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How healthy is "healthy"? The Gastrointestinal Quality of Life Index (GIQLI) and the "Screening Instrument for Somatoform Disorders" (SOMS) in a Non-Patient Self-Identified Healthy Cohort

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Abstract

The Gastrointestinal Quality of Life Index (GIQLI) is a widely used tool for assessing quality of life (QoL) in patients with gastrointestinal diseases. However, normative data from non-patient populations remain limited, particularly regarding the influence of factors such as age, gender, and somatization. This study aimed to provide normative GIQLI data from a large sample of self-identified healthy individuals and explore the impact of somatization on the GIQLI outcomes. A total of 259 participants from two German villages completed the GIQLI and the Screening Instrument for Psychosomatic Disorders (SOMS). Results showed a mean GIQLI score of 121.22, consistent with previously reported values for healthy populations. GIQLI scores were stable across age groups and genders, with slight declines observed in older participants. Notably, 6.95% of participants exhibited a high symptom burden (SSI > 17), despite self-identifying as healthy, and demonstrated significantly lower GIQLI scores. These findings highlight the importance of accounting for baseline symptom levels in non-patient populations when interpreting QoL data. The study provides a robust dataset for future comparisons with clinical populations and underscores the interconnected nature of GIQLI dimensions. This expanded normative database enhances the utility of GIQLI in patient-centered decision-making and QoL assessments.

Keywords: Quality of Life, GIQLI, Gastrointestinal Quality of Life Index, Screening instrument for psychosomatic disorders (SOMS), non-patient population, symptom load

Introduction

Around three to four decades ago, a fundamental paradigm shift occurred in medicine. While the preceding decades were marked by remarkable advancements in technology and pharmaceuticals, the medical profession began to recognize the pivotal role patients play in medical decision-making (e.g. [1]). It became evident that factors beyond technology and advanced treatments significantly influence the outcomes of medical interventions. Perhaps the most critical of these factors is the improvement in a patient's quality of life achieved through an intervention.

Interestingly, one of the first disciplines to fully grasp the importance of quality of life in medical decision-making was surgery—a realization that may have surprised some. However, upon reflection, this development seems logical. Surgical procedures are often complex and carry inherent risks. If the outcomes, in terms of enhancing a patient's daily life, do not justify the

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effort and risks involved, the risk-benefit analysis may fall short of satisfying all stakeholders. As a result, one of the earliest systematic tools developed to assess quality of life as a criterion for medical decision-making in the field of gastrointestinal diseases and surgery was the Gastrointestinal Quality of Life Index (GIQLI) [2-10].

Generally, assessing the outcomes of therapeutic interventions can be challenging, as an individual patient's results are influenced by numerous factors. These include the functional, anatomical, and pathophysiological characteristics of the underlying disease, as well as the effectiveness of therapeutic measures in addressing these pathological changes [1-10]. Furthermore, patient-reported outcome measures (PROMs)—which are based on symptom burden, symptom severity, individual coping mechanisms, and the psycho-social environment—also play a significant role in determining the overall outcome [11-15].

The assessment of Quality of Life (QOL) before and after a therapeutic course has proven to be critically important [1–10]. This is particularly true for chronic diseases, where achieving a complete cure may not be feasible. In such cases, therapeutic decision-making often involves weighing the continuation of the current therapy against pursuing an interventional or surgical procedure.

Patient participation is crucial in the decision-making process, with quality of life serving as a key factor. The objective is to offer patients a clear understanding of the potential outcomes associated with each therapeutic option. Additionally, published QOL data provide a valuable evidence base that underpins a significant part of this decision-making process [2-10].

Several well-established generic instruments, such as the SF-36, are available and play an indispensable role in larger studies where Quality of Life (QoL) or health economics are key outcomes [16,17]. Additionally, disease-specific or organ-specific instruments can offer significant advantages when assessing QoL in distinct cohorts with specific diseases affecting a particular organ system, such as the gastrointestinal tract.

In the field of gastrointestinal diseases, the Gastrointestinal Quality of Life Index (GIQLI) is one of the most widely used instruments for evaluating Quality of Life (QoL) [2,3-10]. Originally developed, validated, and published in German and English 30 years ago, it was later popularized by Kamolz and Granderath [4,5,17,18]. Today, the GIQLI is available in multiple languages, making it a valuable tool for systematically assessing QoL across diverse countries and cultures [19-24].

