

ORIGINAL ARTICLE

Do psychological factors predict symptom severity in patients with subjective food hypersensitivity?

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Abstract

Objective. We examined whether psychological factors such as general and gastrointestinal symptom-specific anxiety and depression could predict symptom severity in patients with unexplained, self-reported (subjective) food hypersensitivity. For the purpose, we translated and validated the Visceral Sensitivity Index (VSI). **Material and methods.** Seventy consecutive patients completed questionnaires for Hospital Anxiety and Depression Scale, VSI, Irritable Bowel Syndrome Symptom Questionnaire, and Subjective Health Complaints Inventory. Relationship between scores on psychological factors and scores on somatic symptoms were studied by multiple regression analyses. **Results.** Most patients reported non-gastrointestinal symptoms in addition to their irritable bowel syndrome complaints, but general and symptom-specific anxiety, and depression could not explain a significant amount of the variance in somatic complaints. Gastrointestinal symptom-specific anxiety was a significant predictor of gastrointestinal complaints ($p = 0.02$), and age was the sole significant predictor of non-gastrointestinal complaints ($p = 0.01$). Approximately 90% of the total variance in symptom severity remained unexplained by the psychological factors. The Norwegian version of the VSI had satisfactory validity (Cronbach alfa = 0.93). Symptom-specific and general anxiety were significantly correlated ($r = 0.48$, $p \leq 0.0001$). **Conclusions.** Psychological factors were not major predictors of symptom severity in patients with subjective food hypersensitivity. The Norwegian version of VSI had satisfactory validity.

Key Words: *Anxiety, depression, food hypersensitivity, irritable bowel syndrome, reliability, subjective health complaints, validity*

Introduction

Self-reported food hypersensitivity is a poorly understood condition. According to population studies, 20–45% of adults believe they suffer from adverse reactions to food [1], the prevalence of food allergy as confirmed by conventional medical examinations is considerably lower (1–3%) [2,3]. When the hypersensitivity remains unexplained following a structured medical work-up, we denote the condition subjective food hypersensitivity [4]. Usually, the gastrointestinal

complaints of these patients comply with irritable bowel syndrome (IBS), but symptoms from other organ systems as well as anxiety and depression often co-exist [5]. Health-related quality of life is substantially impaired [6], and dissatisfaction with current medical care is common [5].

IBS has traditionally been viewed as a psychosomatic disorder where the abdominal sensations are considered “gutfelt emotions”, and complaints from other organs have been considered manifestations of somatisation [7]. There is an extensive literature

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relating IBS and other medically unexplained physical symptoms, including subjective food hypersensitivity, to anxiety and depression [7–9], but to what extent psychological factors explain symptom severity in the patients is still not clear. Also, our patients with subjective food hypersensitivity frequently do not accept explanations based on psychological mechanisms [5].

Symptom-specific anxiety may be an important endogenous stressor provoking IBS, even in the absence of external stressors [10]. We therefore hypothesized that concern and fear of symptoms after eating a meal could represent a considerable stress factor causally related to the complex symptomatology of these patients. The Visceral Sensitivity Index (VSI) is a self-administered questionnaire developed for quantification of such symptom-specific anxiety, which we for the purpose of the present study translated to Norwegian and validated [11]. The extent to which psychological factors predict severity of somatic symptoms was examined by regression of gastrointestinal and non-gastrointestinal symptom severity scores on scores of general and specific anxiety, as well as of depression.

Material and methods

Patients consecutively referred, from January 2007 to September 2009, by primary physicians or specialist doctors to Haukeland University Hospital (Bergen, Norway), because of gastrointestinal complaints self-attributed to food hypersensitivity, were eligible for inclusion in the study. Confirmed inflammatory bowel disease (IBD), pregnancy, lactation, or a history of severe anaphylactic reaction was exclusion criteria.

The patients were examined following a structured program, firstly in the allergy clinic, thereafter in the gastroenterology clinic. IgE-mediated food allergy was diagnosed according to history of adverse reactions to the ingestion of specific food items combined with a positive skin prick test, and/or allergen-specific IgE in serum, and positive double blind placebo controlled food challenge (DBPCFC) to the same food item performed by a dietician [6]. Upper gastrointestinal endoscopy with biopsies from the stomach and duodenum was performed to diagnose *Helicobacter pylori* infection and celiac disease. IBD was excluded by measuring calprotectin in gut lavage fluid [6]. Gastrointestinal infections were ruled out by stool samples. As part of the program, the patients filled in the following questionnaires: Hospital Anxiety and Depression Scale (HADS), VSI, Subjective Health Complaints Inventory (SHC),

and Irritable Bowel Syndrome Symptom Questionnaire (IBS-SQ).

