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# Community Pharmacy-Based Study on Managing Upper Gastrointestinal Symptoms in Italy

**Jasmine Singh[1]*, Ethan Kim[1], Victoria Lee[1]**

[1]Department of Clinical Pharmacy, College of Pharmacy, Seoul National University, Seoul, South Korea.

***E-mail** ✉ jasmine.singh@gmail.com

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## ABSTRACT

Upper gastrointestinal (GI) symptoms are commonly reported by patients visiting community pharmacies in Italy, yet their prior treatment history is often not well documented. This descriptive, cross-sectional study investigated the medication use of individuals experiencing upper GI symptoms who visited one of 20 participating community pharmacies over a 7-month period, using a structured questionnaire. Among 1,020 respondents, 62.1 percent had previously sought medical consultation. The most frequently reported symptom was epigastric burning (31.8 percent), followed by acid regurgitation (14.6 percent) and postprandial fullness (12.0 percent). Out of 1,609 recorded treatments, proton pump inhibitors were the most commonly used class (35.6 percent), followed by antacids (17.5 percent) and alginate-based products (17.2 percent). Notably, 38.1 percent of patients managed their symptoms without medical guidance, and 42.0% relied on non-prescription medications. These findings indicate that community pharmacies could play an enhanced role in supporting patients with GI disorders to ensure safer self-medication practices.

**Keywords:** Pharmacoepidemiology, Community pharmacy, Proton pump inhibitors, Self medication, Clinical pharmacy

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## Introduction

Upper gastrointestinal (GI) disorders, although not typically life-threatening [1-3], can significantly impair patients' quality of life [4, 5]. In terms of hospitalizations and medication use, GI disorders rank among the highest after cancer and cardiovascular diseases [6, 7]. Globally, 25–40 percent of the population has experienced upper GI symptoms—such as epigastric pain, burning, postprandial fullness, bloating, heartburn, or regurgitation—at some point in life [8-13]. In Italy, the prevalence of these symptoms is estimated to exceed 18 percent. According to ROME IV criteria [14], functional dyspeptic patients experience symptoms for at least six months before diagnosis and for at least three months consecutively [15]. However, most patients tend to downplay upper GI disorders, with fewer than 10% seeking gastroenterologist consultation [16, 17], often managing symptoms themselves with non-prescription medications until issues become persistent or severe.

Within the Italian healthcare system, community pharmacies offer a highly accessible point of care due to their widespread distribution. The 2019 Federfarma report [18] highlighted that approximately 4 million Italians visit pharmacies daily, with each pharmacy serving around 230 users. In contrast to physicians, who may require substantial wait times or charge for services, community pharmacies provide quick, reliable, and free consultations by trained pharmacists. Beyond dispensing medications, pharmacists advise on minor health conditions [19], promote health education [20], perform screenings [21, 22], and support therapy adherence [20, 23], including for patients with upper GI disorders. Many patients seek pharmacists' guidance for immediate advice or self-medication rather than consulting gastroenterologists or physicians [24].

Community pharmacists are thus strategically positioned to identify patients with GI symptoms early, advising on prescription and non-prescription treatments or natural healthcare products. Recent therapeutic strategies underscore the importance of patient education from both physicians and pharmacists [25, 26], particularly regarding the appropriate use of medications and healthcare products such as antacids, alginates, proton pump inhibitors (PPIs), prokinetic agents, and natural remedies. Pharmacists play a key role in guiding the safe use of non-prescription products to prevent long-term side effects and drug interactions [27-29].

However, standardized triage procedures for pharmacists to assist patients with dyspepsia or reflux symptoms are limited in most European countries, partly due to a lack of current pharmacoepidemiologic data. In Italy, specific guidelines are largely absent because real-world information on the prevalence of upper GI disorders and self-management practices in community pharmacy attendees is scarce. To our knowledge, this study is the first descriptive investigation in Italy examining the medication history of patients with upper GI symptoms attending community pharmacies, considering both prescription and over-the-counter (OTC) medications. A comparable Belgian study conducted in 2009 [24] primarily focused on the role of pharmacists in OTC self-medication for upper GI symptoms.

