



Research Article

Health Knowledge in the Austrian General Population – A Pilot Study Using a Questionnaire

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Abstract

Health literacy influences health behaviors, particularly compliance with lifestyle changes, pharmacotherapy, and monitoring. Little is known about the general population's knowledge in Austria regarding gastroenterology and hepatology. In early 2024, 33 individuals were surveyed: 20 women and 13 men, with a median age of 53 years (range 31-78). A self-compiled questionnaire with 10 question complexes and 110 detailed questions was used. In total, 2078 out of 3630 questions, or 57.3%, were answered correctly. Incorrect answers were given in 18.0% of cases, and 24.7% of responses indicated acknowledged lack of knowledge. Questions on anatomy, liver, and biliary tract diseases were answered best, while questions on stomach, intestinal, pancreatic, and metabolic diseases were answered the worst. Women demonstrated a clear advantage, while age had no impact on health knowledge regarding the digestive system. Based on our data, particularly important topics for improvement through educational measures would include: "pancreas," "infectious hepatitis," "celiac disease," and "irritable bowel syndrome." The results could influence the school system, public education, media, and politics.

Keywords: Health literacy; Knowledge; Digestive system; Gastroenterology; Hepatology

Introduction

Health literacy affects health behavior, especially adherence to lifestyle changes, pharmacotherapy, and monitoring. It also increases self-awareness, satisfaction with healthcare, and the willingness to economically contribute to the system.

Little is known about the general population's knowledge in Austria regarding gastroenterology and hepatology. This inspired

us to conduct a pilot study using a questionnaire.

Participants

A total of 33 individuals were surveyed between January and February 2024. They were attending a health retreat at a private spa center in Upper Austria at the time. The group consisted of 20 women and 13 men, with a median age of 53 years (range 31-78). For women, the median age was 53 years (range 41-75), and for men, 54 years (range 31-78).

Methodology

We used a self-compiled questionnaire with 10 question complexes and 110 detailed questions, each to be answered with “yes,” “no,” or “don’t know.” The structure of the questionnaire is summarized in Table 1. The detailed questionnaire is available in the appendix.

Field of interest	Number of questions	Questions
Anatomy	15	1a-j, 2a-e
Physiology	23	3a-e, 10a-e, 12a-e, 14a-e, 16a, b, e
Esophageal diseases	10	4a-e, 5a-e
Gastric diseases	10	6a-e, 7a-e
Small bowel diseases	7	16c, d, 17a-e
Large bowel diseases	10	20a-e, 21a-e
Hepatic diseases	15	8a-e, 9a-e, 11a-e
Biliary diseases	5	13a-e
Pancreatic diseases	5	15a-e
Metabolic diseases	10	18a-e, 19a-e
Total	110	

Table 1: Questionnaire.

Participants had 30 minutes to complete the questionnaire, and no one reported feeling rushed or exhausted.

Results

In total, 2078 out of 3630 questions, or 57.3%, were answered correctly. Incorrect answers were given in 18.0% of cases, and 24.7% of responses acknowledged a lack of knowledge.

None of the 110 questions had fewer than 10% correct responses, but 7 questions were answered correctly by only 10% to 20% of participants.

The results by question complex are shown in Table 2.

Field of interest (number of detailed questions)	Correct answers	Do not know	Wrong answers
Anatomy (15)	392	47	56
Physiology (23)	416	194	146
Esophageal Diseases (10)	196	101	33
Gastric diseases (10)	159	77	94
Small bowel diseases (7)	127	90	44
Large bowel diseases (10)	134	122	74
Hepatic diseases (15)	310	98	87
Biliary diseases (5)	107	25	33
Pancreatic diseases (5)	83	57	25
Metabolic diseases (10)	167	88	75
Total	2078	898	654

Table 2: Results per field of interest, number of persons=33.

Analysis of Detailed Questions

Among the 15 questions on the anatomy of the digestive tract, there was generally a relatively high level of knowledge about the organs and their locations (13 questions, 370/429 or 86% correct answers). However, knowledge about anatomical details such as the pylorus or ileocecal valve was less prevalent (2 questions, 21/66 or 32% correct answers).

The questions on physiology concerned transit times (4 questions), absorption sites (1 question), liver, bile, pancreas (5 questions each), and small intestine function (3 questions). Notably, participants were less familiar with the small intestine's transit time (30%), while the overall knowledge about digestive function was 60%, gallbladder function was 70%, liver function was 47%, and pancreas function was 38%.

The causes and pathogenesis of reflux disease were known by 73% of participants, but the effectiveness (42%), and especially the side effects (57%) of proton pump inhibitors, were unknown to more than half (54%) of participants.

Among the 10 questions on stomach diseases, 48% were answered correctly. Seventy percent understood the role of *Helicobacter pylori*, 82% the role of genetics, and 67% the role of diet (nitrosamines) in the development of stomach cancer. Phytotherapeutic (91%) and psychotherapeutic (64%) treatment approaches for functional dyspepsia were well known.

Regarding liver diseases (15 questions), it was noteworthy how little participants knew about the hepatitis infection risk during sexual intercourse (45% correct) and the possibility of prevention through vaccination (66% correct). Knowledge about liver cancer (62% of 5 questions correct) was in the middle range.