Notably, the GIQLI has been validated using a published non-patient control group, providing robust comparative data [17,18]. As a result, this questionnaire has been extensively employed to evaluate patients' QoL both before and after surgical or therapeutic interventions [2-9,17-25].

The GIQLI consists of 36 items, with its primary outcome being the summary index calculated across all items which can reach a maximum of 144 points indicating the highest possible quality of life [17,18]. The GIQLI measures five domains: core symptoms, physical, psychological, social, and disease-specific enabling an assessment of factors influencing the patient's Quality of Life (QoL) beyond specific gastrointestinal symptoms. Each item is scored on a 0-4 Likert scale, with higher scores indicating a better quality of life. Additionally, the GIQLI is user-friendly and straightforward to administer.

The initial data pool and validation of the GIQLI was based on a control group of "healthy volunteers" [17,18]. These individuals, primarily hospital staff, considered themselves healthy as they did not report any somatic complaints. At the time, limited information was documented regarding the relationship between QoL, gender, and age, apart from the fact that 45% of the control group were female and the mean age was 42 years (range: 25–60) [17,18]. Furthermore, the volunteers were not screened for other factors potentially having an impact on the GIQLI score such as e.g. somatization or health anxiety. The median GIQLI score for this group of "healthy volunteers" was 122.6 index points [3,4,17,18].

Subsequently, a few publications have contributed additional data to the initial pool of "normal" GIQLI scores in healthy volunteers [4,7,17-19]. However, limited information is available regarding the influence of factors such as gender, age, or, important in the context of symptom based scales, somatization on GIQLI outcomes within these control populations. Notably, these populations have demonstrated some variability in the reported normal mean GIQLI scores, ranging from 118 to 126 index points [4,7,17-19]. It is also worth noting that even in non-patient populations the maximum score of 144 is usually not achieved by the study participants, indicating a certain basic level of bodily symptoms affecting quality of life. Table 1 gives an overview of the existing data available.

Recently, studies in patients have confirmed that a tendency towards somatization can significantly influence GIQLI outcomes [26,27], although these results have to be interpreted with care, because the existing symptoms related to a diagnosis will have an impact on other symptom-based scales. Further research is needed to better understand these interactions and their impact on GIQLI scores.

The purpose of the present study is to provide "normative" GIQLI control data from a large sample of self-identified non-patient individuals, representing healthy controls. These data aim to complement and extend the original sample of healthy volunteers published by Eypasch et al. [18]. Additionally, this

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Table 1: Overview of publications on GIQLI featuring normal control groups comprising data from non-patient volunteers

Reference	n	Mean age years	GIQLI (max 144)	GI-symptoms (max 76)	Emotional (max 22)	Physical (max 28)	Social (max 16)	Therapeutic influences (max 4)
Eypasch et al. [18]	168	48	122,6	62	18,5	23,5	14,8	3,8
Slim et al. [19]	315	-	126	67	17	23	14	4,0
Poves Prim et al. [7]	100	40	118,2	62,5	14,1	23,3	14,2	4,0
Yu et al. [25]	340	32	123,2	66,3	16,6	22,4	13,7	4,0

study seeks to expand the available data pool by exploring the relationship between GIQLI scores and factors such as gender and age, which remain underrepresented in the existing literature.

Furthermore, given that available data on self-rated healthy non-patient volunteers suggest a certain baseline level of symptoms that can influence overall Quality of Life (QoL), we aimed to investigate factors that might potentially affect GIQLI scores in healthy individuals. These factors could include traits such as neuroticism, anxiety, health-related anxieties, somatization, and others.

Due to the impracticality of administering a large number of questionnaires, we opted to use the "Screening Instrument for Psychosomatic Disorders" (SOMS) developed by Rief [15,28–31]. Considering the high prevalence of somatoform disorders—ranging from 0.8% to 34.8%, depending on the diagnostic criteria [32] and approximately 13% in the German population [33] - it was hypothesized that this factor would be among the most significant contributors to variations in GIQLI scores within a non-patient control group. A high general symptom burden in these individuals would likely have a measurable impact on their GIQLI outcomes.

Materials and Methods

The study design involved the administration of two questionnaire-based instruments to a study cohort comprising a normal, unselected, non-patient population. The primary instruments used were the Gastrointestinal Quality of Life Index (GIQLI) and the Screening Instrument for Psychosomatic Disorders (SOMS) developed by Rief [15,28-31].