This descriptive, cross-sectional study aimed to explore the medication history of patients with upper GI symptoms visiting community pharmacies, including both prescription and non-prescription treatments. Specifically, it sought to assess patients' medical histories, determine the prevalence of key upper GI symptoms, identify the most commonly used therapeutic classes, and evaluate the proportion of patients seeking medical advice or using non-prescription medications. Secondary objectives included examining therapy duration and the frequency of symptom recurrence after discontinuation for each therapeutic class.

*Experimental part*

*Study design*

This descriptive, cross-sectional study was carried out over seven months in 20 community pharmacies across Italy (7 in the North, 7 in the Center, and 6 in the South and Islands) by a collective of 20 pharmacists named the "SIFAC Group of Community Pharmacists" (SGCP). Following a methodology previously described [30], data were collected exclusively using a specially designed paper questionnaire containing both closed- and open-ended questions. The questionnaire was developed through a structured consensus among pharmacists and experts in clinical pharmacology, medicine, gastroenterology, and biomedical engineering. Each participating pharmacist administered the questionnaire to eligible patients during scheduled survey days, with each pharmacy conducting the survey two days per month over seven months, totaling 280 survey days, selected to cover all working days of each month. On each survey day, the first two eligible patients were included, resulting in a total of 1,020 participants.

Eligibility criteria included adults aged 18 years or older who had experienced at least one upper GI symptom in the past three months, including acid regurgitation, throat burning, heartburn, chronic cough, epigastric burning, epigastric pain, upper abdominal bloating, postprandial fullness, or nausea. Pharmacists completed the questionnaire in 10–15 minutes, focusing on the most bothersome symptom for each patient. The responses were anonymized and uploaded to a web-based platform, then organized in Microsoft Excel 2007 (Microsoft, USA). Medications and natural products were categorized into eight classes based on therapeutic use: proton pump inhibitors (ATC code: A02BC), antacids (A02A), alginates (A02BX), H2-receptor antagonists (A02BA), prokinetic agents (propulsive agents [A03F] and benzamides [N05AL]), mucopolysaccharides (class IIA medical devices in Italy), herbal supplements, and other products. All listed treatments, except benzamides (prescription-only), are available in Italy both as prescription and non-prescription medications. The sample size was determined to ensure sufficient statistical power to detect meaningful outcomes for the primary objectives.

The study was conducted following the Declaration of Helsinki (1964) and its amendments and was approved by the Ethical Review Board of SIFAC (Società Italiana di Farmacia Clinica). Interviews were performed in the community pharmacy setting, with all participants providing oral informed consent.

*Statistical analyses*

Continuous variables were summarized using mean, standard deviation (SD), and range, while categorical variables were described using absolute and relative frequencies. Associations between pharmacological classes and treatment or symptom characteristics were assessed using Pearson's chi-squared test, with log-linear models applied to compare observed and expected frequencies. Polynomial contrasts were used in the log-linear analysis

to examine trends in ordinal variables. All analyses were performed using IBM SPSS Statistics v. 23 (IBM, USA), with significance set at $p < 0.05$.

## Results and Discussion

*Sample population characteristics*

Of the 1,064 patients initially approached for upper GI symptoms, 1,020 agreed to participate. The study population included 550 females (53.9%), with a mean age of 50.2 ± 16.9 years (range 18–100). BMI, categorized according to NIH criteria [31, 32], indicated that 277 participants (27.2 percent) were overweight and 88 (8.6 percent) were obese. Most participants (n = 706, 69.2 percent) were non-smokers. Additional demographic and clinical details of the sample are summarized in **Table 1**.

