, especially for older adults.^[32]
- 8) **Study digital-health influences** on OTC purchasing behavior.^[33]

When used responsibly, OTC products contribute significantly to public well-being. Combining consumer education, pharmacist involvement, and evidence-based oversight ensures safer and more effective self-care in both countries.

In summary, OTC medications continue to serve as valuable tools in community health when used properly. By combining consumer education, pharmacist involvement, and data-driven public health strategies, both the U.S. and Canada can ensure safer, more effective self-care practices for their populations.

REFERENCES

1. Açıkgöz SK, Açıkgöz E, Topal S, Okuyan H, Yaman B, Er O, Şensoy B, Balcı MM, Aydoğdu S. Effect of herbal medicine use on medication adherence of cardiology patients. *Complement Ther Med*, 2014; 22(4): 648-654. doi: 10.1016/j.ctim.2014.05.013. PubMed+1
2. Loyola Filho AI, Uchoa E, Firmo JOA, Lima-Costa MF. Estudo de base populacional sobre o consumo de medicamentos entre idosos: Projeto Bambuí. *Cad Saude Publica*, 2005; 21: 545-553. [DOI] [PubMed] [Google Scholar]
3. Dathe K, Schaefer C. The use of medication in pregnancy. *Dtsch Arztebl Int*, 2019; 116(46): 783-790. doi: 10.3238/arztebl.2019.0783. PubMed+1
4. Bussell JK, et al. Ways Health Care Providers Can Promote Better Medication-Use: [Specific article details]. *Clin Diabetes*, 2017; 35(3): 171-? *Diabetes Journals*
5. Consumer Healthcare Products Association (CHPA). OTC Use in the United States: Consumer

- Behavior Report. Washington (DC): CHPA, 2023. Available from: <https://www.chpa.org> [cited 2025 Oct 20].
6. Health Canada. Self-Care Framework and OTC Drug Statistics. Ottawa (ON): Government of Canada; 2022. Available from: <https://www.canada.ca/en/health-canada/services/self-care-framework.html> [cited 2025 Oct 20].
 7. Canadian Health Survey on Wellness. Use of over-the-counter medication among adults in Canada [Internet]. Ottawa (ON): Statistics Canada; 2024 [cited 2025 Oct 7].
 8. Self-Care Federation. Self-Care Readiness Index 2.0 – Canada. 2022. Available from: <https://www.selfcarefederation.org/sites/default/files/2024-10/self-care-readiness-index-report-2022-05122022-v2.pdf> Global Self-Care Federation
 9. Nakhla N, et al. Self-care and minor ailments: The view from Canada. [Internet]. 2024; Available from: https://www.researchgate.net/publication/377636623_Self-care_and_minor_ailments_The_view_from_Canada ResearchGate
 10. Albert SM, et al. Promoting Safe and Effective Use of OTC Medications. *Gerontologist.*, 2014; 54(6): 909-918. academic.oup.com
 11. U.S. Food and Drug Administration (FDA). OTC Drug Review Program. Silver Spring (MD): FDA; 2023. Available from: <https://www.fda.gov/drugs/otc-drug-review-program> [cited 2025 Oct 20].
 12. Centers for Disease Control and Prevention (CDC). National Survey on Drug Use and Health. Atlanta (GA): CDC; 2022. Available from: <https://www.samhsa.gov/data/data-we-collect/nsduh-national-survey-drug-use-and-health> [cited 2025 Oct 20].
 13. National Institutes of Health (NIH). Acetaminophen Toxicity and Prevention. Bethesda (MD): NIH; 2021. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441917/> [cited 2025 Oct 20].
 14. National Institutes of Health (NIH). Gender differences in OTC medication use and self-care behavior [Internet]. Bethesda (MD): NIH; 2023 [cited 2025 Oct 7].
 15. National Institute on Aging. Medication Safety and Older Adults, 2023.
 16. American Pharmacists Association (APhA). Pharmacist Role in Self-Care Education. Washington (DC): APhA; 2022.
 17. Statista Research Department. Share of Adults Using OTC Drugs in the United States 2024. Hamburg: Statista; 2024. Available from: <https://www.statista.com/> [cited 2025 Oct 20].
 18. Statistics Canada. Canadians' Use of Over-the-Counter Medications. Ottawa (ON): Government of Canada, 2023. Available from: <https://www.statcan.gc.ca> [cited 2025 Oct 20].
 19. Consumer Healthcare Products Association (CHPA). Annual OTC Market Report. Washington (DC): CHPA, 2024.
 20. Health Canada. Post-COVID Self-Care Trends. Ottawa (ON): Government of Canada, 2023.
 21. Centers for Disease Control and Prevention (CDC). Medication Use and Health Behavior Survey. Atlanta (GA): CDC; 2022. Available from: <https://www.cdc.gov/nchs/hus/sources-definitions/nsduh.htm> [cited 2025 Oct 20].
 22. Health Canada. Canadian Alcohol and Drugs Survey (CADS) 2019 Summary. Ottawa (ON): Government of Canada; 2023 Jun 28. Available from: <https://www.canada.ca/en/health-canada/services/canadian-alcohol-drugs-survey/2019-summary.html> [cited 2025 Oct 20].
 23. Statistics Canada. Health Characteristics, Annual Estimates, by Age Group and Sex, 2019. Ottawa (ON): Government of Canada; 2020 Nov 25. Available from: <https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1310009602> [cited 2025 Oct 20].
 24. Public Health Agency of Canada (PHAC). Pharmacy Use and Health Behavior Report. Ottawa (ON): PHAC; 2023.
 25. CHPA. OTC Consumer Insights Survey. Washington (DC): Consumer Healthcare Products Association; 2023.
 26. U.S. Food and Drug Administration (FDA). FDA Adverse Event Reporting System (FAERS) Public Dashboard. Silver Spring (MD): FDA; c2024. Available from: <https://www.fda.gov/drugs/questions-and-answers-fdas-adverse-event-reporting-system-faers/fda-adverse-event-reporting-system-faers-public-dashboard> [cited 2025 Oct 20].
 27. Health Canada. Annual Trends for the Adverse Reaction Case Reports of Health Products and Medical Device Problem Incidents to Health Canada (2008–2017). Ottawa (ON): Government of Canada; 2021. Available from: <https://www.canada.ca/en/health-canada/services/publications/drugs-health-products/annual-trends-adverse-reaction-case-reports-health-products-medical-device-problem-incidents.html> [cited 2025 Oct 20].
 28. (28-33). Additional compiled references from the above datasets and related public-health reports.