The study cohort was recruited from the residents of two German villages in the Palatinate region. The eligible population included all inhabitants aged 18 years and older (village 1: n = 164; village 2: n = 227; total population: n = 391). Three weeks prior to the study, the village populations—and thus all potential participants—were informed about the study's purpose in the local community newspaper. Participation was entirely voluntary and completely anonymous, with no personally identifiable data being collected. Therefore, ethical approval was not required, as all data were fully anonymized and could not be traced back to individual participants (see also EU General Data Protection Regulation (GDPR) https://gdpr-info.eu/). Moreover, the study did not include patients nor an intervention. All participants were informed that they could withdraw from the study at any time.

In addition to the two questionnaires—the GIQLI and the Rief-SOMS screening instrument for somatoform disorders—data on age and gender were also collected. A team of researchers and assistants distributed the questionnaires in the two villages. Potential participants who expressed willingness to participate were first asked about their health status and motivation to voluntarily complete the questionnaires. Participants who answered "NO" to the question about whether they felt healthy were excluded from the study before data collection, as they did not self-identify as healthy. Individuals were included in the study if they considered themselves healthy and were not under any medical care. All participants were informed that they could withdraw from the study at any time before the questionnaires were recollected. Once recollected, the questionnaires were completely anonymous and could not be linked to individual participants.

The study personnel provided instructions on how to complete the questionnaires and addressed any questions participants had. Two days later, the completed questionnaires were collected anonymously in a sealed box. Ethical approval was not required, as all data were anonymized and could not be traced back to individual participants.

The GIQLI was analyzed following the original methodology described by Eypasch et al., which evaluates 36 items across five dimensions: gastrointestinal symptoms (19 items), emotional dimension (5 items), physical dimension (7 items), social dimension (4 items), and therapeutic influences (1 item) [17,18].

The maximum possible scores for each dimension are as follows: 76 index points for gastrointestinal symptoms, 20 points for the emotional dimension, 28 points for the physical dimension, 16 points for the social dimension, and 4 points for the influence of therapeutic actions. This results in a total maximum score of 144 index points.

The second questionnaire utilized in this study was the Screening Instrument for Somatoform Disorders (SOMS). This tool was selected for its comprehensive list of symptoms,

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making it particularly well-suited to the study's objectives. The SOMS enables the assessment of general symptom burden and includes a wide range of non-gastrointestinal symptoms. This feature facilitates the identification of participants with elevated levels of somatization, measured through the Somatoform Symptom Index (SSI) [30]. The SOMS has been extensively validated, and several methods of analysis are available for its application [15,28-31].

For this study, the analysis of the Somatoform Symptom Index (SSI) was selected, utilizing 53 items that comprise a comprehensive list of symptoms [15,28-31,34]. This tool is straightforward and easy for participants to complete. The symptom list serves as the basis for calculating the SSI by counting the number of symptoms reported by an individual. This count reflects the likelihood of a somatoform disorder being present in the individual [28,34].

According to the original manual by Rief [34], the mean SSI for normal values is 5.1. A borderline value indicating a 99th percentile probability for the presence of somatoform disorders is defined as an SSI >17 symptoms [34].

Since the primary aim of this study was descriptive—to provide additional data on the range of GIQLI scores in normal control populations and to explore the prevalence of symptom burden and somatization—inferential statistics were not initially applied. GIQLI data are presented based on age (in 10-year segments) and gender.

For further analysis, the study population was divided according to SSI scores (SSI <17; SSI >17), and GIQLI scores were compared between the two groups using a t-test. Bonferroni correction was applied to account for multiple testing (alpha = 0.05 / 6 = 0.0084).

Results

The total number of completed questionnaires for both the GIQLI and SOMS from respondents in the two villages was n = 259 (female: n = 134; male: n = 125) out of 391 inhabitants. Table 2 provides an overview of the results for both the GIQLI and the SSI. Table 2 presents the data on the total sample.

Table 2: Results of the Gastrointestinal Quality of Life Index (GIQLI) in n=259 non-patient volunteers across all five GIQLI dimensions: Gastrointestinal symptoms (GI-Sym), emotional dimension (Emo), physical status (Phys), social (Soc), and therapeutic influences (Ther) according to the SSRI cut-off point of > 17.

