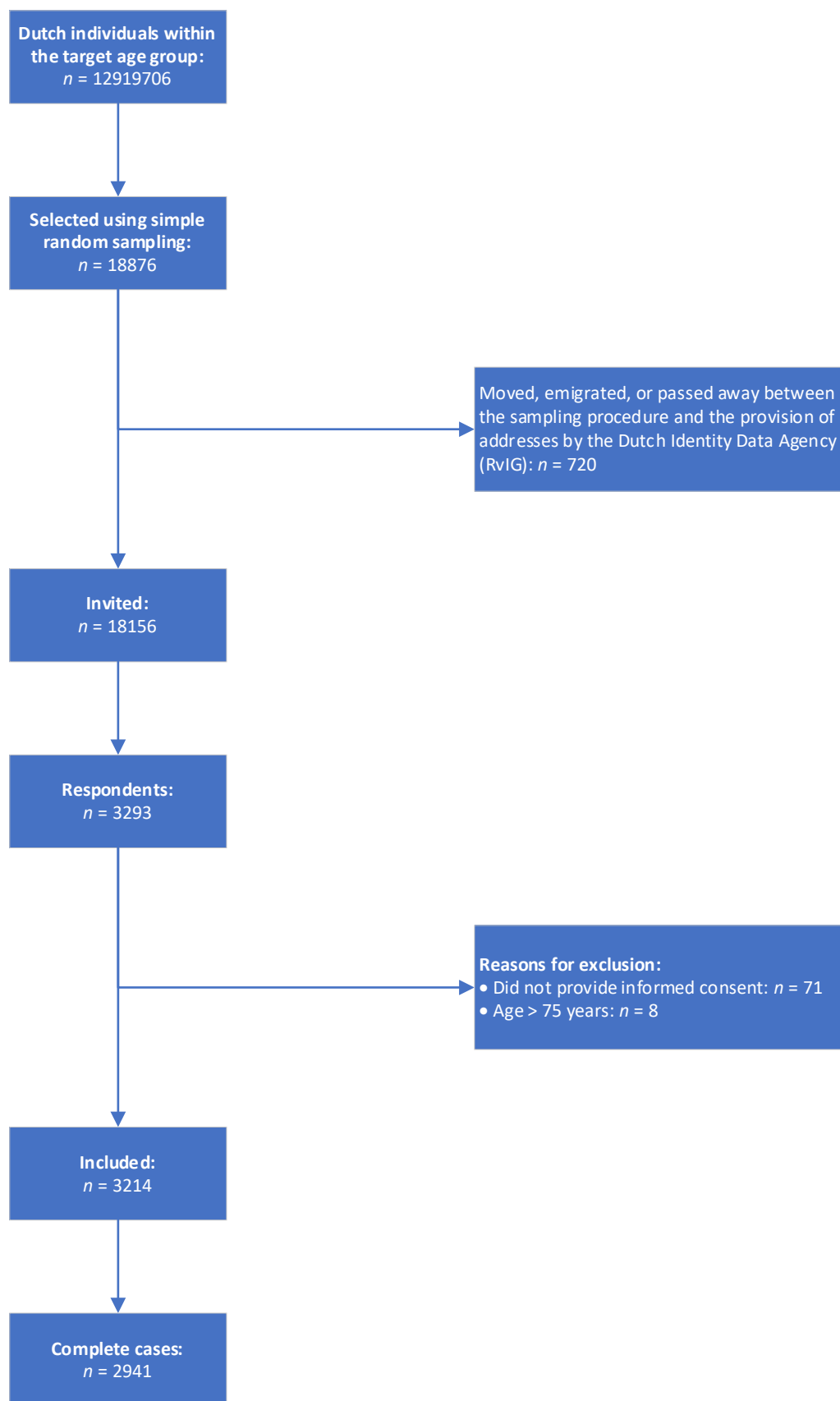


Supplementary Material

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Supplementary Figure 1. Flow chart of the study participants.

Supplementary Table 1. Sociodemographic characteristics of the participants compared with Dutch population statistics.