**Table 1.** Characteristics of the studied patient population

| Characteristics | | Number of patients (n=1,020) |
|---|---|---|
| **Gender** | Female | 550 (53.9%) |
| | Male | 470 (46.1%) |
| **Age (years)** | Mean ± SD (range) | 50.2 ± 16.9 (18–100) |
| | 18–25 | 65 (6.4%) |
| | 26–35 | 170 (16.7%) |
| | 36–49 | 264 (25.9%) |
| | 50–65 | 318 (31.2%) |
| | >65 | 203 (19.9%) |
| **Body Mass Index (BMI)** | Underweight (<18.5 kg/m²) | 18 (1.8%) |
| | Normal weight (18.5–24.9 kg/m²) | 637 (62.5%) |
| | Overweight (25.0–29.9 kg/m²) | 277 (27.2%) |
| | Obese (≥30 kg/m²) | 88 (8.6%) |
| **Daily cigarette use** | Non-smokers | 706 (69.2%) |
| | <10 cigarettes/day | 173 (17.0%) |
| | 10–20 cigarettes/day | 105 (10.3%) |
| | >20 cigarettes/day | 36 (3.5%) |
| **Alcohol consumption** | Never | 412 (40.4%) |
| | Rarely (<1–3 times/month) | 417 (40.9%) |
| | Occasionally (during meals only) | 168 (16.5%) |
| | Frequently (>1–2 times/week) | 23 (2.3%) |
| **Main GI symptom reported** | Epigastric burning | 324 (31.8%) |
| | Acid regurgitation | 149 (14.6%) |
| | Postprandial fullness | 122 (12.0%) |
| | Throat burning | 106 (10.4%) |
| | Upper abdominal bloating | 100 (9.8%) |
| | Heartburn | 76 (7.5%) |
| | Epigastric pain | 71 (7.0%) |
| | Chronic cough | 37 (3.6%) |
| | Nausea | 35 (3.4%) |
| **Frequency of main GI symptom** | Once per month | 121 (11.9%) |
| | 2–3 times per month | 216 (21.2%) |
| | Once per week | 190 (18.6%) |
| | 2–3 times per week | 272 (26.7%) |
| | ≥4 times per week | 221 (21.7%) |

*Prevalence of GI symptoms*

Among the participants, the most frequently reported upper GI symptoms were epigastric burning (31.8 percent, n = 324), acid regurgitation (14.6 percent, n = 149), and postprandial fullness (12.0 percent, n = 122), with additional symptom details provided in **Table 1**. Regarding symptom recurrence, 216 patients (21.2%) experienced their primary symptom two to three times per month, 272 patients (26.7%) two to three times per week, and 221 patients (21.7%) four or more times per week **(Table 1)**. When comparing observed versus expected symptom frequencies, acid regurgitation occurred significantly more often than expected, whereas epigastric burning occurred less frequently than expected **(Table 2)**. Specifically, 96 patients (64.4%) with acid regurgitation and 28 patients (75.7%) with chronic cough experienced their symptoms at least two to three times per week, while 193 patients (59.6%) reporting epigastric burning experienced it only once per week or less **(Table 2)**.

**Table 2**. Frequency of the gastrointestinal symptoms reported by the 1,020 interviewed subjects.

| Gastrointestinal symptoms | Frequency of symptoms | | | | | P-value (+/-)[1] |
|---|---|---|---|---|---|---|
| | Once per month | 2–3 times per month | Once per week | 2–3 times per week | 4 or more times per week | |
| Epigastric burning | 47 (14.5%) | 76 (23.5%) | 70 (21.6%) | 86 (26.5%) | 45 (13.9%) | <0.001 (-) |
| Acid regurgitation | 10 (6.7%) | 22 (14.8%) | 21 (14.1%) | 56 (37.6%) | 40 (26.8%) | 0.025 (+) |
| Postprandial fullness | 11 (9.0%) | 33 (27.0%) | 27 (22.1%) | 33 (27.0%) | 18 (14.8%) | 0.175 (-) |
| Burning sensation in the throat | 12 (11.3%) | 30 (28.3%) | 20 (18.9%) | 22 (20.8%) | 22 (20.8%) | 0.131 (-) |
| Upper abdominal bloating | 18 (18.0%) | 15 (15.0%) | 18 (18.0%) | 17 (17.0%) | 32 (32.0%) | 0.274 (-) |
| Heartburn | 8 (10.5%) | 13 (17.1%) | 12 (15.8%) | 24 (31.6%) | 19 (25.0%) | 0.758 (+) |
| Epigastric pain | 9 (12.7%) | 20 (28.2%) | 10 (14.1%) | 18 (25.4%) | 14 (19.7%) | 0.143 (-) |
| Chronic cough | 1 (2.7%) | 3 (8.1%) | 5 (13.5%) | 8 (21.6%) | 20 (54.1%) | 0.011 (+) |
| Nausea | 5 (14.3%) | 4 (11.4%) | 7 (20.0%) | 8 (22.9%) | 11 (31.4%) | 0.916 (+) |
| Overall | 121 (11.9%) | 216 (21.2%) | 190 (18.6%) | 272 (26.7%) | 221 (21.7%) | - |