GIQLI dimensions index-points	mean	Standard deviation	median	Maximum index-points
GI-symptoms	67,031	7,68	69	76
emotional	16,031	3,68	17	20
physical	20,679	5,22	22	28
social	13,942	2,69	15	16
therapy	3,610	0,75	4	4
Total GIQLI	**1,21,216**	**16,73**	**126**	**144**
SSI > 17 Somatoform Symptom Index	**6,68**	**6,48**	**5**	**Threshold Normal SSI < 17**

Table 3: Overview of number of participants, Total GIQLI Scores and SSI derived from the SOMS, stratified by gender and age in a non-patient volunteer cohort (total n = 259; female n=134; male n = 125).

Age	18-30	31-40	41-50	51-60	61-70	71-80	>80
Total n	27	58	54	53	41	22	4
Female	14	28	26	26	22	15	3
Male	13	30	28	27	19	7	1
GIQLI	**126,0**	**123,2**	**123,5**	**121,7**	**114,9**	**117**	**112**
female	125,7	121,1	121,3	119,6	112,1	114,9	112,7
male	126,2	125,1	125,4	123,8	118,1	121,6	110
SSI	**8,1**	**6,3**	**6,1**	**4,8**	**8,6**	**7**	**11**
female	8,9	6	7,4	5	10,1	7,5	13
male	7,3	6,6	4,8	4,7	7,4	6	5

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The median age of participants fell within the 41–50-year age group. It is important to note that the oldest age category included only 5 participants, and the number of participants in the older age groups (>70 years) was generally lower. Table 3 presents the data stratified by age and gender.

The GIQLI scores showed a slight reduction in older age groups; however, no substantial differences were observed between the age subgroups. Moreover, the GIQLI scores between females and males were similar. This observation was consistent across all GIQLI dimensions, as shown in table 4. The data suggest that individuals in the 51–60 and 61–70 age groups may experience a slight decline across all dimensions, though these differences were minimal.

The SOMS results showed a mean SSI of 6.68 symptoms in the study population (n = 259), with high variability (SD = 6.48) and a median SSI of 5. Women had a higher mean SSI of 7.36, compared to 5.94 for men. For reference, the mean SSI for normal values is 5.1, as reported by Rief [34] (see table 3).

For further analysis, the study population was divided into two groups based on SSI scores (SSI ≤17 and SSI >17). A total of n = 18 out of n = 259 participants exhibited an SSI >17, corresponding to 7.1% of the study sample. These individuals could potentially be categorized as having a somatoform disorder upon further investigation. An interesting observation in this context is that all study participants had self-identified as "healthy" at the time of inclusion in the study.

Table 5 presents the comparisons between individuals with and without an SSI >17 regarding the GIQLI total score and its subscales. With the exception of the GIQLI subscale

Table 4: Overview of GIQLI points across all five dimensions, categorized by gender (total = 259; female = n=134; male = 125) and age. GIQLI dimensions: Gastrointestinal symptoms (GI-Sym), emotional dimension (Emo), physical status (Phys), social (Soc), and therapeutic influences (Ther).

Age	18-30	31-40	41-50	51-60	61-70	71-80	>80
GI-symp	**67,5**	**67,9**	**67,6**	**67,9**	**64,8**	**65,1**	**64,5**
female	67,6	68,5	67,3	67,9	63,4	63,9	64
male	67,5	67,4	67,9	68,0	66,5	67,6	66
Emot	**16,9**	**16,4**	**16,1**	**15,9**	**15,4**	**15,9**	**13,5**
female	16,8	15,6	15,5	15,4	14,7	15,3	13
male	17,1	17,2	16,4	16,4	16,2	17	15
Phys	**22,9**	**21,4**	**21,7**	**20,1**	**18,6**	**19,1**	**18,8**
female	23	20,2	20,9	18,8	18,1	18,8	20,7
male	22,7	22,6	22,4	21,4	19,2	19,7	13
Soc	**14,7**	**14,2**	**14,4**	**14,2**	**12,8**	**13,6**	**12,3**
female	14,4	13,6	14,3	14	12,9	13,7	12,3
male	15,1	14,4	14,6	14,4	12,7	13,6	12
Ther	**3,9**	**3,7**	**3,6**	**3,6**	**3,5**	**3,4**	**3**
female	3,9	3,7	3,6	3,5	3,5	3,2	2,7
male	3,8	3,8	3,6	3,7	3,5	3,7	4

Table 5: Comparison of GIQLI levels between participants with an SSI > 17 and those with SSI ≤17. Data are presented as mean ± SD. GIQLI dimensions: Gastrointestinal symptoms (GI-Sym), emotional dimension (Emo), physical status (Phys), social (Soc), and therapeutic influences (Ther).