	Participants		Dutch population
	(n = 3214)		(n = 12919706)^a
	N	%	%
Age, n(%)^b			
18 – 34	524	16.3	29.8
35 – 54	908	28.3	34.7
55 – 75	1600	49.8	35.5
Gender, n(%)^b			
Male	1523	47.4	50.1
Female or non-binary	1509	47.0	49.9
Educational level, n(%)^c			
Lower	535	16.6	22.6 ^d
Middle	1060	33.0	35.7 ^d
Higher	1435	44.6	40.9 ^d
Civil status (living with a partner), n(%)^c	2270	70.6	NA
SES score neighbourhood, n(%)^{e, f}			
Lower (<-0.1)	551	17.1	NA
Middle (-0.1 – 0.1)	811	25.2	NA
Higher (>0.1)	1335	41.5	NA
Migration background, n(%)^c			
Dutch background	2856	88.9	74.1
Western migration background	73	2.3	11.5
Non-Western migration background	101	3.1	14.4

Percentages will not always add up to 100, because percentages have been rounded off.

NA = not available.

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SES = socio-economic status.

^a Population aged 18 – 75 years on 1 January 2022.;

^b $n = 182$ missing values (5.7%);

^c $n = 184$ missing values (5.7%);

^d Percentage of population aged 25 – 74 years on 1 January 2022 ($N = 11038000$).;

^e $n = 517$ missing values (16.1%);

^f Score for the average socio-economic status in the participant's neighbourhood based on financial welfare, education and employment, calculated by the Dutch Central Bureau of Statistics (CBS)..

Supplementary Methods 1. An English translation of the Dutch survey.

SECTION 1: REFLUX DISEASE QUESTIONNAIRE (RDQ)

1. Thinking about your symptoms over the past 7 days, how often did you have the following?

	Did not have	Less than 1 day a week	1 day a week	2-3 days a week	4-6 days a week	Daily
A burning feeling behind your breastbone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pain behind your breastbone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A burning feeling in the center of the upper stomach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A pain in the center of the upper stomach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An acid taste in your mouth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unpleasant movement of stomach contents upwards from the stomach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Thinking about your symptoms over the past 7 days, how would you rate the following?

	Did not have	Very mild	Mild	Moderate	Moderately severe	Severe
A burning feeling behind your breastbone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pain behind your breastbone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A burning feeling in the center of the upper stomach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A pain in the center of the upper stomach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An acid taste in your mouth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unpleasant movement of stomach contents upwards from the stomach.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 2: GASTROESOPHAGEAL REFLUX SYMPTOMS AND HELP-SEEKING BEHAVIOR

3. Do you have symptoms of heartburn or regurgitation?

- ☐ Yes
- ☐ No, previous
- ☐ No, never

Shown if 3 is not answered with 'No, never'.

4. How old were you when you first noticed these symptoms?

- ☐ When I was 50 years of age or older
- ☐ When I was 40-50 years of age
- ☐ When I was 30-40 years of age
- ☐ When I was 20-30 years of age
- ☐ When I was 20 years of age or younger

5. How many years do you have/had these symptoms?

- ☐ Less than 1 year
- ☐ 1-5 years
- ☐ 5-10 years
- ☐ 10-20 years
- ☐ More than 20 years

6. Had you ever consulted the general practitioner for these symptoms?

- ☐ Yes
- ☐ No

Shown if 6 is answered with 'Yes'.

7. Why had you ever consulted the general practitioner for these symptoms?

You may select more than one reason.

- ☐ These symptoms did strongly bother me
- ☐ I was worried about the possible consequences of these symptoms
- ☐ These symptoms are common in my family
- ☐ Esophageal cancer and/or Barrett's esophagus are common in my family
- ☐ I had already consulted the general practitioner for other health problems
- ☐ I trust my general practitioner and felt therefore comfortable to discuss these symptoms
- ☐ In my opinion, it was important to consult the general practitioner for these symptoms
- ☐ Other

Shown if 6 is answered with 'No'.

8. Why had you never consulted the general practitioner for these symptoms?

You may select more than one reason.