[1] Comparison between the frequency of each symptom versus the expected frequencies (Log-linear model with polynomial contrast). (+) Frequency of symptoms higher than the expected one. (-) Frequency of symptom lower than the expected one.

*Most commonly used medications*

At the time of the survey, 633 patients (62.1%) reported having previously consulted a physician to manage their upper GI symptoms. Despite this, 89.6% of patients (n = 567) indicated a notable delay between symptom onset and seeking medical advice: 318 patients (56.1%) consulted within 15 days, 97 patients (17.1%) between fifteen days and one month, 121 patients (21.3%) between one and six months, and 31 patients (5.5%) after six months or longer.

Regarding pharmacological management, 1,018 patients reported using one to three different medications for their symptoms, with an average of 1.58 treatments per patient: 518 patients (50.9%) used a single medication, 409 patients (40.2%) used two, and 91 patients (8.9%) used three, totaling 1,609 treatments. The most frequently used class was proton pump inhibitors (PPIs, n = 572, 35.6 percent), followed by antacids (n = 281, 17.5 percent) and alginate-based products (n = 276, 17.2 percent) **(Table 3)**. Prescription medications accounted for more than half of all treatments (n = 845, 52.5 percent). Specifically, prescription drugs represented 90.6 percent (n = 518) of PPIs, 80.2 percent (n = 93) of prokinetic agents, 57.7 percent (n = 30) of H2-receptor antagonists, 49.3 percent (n = 136) of alginates, and 22.0 percent (n = 62) of antacids **(Figure 1)**.