Dimensions GIQLI	SSI ≤ 17 n=241	SSI > 17 n=18	p-value t-test (alpha < 0.0084)
GI-symp	66,93 ± 6,1	49,39 ± 8,6	significant
emo	15,07 ± 3,9	11,83 ± 4,5	significant
phys	20,07 ± 5,1	13,47 ± 4,9	significant
soc	12,80 ± 2,9	10,47 ± 3,3	significant
ther	2,98 ± 1,0	2,8 ± 0,9	non-significant
GIQLI sum	122,17 ± 14,6	87,55 ± 15,3	significant

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"ther", individuals with an SSI >17 demonstrated significantly lower scores across all GIQLI dimensions. This indicates that study participants with an SSI >17 exhibit markedly lower Quality of Life (QoL), particularly in the overall GIQLI score (122.17 for SSI <17 vs. 87.55 for SSI >17).

Discussion

The total GIQLI score of 121.22 aligns well with previously reported scores for healthy individuals in the literature (see Table 1). In our study, GIQLI scores were remarkably consistent across age groups and genders.

Interestingly, despite all participants self-identifying as "healthy," 6.95 % (n = 18 out of n = 259) exhibited an SSI score >17, indicating a significantly high symptom burden. As expected, these participants generally had lower GIQLI scores compared to those with an SSI <17.

An SSI >17 in individuals who identify themselves as healthy could suggest several possibilities: an undiagnosed illness, a somatoform disorder, or simply the presence of numerous symptoms that are not perceived by the individual as indicative of illness.

Given the high prevalence of somatoform disorders in the general population—ranging from 0.8% to 34.8%, depending on the diagnostic criteria [32] and approximately 13% in the German population [33]—the 7.1% observed in this study represents a comparatively low rate of individuals with an extraordinarily high symptom burden. This lower prevalence may not be surprising, as all participants self-identified as "healthy" when enrolling in the study. Nevertheless, the fact that 7.1% of participants exhibited a high general symptom load highlights that a certain baseline level of symptoms is to be expected even within a non-patient population.

One of the key challenges in evaluating symptoms within a specific group is the availability of information on the frequency or prevalence of symptoms in individuals who do not seek medical attention for these particular symptoms [17,18]. It is reasonable to expect that a certain level of symptoms will also be present in a sample of normal, healthy volunteers. The perception of symptom burden and its impact on experienced Quality of Life (QoL) largely depends on the individual's perspective—whether a "normal" person experiencing symptoms considers themselves healthy despite the symptoms or views themselves as potentially affected by disease. In most studies, individuals participating in a healthy control cohort make their own determination to classify themselves as healthy without further clinical investigation [4,7,17–19,25].

The finding that 7.1% of participants in our study exhibited a symptom load that might be classified as pathological in a different context underscores the importance of having non-patient populations available for comparison with clinical populations. However, the results from such cohorts may vary to some extent, not only due to factors influencing symptom burden but also potentially due to differences in sample size [4,7,17–19] (see Table 1).

In conclusion, if the goal is to measure the decrease in Quality of Life (QoL) in patients due to a disease, the inclusion of values representing a normal control group is fundamentally essential [4, 7, 17-19,35]. The availability of multiple healthy control groups, particularly when stratified by age and gender as in the data presented here, is a significant advantage when applying a questionnaire to a clinical population. Results from such cohorts may vary to some extent, not only due to factors influencing symptom burden but also due to differences in sample size [4, 7, 17-19]. (see Table 1).

Therefore, the more data available on healthy populations, the easier it becomes to assess variability within the normal population. This, in turn, helps to identify values that fall outside the normal range and can thus be classified as pathological. To date, not too many studies have contributed to the data pool for assessing GIQLI in non-patient groups representing the values of "healthy individuals" [4,7,17-19,25].

The initial dataset for a non-patient comparison group was established by investigating volunteer hospital staff [17,18]. While these data were later confirmed by other research groups, detailed information is unfortunately not available [4]. In 1999, Slim et al. [19] were the first to establish their own normative dataset, consisting of 335 "healthy individuals" recruited from various subgroups, including pensioners, hospital employees, and others [19]. In 2005, a Spanish research group added data from 100 healthy volunteers, recruited from individuals accompanying obesity patients during office visits for consultations [7]. Similarly, a third research group in Taiwan evaluated GIQLI data from 340 individuals who were matched by age and sex, had no symptoms, and were undergoing annual health checks at a hospital. This dataset was used as a comparative group for an obesity cohort [25].