Four patients withdrew when they were informed about the examination procedures, but none were excluded as a result of the allergological and gastroenterological examinations. Ten patients were excluded because they did not complete all the questionnaires. Thus, the results of 70 patients remained for further analysis in the present study.

For test-retest reliability of the Norwegian VSI questionnaire, 20 of the patients were mailed a letter 4 weeks later asking them to fill in the questionnaire once more. Patients received written information, and gave their consent by returning the filled-in questionnaires. The Regional Committee for Medical Research Ethics and The Norwegian Social Science Data Services approved the study.

Translation of visceral sensitivity index

The VSI is a previously validated 15-item self-report gastrointestinal symptom-specific anxiety questionnaire comprising five dimensions of gastrointestinal-related cognition and behaviors; worry, fear, vigilance, sensitivity and avoidance [11,12]. Item generation is based on considerations regarding stimulus origin as well as affective, cognitive or behavioral manifestations of the dimensions. The items are ranged from 1 = *strongly agree* to 6 = *strongly disagree*, but are reverted (*i.e.*, 1–6 becomes 5–0) so that high scores indicate high symptom-specific anxiety [12]. The questionnaire yields a range of possible scores from 0 (*no gastrointestinal-specific anxiety*) to 75 (*severe gastrointestinal-specific anxiety*).

The original questionnaire was translated from English into Norwegian, then back-translated into English by two translators. One of them had English as his native language. The two translated English versions were then compared with each other and with the original version, and the authors and the translators came to an agreement of the final Norwegian version (Appendix).

Subjective health complaints

The SHC measures subjective, somatic and psychological complaints (29 items) experienced during the last 30 days [13]. The questionnaire has been tested in different populations and has satisfactory validity and reliability [14]. The degree of each complaint is rated on a 4-point scale (0 = *not at all*; 1 = *a little*; 2 = *some*; 3 = *severe*). The questionnaire is divided into five groups: *musculoskeletal pain* (headache, migraine,

neck pain, arm pain, shoulder pain, upper back pain, low back pain and leg pain), *pseudoneurology* (tiredness, sleep problems, anxiety, sadness/depression, extra heartbeats, heat flushes, and dizziness), *gastrointestinal problems* (gas discomfort, abdominal discomfort, diarrhea, constipation, gastritis/ulcer, heartburn, and stomach pain), *allergy* (allergies, breathing difficulties, eczema, and asthma), and *flu* (cold/flu and coughing).

In this study, scores on non-gastrointestinal symptoms are total score of 15 questions containing severity of musculoskeletal pain, eczema, allergy and flu in the SHC, here denoted SHC-non-gastrointestinal symptoms (SHC-Non-GS).

Hospital anxiety and depression scale

The HADS is a self-assessment mood scale consisting of 14 items, 7 for the HADS-A (anxiety) and 7 for the HADS-D (depression) [15]. Each item is rated from 0 (*not present*) to 3 (*maximum*). The scale has been extensively validated and is well accepted in both psychiatric and non-psychiatric settings [16]. In this study, two groups of psychopathology were defined; case level anxiety (HADS-A ≥ 8) and case level depression (HADS-D ≥ 8), which is based on commonly accepted cut-off values on HADS [16].

Irritable bowel syndrome symptom questionnaire

Gastrointestinal complaints were examined using the IBS-SQ which measures the severity of six gastrointestinal symptoms such as nausea, bloating, abdominal pain, diarrhea, constipation and anorexia, and is rated on a scale from 0 (*no symptoms*) to 10 (*severe symptoms*) [17].

Statistical analyses

Reliability is the extent to which a measure is stable or consistent and produces similar results when administered repeatedly [18,19]. Test-retest repeatability was determined by means of the interclass correlation coefficient [20] and Bland and Altman plots [19]. Internal consistency was estimated by Cronbach alpha coefficient, which ranges from 0 to 1. An acceptable Cronbach alpha has been identified in the literature as $\alpha > 0.7$ [21].