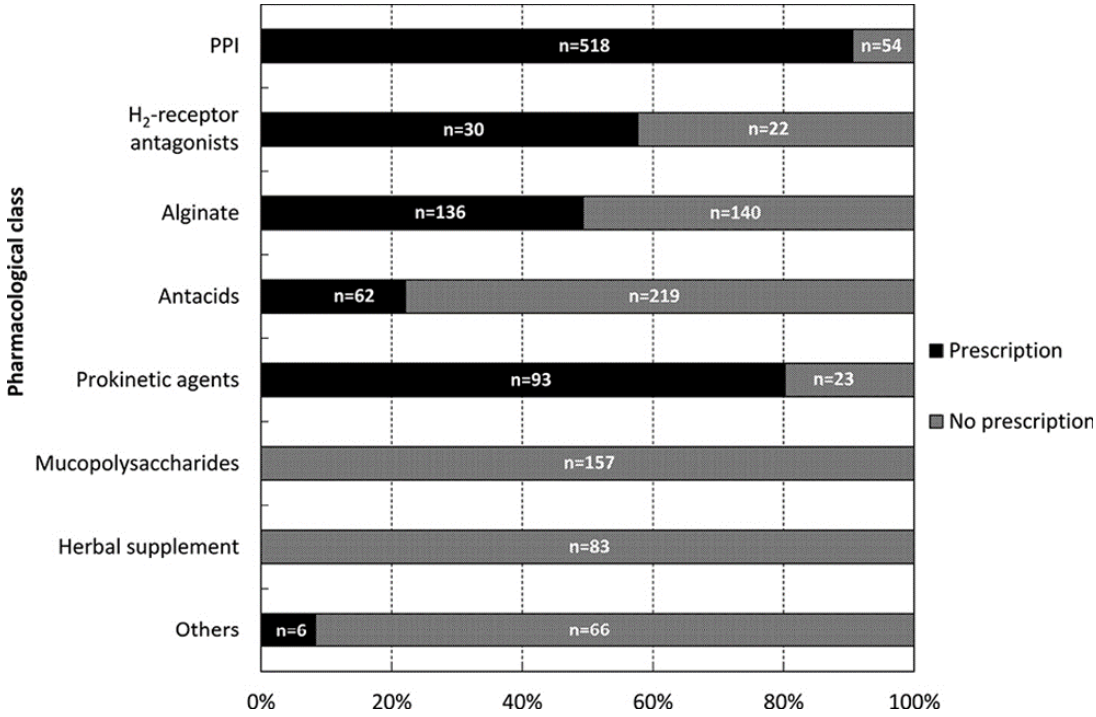


**Figure 1**. Prescription status of the different pharmacological classes among the 1,609 treatments reported by the 1,020 study participants.