- ☐ I felt embarrassed about these symptoms
- ☐ I didn't want to waste the general practitioner's time with these symptoms
- ☐ These symptoms didn't strongly bother me
- ☐ I was afraid of the possible consequences of these symptoms
- ☐ I was worried about possible follow-up research, such as a gastroscopy
- ☐ In my opinion, these symptoms were not severe enough
- ☐ I didn't have enough time to consult the general practitioner with these symptoms
- ☐ Other

9. Had you ever consulted the medical specialist (gastroenterologist and/or internist) for these symptoms?

- ☐ Yes
- ☐ No

SECTION 3: ACID SUPPRESSIVE MEDICATION AND SELF-MANAGEMENT

10. Did you use acid suppressive medication in the past six months without prescription?

- ☐ Yes
- ☐ No

Shown if 10 is answered with 'Yes'.

11. Did you discuss with your general practitioner or medical specialist (gastroenterologist and/or internist) that you sometimes use acid suppressive medication without prescription?

- ☐ Yes
- ☐ No

12. Why do you sometimes use acid suppressive medication without prescription?

You may select more than one reason.

- ☐ I use this acid suppressive medication occasionally
- ☐ I don't feel like consulting the general practitioner for a prescription
- ☐ Acid suppressive medication is widely available 'over-the-counter'
- ☐ I prefer to decide which acid suppressive medication I want to use
- ☐ Other

13. Which acid suppressive medication did you use in the past six months without prescription?

You may select more than one.

- ☐ Omeprazole (Losec, Losecosan, Omecat or Pedippi)
- ☐ Pantoprazole (Pantozol)
- ☐ Esomeprazole (Nexium)
- ☐ Lansoprazole (Prezal)
- ☐ Rabeprazole (Pariet)
- ☐ Cimetidine
- ☐ Famotidine
- ☐ Nizatidine
- ☐ Ranitidine (Zantac)
- ☐ Esophageal or gastric mucosal protectors (sucralfate or misoprostol (Cytotec))
- ☐ Antacids (such as Antagel, Gastilox, Maalox, Gaviscon, Regla-pH, Rennie, magnesium hydroxide or acid suppressive medication with calcium carbonate and magnesium carbonate)
- ☐ Homeopathic acid suppressive medication (such as Iberogast or A. Vogel Boldocynara)
- ☐ Other
- ☐ I don't know anymore

14. How often did you use acid suppressive medication in the past six months without prescription?

- ☐ Every few months
- ☐ Several times a month
- ☐ 1 day a week
- ☐ 2-3 days a week
- ☐ 4-6 days a week
- ☐ Daily

15. How many years do/did you use acid suppressive medication without prescription?

- ☐ Less than 1 year
- ☐ 1-5 years
- ☐ 5-10 years
- ☐ 10-20 years
- ☐ More than 20 years

16. Did you use acid suppressive medication in the past six months with prescription?

- ☐ Yes
- ☐ No

Shown if 16 is answered with 'Yes'.

17. Which acid suppressive medication did you use in the past six months with prescription?

You may select more than one.

- ☐ Omeprazole (Losec, Losecosan, Omecat or Pedippi)
- ☐ Pantoprazole (Pantozol)
- ☐ Esomeprazole (Nexium)
- ☐ Lansoprazole (Prezal)
- ☐ Rabeprazole (Pariet)
- ☐ Cimetidine
- ☐ Famotidine
- ☐ Nizatidine
- ☐ Ranitidine (Zantac)
- ☐ Esophageal or gastric mucosal protectors (sucralfate or misoprostol (Cytotec))
- ☐ Other
- ☐ I don't know anymore

18. How often did you use acid suppressive medication in the past six months with prescription?

- ☐ Every few months
- ☐ Several times a month
- ☐ 1 day a week
- ☐ 2-3 days a week
- ☐ 4-6 days a week
- ☐ Daily

19. How many years do/did you use acid suppressive medication with prescription?

- ☐ Less than 1 year
- ☐ 1-5 years
- ☐ 5-10 years
- ☐ 10-20 years
- ☐ More than 20 years

SECTION 4: SOCIODEMOGRAPHIC, LIFESTYLE, AND CLINICAL CHARACTERISTICS

20. What is your gender?

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ Prefer not to say

21. What is your age?

--	--

 years

22. What are the first 4 digits of your postal code? If you prefer not to say your postal code, you may continue with the next question.