Knowledge about biliary tract diseases was 65% correct, but specific mechanisms for the formation of gallstones during fasting or pregnancy were less known (33%).

Knowledge about pancreatic diseases was 50% correct, but 82% of participants falsely believed that psychosomatic factors played a significant role in their development.

Knowledge about celiac disease (5 questions) was limited (41% correct answers), while general knowledge about small intestinal diseases like Crohn's disease or NSAID side effects (3 questions) was better.

The questions on food intolerances and allergies (n=5) were answered correctly 54% of the time, while the danger of lactose intolerance was greatly overestimated (67% thought it was dangerous).

Forty-seven percent showed correct knowledge about diabetes, gout, and hypercholesterolemia, but the genetic importance for cholesterol was underestimated, while the role of diet was overestimated (85% incorrect).

Knowledge about colorectal polyps as precursors to cancer was relatively good (76% correct), but the absolute risk of colon cancer was significantly underestimated (67% incorrect). Acute diverticulitis is still widely believed to require rapid surgery in all cases (76%). Only 36% of questions on irritable bowel syndrome were answered correctly.

Questions about cancer in any location of the GI tract (n=14) were answered 51% correctly, while questions about inflammation in the GI tract (n=30) were answered 55% correctly (Table 3).

Field of interest (number of detailed questions)	Correct answers	Do not know	Wrong answers
Anatomy (15)	26.1	3.1	3.7
Physiology (23)	18.1	8.4	6.3
Esophageal Diseases (10)	19.6	10.1	3.3
Gastric diseases (10)	15.9	7.7	9.4
Small bowel diseases (7)	18.1	12.9	6.3
Large bowel diseases (10)	13.4	12.2	7.4
Hepatic diseases (15)	20.7	6.5	5.8
Biliary diseases (5)	21.4	5.0	6.6
Pancreatic diseases (5)	16.6	11.4	5.0
Metabolic diseases (10)	16.7	8.8	7.5
Total	186.6	86.1	61.33

Table 3: Results per detailed questions, number of persons=33.

All questions (anatomy & physiology & disease) about the oesophagus (n=12) were answered correctly in 63%, about the stomach (n=13) in 52%, about the small intestine (n=15) in 54%, about the liver (n=21) in 61%, about the bile ducts (n=12) in 70%, about the pancreas (n=12) in 49%, about the colon (n=18) in 55%, and about metabolic topics in 51%.

The biggest misconceptions in our survey (affirmed by more than 40% of the participants) were:

- the location of the pylorus/sphincter
- the transit time of the small intestine is 24 hours
- stomach pain can be relieved by abdominal massage
- alcohol and junk food cause stomach cancer
- gallstones can be “aborted” with diet
- a gluten-reduced diet should be followed by all adults
- lactose intolerance is dangerous
- irritable bowel syndrome increases the risk of colon cancer
- cholesterol levels are primarily dependent on diet

The gender has a significant impact on the health knowledge we assessed: women know more than men (overall score 48.25 +/- 14.38 vs. 35.31 +/- 12.02, $p < 0.011$). This was particularly evident in the areas of celiac disease, food intolerances, and colon or irritable bowel syndrome.

Age, overall, had no impact on the health knowledge we assessed. However, it was noticeable that older individuals answered questions about jaundice and fatty liver significantly more often correctly (correlation coefficient $r = 0.021$, $p = 0.906$).

Discussion

This is a pilot study aimed at gaining experience for future health literacy surveys in our field. The absolute results depend on the mix of topics and the difficulty level of the questionnaire, which would need to be validated and tested in sufficient numbers across different groups (age, education, occupation, health status).

Based on our data, particularly important topics for educational measures to improve knowledge about health and disease in the gastrointestinal tract would include: “pancreas,” “infectious hepatitis,” “celiac disease,” and “irritable bowel syndrome.”

Despite the media presence of the topic, it was surprising that questions on cancer did not differ from questions on inflammation.

The significant advantage for women in the tested area can only be speculatively explained. The thematic connection between the digestive tract and diet or cooking, together with traditional gender

roles, may be a contributing factor.

The fact that age did not affect health knowledge must be confirmed in larger and more selective populations, but it could already be a point of consideration for the education system and health policy.

Data on occupation, education level, and family income were not collected. At least occupation and education level should be considered in future surveys. Work in healthcare likely represents a strong bias. A correlation with education level is also to be expected.

Health literacy in Austria has been studied several times, focusing more on skills like finding information and navigating health bureaucracy rather than biological factual knowledge.

Until now, there is little data on knowledge about gastrointestinal diseases in both patients and healthy laypeople. A German study on 379 patients (GI cancers 102, IBD 86, liver cirrhosis 191) used the Australian Health Literacy Questionnaire (HLQ) and found that cancer patients had the best knowledge, while liver cirrhosis patients had the least. However, this was focused more on issues such as understanding and support from healthcare professionals and how well participants felt informed.

Conclusion

Health literacy is a desirable goal in society. To promote it, it is important to know what can be built upon, what can be assumed, and what is still unknown. Surveys like this one could provide valuable information to achieve this goal.

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