**Table 3**. Summary of the 1,609 treatments reported by the 1,020 interviewed subjects.

| Characteristics | PPI§ (n = 572, 35.6%) | $H_2$ blockers (n = 52, 3.2%) | Alginate (n = 276, 17.2%) | Antacids (n = 281, 17.5%) | Prokinetic agents (n = 116, 7.2%) | MP‡ (n = 157, 9.8%) | Herbal supplement (n = 83, 5.2%) | Others (n = 72, 4.5%) | Total (n = 1,609) |
|---|---|---|---|---|---|---|---|---|---|
| **A) Treatment recommendation (P<0.001*)** | | | | | | | | | |
| - Self-medication | 33 (5.8%) [c] | 10 (19.2%) | 42 (15.2%) [b] | 138 (49.1%) [c] | 16 (13.8%) | 11 (7.0%) | 20 (24.1%) [b] | 14 (19.4%) | 284 (17.7%) |
| - Pharmacist | 33 (5.8%) [c] | 13 (25.0%) | 57 (20.7%) [c] | 48 (17.1%) [c] | 12 (10.3%) [c] | 138 (87.9%) [c] | 58 (69.9%) [c] | 32 (44.4%) | 391 (24.3%) |
| - General practitioner | 323 (56.5%) [c] | 17 (32.7%) | 110 (39.9%) | 76 (27.0%) | 59 (50.9%) [c] | 6 (3.8%) [b] | 5 (6.0%) | 19 (26.4%) | 615 (38.2%) |
| - Medical specialist | 183 (32.0%) [c] | 12 (23.1%) [a] | 67 (24.3%) [c] | 19 (6.8%) | 29 (25.0%) [c] | 2 (1.3%) [a] | 0 [a] | 7 (9.7%) | 319 (19.8%) |
| **B) Symptoms (P<0.001*)** | | | | | | | | | |
| - Epigastric burning | 155 (27.1%) | 18 (34.6%) | 86 (31.2%) [b] | 117 (41.6%) [c] | 16 (13.8%) [a] | 72 (45.9%) [c] | 11 (13.3%) | 5 (6.9%) [c] | 480 (29.8%) |
| - Acid regurgitation | 108 (18.9%) [a] | 7 (13.5%) | 60 (21.7%) [c] | 43 (15.3%) | 11 (9.5%) | 18 (11.5%) | 5 (6.0%) | 4 (5.6%) [a] | 256 (15.9%) |
| - Postprandial fullness | 43 (7.5%) [c] | 6 (11.5%) | 13 (4.7%) [c] | 30 (10.7%) | 44 (37.9%) [c] | 11 (7.0%) | 19 (22.9%) [c] | 12 (16.7%) | 178 (11.1%) |
| - Burning sensation in the throat | 72 (12.6%) | 5 (9.6%) | 40 (14.5%) [c] | 26 (9.3%) | 5 (4.3%) | 20 (12.7%) [a] | 3 (3.6%) | 3 (4.2%) | 174 (10.8%) |
| - Upper abdominal bloating | 52 (9.1%) | 3 (5.8%) | 20 (7.2%) | 23 (8.2%) | 7 (6.0%) | 9 (5.7%) | 38 (45.8%) [c] | 20 (27.8%) [c] | 172 (10.7%) |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| - Hearthburn | 61 (10.7%) [b] | 6 (11.5%) | 32 (11.6%) [c] | 14 (5.0%) | 3 (2.6%) | 7 (4.5%) | 1 (1.2%) | 2 (2.8%) | 126 (7.8%) |
| - Epigastric pain | 46 (8.0%) | 3 (5.8%) | 4 (1.4%) [b] | 16 (5.7%) | 5 (4.3%) | 12 (7.6%) | 3 (3.6%) | 12 (16.7%) [b] | 101 (6.3%) |
| - Cronic cough | 19 (3.3%) [a] | 4 (7.7%) | 18 (6.5%) | 4 (1.4%) [b] | 7 (6.0%) | 5 (3.2%) | 3 (3.6%) | 9 (12.5%) [a] | 69 (4.3%) |
| - Nausea | 16 (2.8%) | 0 | 3 (1.1%) | 8 (2.8%) | 18 (15.5%) [c] | 3 (1.9%) | 0 | 5 (6.9%) [a] | 53 (3.3%) |
| **C) Duration of therapy (P<0.001*)** | | | | | | | | | |
| - When the need arises | 32 (5.9%) [c] | 14 (28.6%) | 106 (43.4%) | 212 (80.6%) [c] | 45 (42.1%) | 107 (72.3%) [c] | 25 (32.5%) | 18 (26.9%) | 559 (37.4%) |
| - Until 2 weeks | 97 (18.0%) [c] | 13 (26.5%) | 46 (18.9%) | 22 (8.4%) | 23 (21.5%) | 19 (12.8%) | 27 (35.1%) [a] | 32 (47.8%) [b] | 279 (18.7%) |
| - From more than 2 weeks to 1 month | 82 (15.2%) [c] | 1 (2.0%) | 26 (10.7%) | 6 (2.3%) | 13 (12.1%) | 7 (4.7%) | 2 (2.6%) | 3 (4.5%) | 140 (9.4%) |
| - From more than 1 month to 6 months | 218 (40.4%) [c] | 14 (28.6%) | 45 (18.4%) | 19 (7.2%) | 19 (17.8%) | 10 (6.8%) [b] | 22 (28.6%) [a] | 13 (19.4%) | 360 (24.1%) |
| - More than 6 months | 101 (18.7%) [c] | 6 (12.2%) | 19 (7.8%) | 4 (1.5%) | 5 (4.7%) | 4 (2.7%) | 1 (1.3%) | 1 (1.5%) | 141 (9.4%) |
| - Cyclical | 9 (1.7%) | 1 (2.0%) | 2 (0.8%) | 0 | 2 (1.9%) | 1 (0.7%) | 0 | 0 | 15 (1.0%) |
| - Not reported[#] | n = 33 (5.8%) | n = 3 (5.8%) | n = 32 (11.6%) | n = 18 (6.4%) | n = 9 (7.8%) | n = 9 (5.7%) | n = 6 (7.2%) | n = 5 (6.9%) | n = 115 (7.1%) |
| **D) Reappearance of symptoms (P<0.001*†)** | | | | | | | | | |
| - Yes | 229 (40.2%) | 22 (43.1%) | 112 (43.8%) [a] | 147 (54.9%) [b] | 49 (44.5%) | 43 (28.3%) [a] | 21 (30.0%) [b] | 19 (27.9%) | 642 (41.6%) |
| - No | 116 (20.4%) | 8 (15.7%) | 46 (18.0%) [a] | 58 (21.6%) [b] | 29 (26.4%) | 42 (27.6%) [a] | 27 (38.6%) [b] | 20 (29.4%) | 346 (22.4%) |
| - Ongoing therapy | 224 (39.4%) | 21 (41.2%) | 98 (38.3%) | 63 (23.5%) [c] | 32 (29.1%) | 67 (44.1%) [a] | 22 (31.4%) | 29 (42.6%) | 556 (36.0%) |
| - Not reported[#] | n = 3 (0.5%) | n = 1 (1.9%) | n = 20 (7.2%) | n = 13 (4.6%) | n = 6 (5.2%) | n = 5 (3.2%) | n = 13 (15.7%) | n = 4 (5.6%) | n = 65 (4.0%) |