Unlike most of the data available to date, this study does not rely on a convenience sample. Instead, it was conducted as an independent investigation, free from any medical context (e.g., participants attending a medical check-up), to assess the GIQLI and SOMS scales within a non-patient control group. The advantage of this approach is that the sample from these two villages is likely more representative of the general population than most GIQLI normative datasets. However, the study does rely on participants' self-identification as healthy. Furthermore, this study aimed to provide more detailed insights into the influences of gender, age, and somatization [15,28-31,34].

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Interestingly, we did not observe substantial differences between males and females in our cohort of non-patient controls. However, several studies in the literature have assessed GIQLI in patients with conditions such as GERD, sigmoid diverticular disease, and cholelithiasis [35-37]. In these diseased cohorts, females exhibited significantly lower GIQLI scores prior to treatment—a disparity that persisted even after therapy during the reported follow-up periods [35-37].

When interpreting the GIQLI, it is important to note that the GI-symptom dimension contributes 76 out of 144 points, accounting for 52.78% of the total index, while the sum of the other dimensions contributes 68 points, or 47.22% [4,17,18]. This means that a low score in the GI-symptom dimension will significantly impact the overall GIQLI score, even if the other dimensions are not considered.

Moreover, a high symptom burden in the GI-symptom dimension is likely to affect the emotional, physical, and social dimensions, further contributing to a lower overall quality of life. Conversely, limitations in the social or emotional dimensions can also influence the perceived GI-symptom burden, highlighting the interconnected nature of these dimensions.

As highlighted in the literature, GIQLI scores can vary significantly within patient cohorts diagnosed with the same disease [9,35]. This variability may stem from differences in disease severity, cohort selection criteria, or demographic factors such as gender and age. A recent systematic review on the GIQLI in patients with gastroesophageal reflux disease (GERD) reported a median total GIQLI score of 91.7, which corresponds to 63.19% of the maximum possible score of 144 [9,35]. For reference, the 75th percentile (Q3) of a population achieving the full index score of 144 would correspond to a score of 108. While it is challenging to provide specific recommendations for individual patients, a general rule of thumb is that a deviation of more than 30%—equivalent to a score below 100—should raise concern, as it indicates a more severe limitation in quality of life (QoL).

An individual patient may reach such a low GIQLI score either due to a very low score in the GI-symptom dimension or through generally reduced scores across all dimensions. One of the key advantages of incorporating subjective outcome measures like QoL into the diagnostic workup of patients with gastrointestinal syndromes and symptoms is the ability to identify patterns and origins of reduced QoL. This information can substantially contribute to a patient-individualized medical decision making process.

Conclusions

One of the most critical factors in evaluating the quality of life (QoL) of an individual patient is always the deviation from what is considered "normal." The only way to assess this is through comparison with data from a "normal," non-patient control group. The data from our sample, which differs from existing datasets due to the unique recruitment approach of study participants making it an unselected population, enhances the understanding of gastrointestinal-related QoL.

This contribution not only expands the current knowledge base on the GIQOL but also aids in interpreting data from gastrointestinal patient cohorts. Furthermore, it provides researchers conducting future studies in this field with a significantly improved database for comparisons, whether disease-specific or therapy-specific, within patient cohorts.

Author contributions

Frauke Musial, Karl-Hermann Fuchs, Ernst Eypasch, and Alexander Meining made significant contributions to the conceptualization and design of the study. All authors were actively involved in the analysis and interpretation of the data. Additionally, all authors contributed substantially to drafting the manuscript, revising it critically, and providing final approval for its publication. Frauke Musial, Karl-Hermann Fuchs, Ernst Eypasch, and Alexander Meining accept responsibility for all aspects of the work, ensuring its accuracy and integrity.

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Institutional Review Board Statement

After consulting with the institutional review board, it was determined that ethical approval was not required for this non-interventional study, as no personally identifiable data were collected. Participation in the study was entirely voluntary and completely anonymous.

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Conflicts of interest

The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

QOL	Quality of Life
PROMs	patient-reported outcome measures
SOMS	Screening Instrument for Somatoform Disorders
GIQLI	Gastrointestinal Quality of Life Index
GI-Sym	Gastrointestinal symptoms

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Emo	emotional dimension
Phys	physical status
Soc	social dimension
Ther	therapeutic influences

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