--	--	--	--

23. What is your civil status?

- ☐ Married
- ☐ Cohabiting
- ☐ Divorced
- ☐ Widowed
- ☐ Separated
- ☐ Single
- ☐ Other

24. What is the highest level of education qualification you have obtained?

- ☐ No education
- ☐ Primary school
- ☐ General secondary education (VMBO-BL)
- ☐ Theoretical general secondary education (VMBO-T/MAVO)
- ☐ Middle vocational education (MBO)
- ☐ Higher secondary education (HAVO/VWO)
- ☐ Higher vocational education (HBO)
- ☐ Academic education (WO)

25. What is your background?

- ☐ Dutch background
- ☐ Western migration-background
- ☐ Non-western migration-background
- ☐ Other

26. What is your height?

--	--	--

centimeters

27. What is your weight?

--	--	--

kilograms

28. What is your waist circumference? If you prefer not to say your waist circumference, you may continue with the next question.

--	--	--

centimeters

29. Did you ever smoke?

- ☐ Yes
- ☐ No, previous
- ☐ No, never

Shown if 29 is not answered with 'No, never'.

30. How many years do/did you smoke?

--

year(s)

31. How many units do/did you smoke approximately per day?

--

unit(s)

32. Did you ever drink alcohol?

- ☐ Yes
- ☐ No, previous
- ☐ No, never

Shown if 32 is not answered with 'No, never'.

33. How many years do/did you drink alcohol?

--

year(s)

34. How many units do/did you drink approximately per week?

--

unit(s)

35. Have you ever been diagnosed with hypertension?

- ☐ Yes
☐ No

36. Have you ever been diagnosed with diabetes?

- ☐ Yes
☐ No

37. Have you ever been diagnosed with hypercholesterolemia?

- ☐ Yes
☐ No

38. Have you ever been diagnosed with cancer?

- ☐ Yes
☐ No

39. Have your family had Barrett's esophagus?

	Yes	No	Don't know
Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A biological family member (parent or child)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other family member	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. Have your family had esophageal cancer?

	Yes	No	Don't know
Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A biological family member (parent or child)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other family member	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41. Have you ever had an examination of your esophagus or stomach?

- ☐ Yes
☐ No
☐ Don't know

Shown if 41 is answered with 'Yes'.

42. Which examination(s) have you ever had? You may select more than one.

- ☐ Test for Helicobacter pylori with a breath or stool test
- ☐ Gastroscopy
- ☐ 24-hour pH impedance measurement within the esophagus
- ☐ Pressure measurement within the esophagus
- ☐ X-ray examination of the esophagus
- ☐ Other
- ☐ Don't remember the name

43. Have you ever been diagnosed with a condition of your esophagus or stomach?

- ☐ Yes
- ☐ No
- ☐ Don't know

Shown if 43 is answered with 'Yes'.

44. Which condition(s) have you ever had? You may select more than one.

- ☐ Reflux esophagitis
- ☐ Barrett's esophagus
- ☐ Esophageal cancer
- ☐ Stomach cancer
- ☐ Esophageal stenosis
- ☐ Hiatal hernia
- ☐ Other
- ☐ Don't remember the name

45. Have you ever had a surgery of your esophagus or stomach?

- ☐ Yes
- ☐ No
- ☐ Don't know

Shown if 45 is answered with 'Yes'.

46. Which surgery/surgeries have you ever had? You may select more than one.

- ☐ Anti-reflux surgery (such as fundoplication according to Nissen, Toupet or Belsey)
- ☐ Other
- ☐ Don't remember the name

Supplementary Table 2. Univariable logistic regression analyses evaluating the association between having gastroesophageal reflux symptoms and sociodemographic, lifestyle, and clinical characteristics.

	Participants with GERS (<i>n</i> = 1572, 48.9%) ^a	Participants without GERS (<i>n</i> = 1584, 49.3%) ^a	Participants with GERS vs. Participants without GERS OR ± 95% CI
Migration background, <i>n</i>(%)^b			
Dutch background	1417 (93.5)	1439 (95.0)	Reference category
Western or non-Western background	99 (6.5)	75 (5.0)	1.340 (0.984-1.826)
Alcohol consumption (units per week), <i>n</i>(%)^c			
<7	957 (73.3)	980 (75.0)	Reference category
≥7	349 (26.7)	326 (25.0)	1.096 (0.920-1.306)

Percentages will not always add up to 100, because percentages have been rounded off.