Percentages of valid cases are presented in the Table. * P-values indicate significant differences across pharmacological classes (Pearson's chi-squared test); † P-value refers to comparisons among the three categories. § Proton pump inhibitors; ‡ Mucopolysaccharides; # These participants were excluded from the analysis. a P<0.05; b P<0.01; c P<0.001 compared with expected frequencies (log-linear model).

It is important to highlight that physicians may prescribe even medications that are typically available without a prescription. Out of the total 1,609 treatments, only 391 (24.3 percent) were advised by a pharmacist, while 284 (17.7%) were self-selected by patients as part of a self-medication regimen **(Table 3)**. Consequently, 42.0 percent of the treatments were administered without a medical prescription.

Proton pump inhibitors (PPIs) were prescribed by general practitioners (GPs) in 323 instances (56.5%; P < 0.001), by medical specialists in 183 instances (32.0%; P < 0.001), and were suggested by pharmacists in 33 instances (5.8 percent; P < 0.001). The main indications for PPI use were epigastric burning (155 cases, 27.1 percent; P = 0.800), acid regurgitation (108 cases, 18.9 percent; P = 0.016), and heartburn (61 cases, 10.7 percent; P = 0.003). Alginate-based products were prescribed by GPs in 110 cases (39.9 percent; P = 0.067), by medical specialists in 67 cases (24.3 percent; P < 0.001), and recommended by pharmacists in 57 cases (20.7 percent; P < 0.001). These products were primarily used for managing epigastric burning (86 cases, 31.2 percent; P = 0.009) and acid regurgitation (60 cases, 21.7 percent; P < 0.001). Antacids, in contrast, were often used without medical guidance in 186 cases (66.2 percent; P < 0.001), mainly to relieve epigastric burning (117 cases, 41.6 percent; P < 0.001). Pharmacists frequently recommended mucopolysaccharides in 138 cases (87.9 percent; P < 0.001) and herbal remedies in 58 cases (69.9 percent; P < 0.001) **(Table 3)**. Mucopolysaccharides were primarily employed for epigastric burning (72 cases, 45.9 percent; P < 0.001) and for throat burning sensations (20 cases, 12.7 percent; P = 0.036) **(Table 3)**.

The duration of PPI therapy was significantly longer compared to other treatments, lasting between one to six months in 218 cases (40.4 percent; $P < 0.001$) and exceeding six months in 101 cases (18.7 percent; $P < 0.001$). Conversely, antacids and mucopolysaccharides were predominantly used on an as-needed basis in 212 cases (80.6 percent; $P < 0.001$) and 107 cases (72.3 percent; $P < 0.001$), respectively **(Table 3)**. Despite treatment, symptoms recurred at the end of therapy in 147 cases treated with antacids (54.9 percent; $P = 0.004$), 112 cases treated with alginates (43.8 percent; $P = 0.017$), and 43 cases treated with mucopolysaccharides (28.3 percent; $P = 0.034$) **(Table 3)**.

This study offers real-world evidence on the medication history of 1,020 patients experiencing upper gastrointestinal (GI) symptoms who visited community pharmacies, making it one of the largest studies of its kind conducted in Italy or Europe [24, 30, 33-36]. The findings demonstrate that it is feasible to gather detailed information on patients' therapeutic histories in a pharmacy setting, providing a cross-sectional snapshot of how individuals manage their GI disorders. This type of data is particularly valuable given the limited information available on self-medication practices for GI conditions.