GERS = gastroesophageal reflux symptoms.

^a *n* = 58 missing values (1.8%);

^b *n* = 184 missing values (5.7%);

^c *n*_{alcohol consumption(current/previous)} = 2615, *N* = 3 missing values (0.1%).

Supplementary Table 3. Univariable logistic regression analyses evaluating the association between consulting a primary care provider for gastroesophageal reflux symptoms and sociodemographic, lifestyle, and clinical characteristics.

	Participants with GERS who had ever consulted a PCP (<i>n</i> = 661, 42.0%) ^a	Participants with GERS who had never consulted a PCP (<i>n</i> = 904, 57.5%) ^a	Participants with GERS who had ever consulted a PCP vs. who had never consulted a PCP OR ± 95% CI
Gender, <i>n</i>(%)^b			
Female or non-binary	335 (52.6)	448 (50.9)	Reference category
Male	302 (47.4)	432 (49.1)	0.935 (0.762-1.147)
Civil status, <i>n</i>(%)^c			
Living without a partner	139 (21.8)	204 (23.2)	Reference category
Living with a partner	498 (78.2)	675 (76.8)	1.083 (0.848-1.383)
Migration background, <i>n</i>(%)^c			
Dutch background	594 (93.2)	823 (93.6)	Reference category
Western or non-Western background	43 (6.8)	56 (6.4)	1.064 (0.705-1.605)
Family history of esophageal cancer, <i>n</i>(%)^d			
No or unknown	360 (79.6)	580 (83.7)	Reference category
Yes	92 (20.4)	113 (16.3)	1.312 (0.967-1.780)
Age at onset GERS, <i>n</i>(%)^a			
<30 years	243 (36.8)	367 (40.6)	Reference category
30 – 50 years	262 (39.6)	308 (34.1)	1.285 (1.020-1.619)
>50 years	156 (23.6)	229 (25.3)	1.029 (0.793-1.335)

Percentages will not always add up to 100, because percentages have been rounded off.

GERS = gastroesophageal reflux symptoms.

PCP = primary care provider.

^a *n* = 7 missing values (0.4%);

^b *n* = 55 missing values (3.5%);

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^c $n = 56$ missing values (3.6%);

^d $n = 427$ missing values (27.2%).

Supplementary Table 4. Descriptive statistics of participants with gastroesophageal reflux symptoms who had ever and who had never consulted a primary care provider for these symptoms.

	Participants with GERS (<i>n</i> = 1572)	Participants with GERS who had ever consulted a PCP for these symptoms (<i>n</i> = 661) ^a	Participants with GERS who had never consulted a PCP for these symptoms (<i>n</i> = 904) ^a
Duration of GERS, <i>n</i>(%)^b			
<1 year	557 (35.4)	142 (21.5)	415 (45.9)
1 – 5 years	412 (26.2) ^c	169 (25.6)	242 (26.8)
5 – 10 years	212 (13.5)	103 (15.6)	109 (12.1)
>10 years	385 (24.5)	247 (37.4)	138 (15.3)
Age at onset GERS, <i>n</i>(%)^d			
<30 years	611 (38.9) ^e	243 (36.8)	367 (40.6)
30 – 50 years	571 (36.3) ^f	262 (39.6)	308 (34.1)
>50 years	385 (24.5)	156 (23.6)	229 (25.3)
Acid suppressant therapy with prescription in the past six months (yes), <i>n</i>(%)	467 (29.7)	396 (59.9)	71 (7.9)
Type of acid suppressant therapy, <i>n</i>(%)	^{g, h}	ⁱ	^{j, k}
PPIs	470 (92.0)	400 (92.2)	70 (91.0)
H ₂ RAs	19 (3.7)	16 (3.7)	3 (3.9)
Sucralfate	6 (1.2)	5 (1.2)	1 (1.3)
Other	8 (1.6)	8 (1.8)	NA
Do not remember	8 (1.6)	5 (1.2)	3 (3.9)
Frequency of acid suppressant therapy, <i>n</i>(%)	^l	^m	ⁿ
Monthly	76 (16.3)	59 (14.9)	17 (23.9)
Weekly	64 (13.7)	61 (15.4)	3 (4.2)
Daily	325 (69.6)	275 (69.4)	50 (70.4)