According to the results, approximately two-thirds (67%) of participants reported experiencing symptoms more than once per week **(Table 2)**, indicating that upper GI symptoms are often chronic rather than acute. Additionally, most patients with heartburn or regurgitation (60–70%) experienced symptoms sporadically and did not seek professional medical advice, instead relying on non-prescription medications, representing the "hidden" segment of the GERD population [37]. These observations **(Table 1)** align with findings from other European studies [24]. While the study was not designed to evaluate treatment efficacy, it offers insights into patients' perceptions of how well their therapies work. During interviews, over one-third of treatments were ongoing, and among 986 respondents, 642 (65%) reported symptom recurrence after completing therapy.

Proton pump inhibitors (PPIs) were the most commonly used treatment (35.6%) **(Table 3)**, prescribed by physicians in over 90% of cases and recommended by pharmacists or chosen by patients in the remaining 10%. PPIs remain the first-line therapy for major upper GI conditions and gastroesophageal syndromes [38-40]. Antacids were the most frequently self-requested treatment (219 out of 764), typically used for milder symptoms and on an as-needed basis, reflecting their common role in managing less severe upper GI disorders [7, 41]. Mucopolysaccharides were the class most often recommended by pharmacists (88%). Notably, nearly half of the participants (49.1%) used more than one treatment concurrently.

Contrary to some previous reports [30], the data did not reveal significant issues regarding the appropriateness of prescribed or recommended therapies. Non-prescription medications, such as antacids and alginates, were generally used in accordance with clinical guidelines and product labeling [42]. Mucopolysaccharides were predominantly used for epigastric burning, although evidence from clinical studies remains limited [41]. While natural and herbal products are popular among patients, their use is often driven by temporary behavioral trends rather than robust clinical evidence [43], and their safety in combination with other pharmacological treatments is not fully established.

Our study found that over one-third of eligible patients (37.9%) did not seek medical consultation, while approximately 42% of all medications were taken either through self-medication (17.7%) or following pharmacists' recommendations (24.4%), consistent with previous reports [44, 45]. It is noteworthy that patients often underestimate the risks of over-the-counter (OTC) drugs or tend to use them for prolonged periods [46]. Because unexpected drug interactions may occur and physicians may not have full visibility of the patient's treatment history, this can expose patients to potential harm. Consequently, community pharmacists play a pivotal role in managing and triaging individuals with upper GI disorders and in identifying adverse effects related to both OTC and herbal products [7, 46-48]. Their direct patient contact places them in a strategic position to: (i) oversee therapeutic choices, ensure proper medication use, monitor adherence, and detect adverse reactions; and (ii) mitigate health risks stemming from uncontrolled or prolonged use of OTC medications.

Monitoring real-world OTC medication use in community pharmacies could support the creation of tailored guidelines for managing and triaging patients with upper GI symptoms, enhance pharmacovigilance, and promote appropriate counseling practices. Since patients expect high-quality guidance when self-medicating [49, 50], evidence-based support tools for pharmacists are essential for improving self-medication management [51, 52]. Internationally, several resources, such as algorithms and symptom assessment questionnaires, are available to pharmacists for managing these disorders [53-57] however, variations in patient behavior and preferences may limit their applicability across different national contexts. The present study provides valuable insight for

developing evidence-based practice tools, including targeted training, specifically aligned with the real needs of patients visiting Italian community pharmacies [58].

The main limitations of this research include the absence of confirmed clinical diagnoses and medical histories, as all symptoms were self-reported and Italian community pharmacists do not have access to patient medical records. Although the study collected information on treatment duration, no conclusions could be drawn about adherence due to the lack of data regarding prescribed therapy lengths.

**Conclusion**

To our knowledge, this is the first descriptive study conducted in Italian community pharmacies to explore the treatment history of patients with upper GI symptoms, assess their prevalence, and evaluate the pharmacological interventions used. Findings underscore the critical role of community pharmacists in patient support, particularly as nearly 40% of participants had not consulted a physician before visiting the pharmacy. The data generated may inform the development of pharmacist-oriented guidelines, promoting evidence-based management of patients with upper GI symptoms. Standardizing pharmacist counseling and training may enhance patient adherence, improve quality of life, and strengthen pharmacovigilance for non-prescription medications.

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**Conflict of Interest:** None

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**Ethics Statement:** None

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