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Duration of acid suppressant therapy, n(%)	^o		^p
<5 years	207 (44.3)	160 (40.4)	47 (66.2)
5 – 10 years	80 (17.1)	68 (17.2)	12 (16.9)
>10 years	179 (38.4)	168 (42.4)	11 (15.5)
Acid suppressant therapy without prescription in the past six months (yes), n(%)	558 (35.5)	227 (34.3)	331 (36.6)
Type of acid suppressant therapy, n(%)	^{q, r}	^s	^{t, u}
PPIs	164 (23.5)	99 (31.7)	65 (17.0)
H ₂ RAs	31 (4.4)	17 (5.4)	14 (3.7)
Sucralfate	6 (0.9)	5 (1.6)	1 (0.3)
Antacids	423 (60.8)	160 (51.3)	263 (68.5)
Homeopathic therapy	36 (5.2)	17 (5.4)	19 (4.9)
Other	16 (2.3)	7 (2.2)	9 (2.3)
Do not remember	20 (2.9)	7 (2.2)	13 (3.4)
Frequency of acid suppressant therapy, n(%)	^v	^w	^x
Monthly	403 (72.2)	144 (63.4)	259 (78.2)
Weekly	134 (24.0)	67 (29.5)	67 (20.2)
Daily	19 (3.4)	15 (6.6)	4 (1.2)
Duration of acid suppressant therapy, n(%)	^y		^z
<5 years	338 (60.6)	130 (57.3)	208 (62.8)
5 – 10 years	79 (14.2)	29 (12.8)	50 (15.1)
>10 years	139 (24.9)	68 (30.0)	71 (21.5)

Percentages will not always add up to 100, because percentages have been rounded off.

GERS = gastroesophageal reflux symptoms.

PCP = primary care provider.

PPIs = proton pump inhibitors.

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H₂RAs = histamine-receptor antagonists.

NA = not available.

^a 7 of 1572 participants with GERS (0.4%) had missing data on consulting a PCP for these symptoms;

^b *n* = 6 missing values (0.4%);

^c 1 of 412 participants with GERS for 1 – 5 years (0.2%) had missing data on consulting a PCP for these symptoms;

^d *n* = 5 missing values (0.3%);

^e 1 of 611 participants with age at onset of GERS <30 years (0.2%) had missing data on consulting a PCP for these symptoms;

^f 1 of 571 participants with age at onset of GERS 30 – 50 years (0.2%) had missing data on consulting a PCP for these symptoms;

^g 1 of 467 participants (0.2%) had missing data on type of acid suppressant therapy with prescription;

^h *n* > 466, because multi responses were possible;

ⁱ *n* > 396, because multi responses were possible;

^j 1 of 71 participants (1.4%) had missing data on type of acid suppressant therapy with prescription;

^k *n* > 70, because multi responses were possible;

^l 2 of 467 participants (0.4%) had missing data on frequency of acid suppressant therapy with prescription;

^m 1 of 396 participants (0.3%) had missing data on frequency of acid suppressant therapy with prescription;

ⁿ 1 of 71 participants (1.4%) had missing data on frequency of acid suppressant therapy with prescription;

^o 1 of 467 participants (0.2%) had missing data on duration of acid suppressant therapy with prescription;

^p 1 of 71 participants (1.4%) had missing data on duration of acid suppressant therapy with prescription;

^q 1 of 558 participants (0.2%) had missing data on type of acid suppressant therapy without prescription;

^r *n* > 557, because multi responses were possible;

^s *n* > 227, because multi responses were possible;

^t 1 of 331 participants (0.3%) had missing values on type of acid suppressant therapy without prescription;

^u *n* > 330, because multi responses were possible;

^v 2 of 558 participants (0.4%) had missing data on frequency of acid suppressant therapy without prescription;

^w 1 of 227 participants (0.4%) had missing data on frequency of acid suppressant therapy without prescription;

^x 1 of 331 participants (0.3%) had missing data on frequency of acid suppressant therapy without prescription;

^y 2 of 558 participants (0.4%) had missing data on duration of acid suppressant therapy without prescription;

^z 2 of 331 participants (0.6%) had missing data on duration of acid suppressant therapy without prescription.