Validity is the degree to which an assessment measures what it is supposed to measure [18,19]. In this study we used face validity, which is assessed

by having patients and “experts” reviewing the contents of the questionnaire to see if the items seem appropriate, convergent validity, which is the degree to which the questionnaire is similar to another questionnaire that it theoretically should be similar to (i.e., high correlations between the questionnaires will be evidence of a convergent validity), and known-groups validity, which is determined by the degree to which an instrument can demonstrate different scores for groups known to vary on the variables being measured [18,19].

SPSS 16.0 for Windows (SPSS Inc., Chicago, IL, USA) was used for all tests except for the Bland-Altman test, which was done with the 5.0 version of the GraphPad Prism program (GraphPad Software Inc., San Diego, CA, USA). Means with standard deviations (SD) or 95% confidence intervals (CI) are given. Differences between groups were analyzed using unpaired *t*-test. Pearson’s correlation coefficient was used for correlation analysis. Influence of symptom-specific and general anxiety, depression and age (independent variables) on gastrointestinal and non-gastrointestinal symptom severity (dependent variables) was studied by multiple regression analysis. All tests were two-tailed, and $p < 0.05$ was considered statistically significant.

Results

Demographic and clinical data

Mean age of the patients was 39.2 years, range 18–75 years, 52 (74%) were women. Twenty-one patients (30%) had elevated serum total IgE > 120 kU/l and 10 patients (14%) had food-specific IgE > 0.35 kU/l for at least one food allergen (wheat, eggwhite, peanuts or cow’s milk). One patient had positive skin prick test (in addition to elevated serum specific IgE) for one food allergen (wheat). However, DBPCFC could not confirm food allergy in any of the patients. Among the 70 patients included, 66 (94%) had IBS according to the Rome II criteria [22].

Visceral sensitivity index

Mean VSI was $30.5 (\pm 16.7)$ with no significant difference between men (25.6 ± 13.1) and women (32.2 ± 17.6) ($p = 0.14$). Factor analysis of the Norwegian version showed that one main factor (eigenvalue = 7.9) accounted for 52% of the total variance in VSI scores, a second factor (eigenvalue = 1.2) for 8.1%, which support previous findings about the factor structures of the VSI [11].

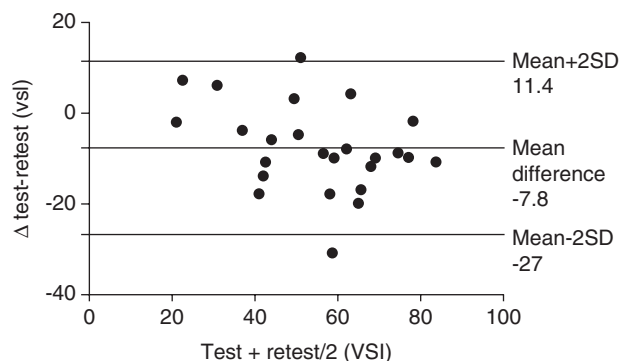


Figure 1. Limit of agreement between test (baseline) and retest (4 weeks later) for total sum score of the VSI ($n = 25$). Y-axis = differences in sum score between test and retest. Limits of agreements: mean differences for the VSI $(-7.8) \pm 2$ SD $(9.6) = (-27, 11.4)$.

Reliability: Cronbach alpha for the Norwegian version of VSI was 0.93, indicating good agreement between individual items. The interclass correlation coefficient between the results of the two VSI was 0.86 (95% CI: 0.70–0.93). The Bland-Altman plot shows limits of agreement (mean difference between the two VSI ± 2 SD) from +11.4 to -27.0 (Figure 1).

Validity: Face validity was found acceptable. Table I contains the mean scores and bivariate correlations between the VSI, HADS-A and HADS-D, and current gastrointestinal (IBS-SQ) and non-gastrointestinal (SHC-Non-GS) symptom severity. The VSI discriminated significantly between groups of patients; those ($n = 34$) reporting scores on IBS-SQ ≥ 25 reported significantly higher VSI scores than those ($n = 36$) with scores on IBS-SQ < 25 ($p \leq 0.0001$). Likewise, patients ($n = 17$) reporting general anxiety (HADS-A ≥ 8)

Table I. Bivariate correlations (coefficient r) and descriptive statistics for anxiety and symptom measures in patients with subjective food hypersensitivity ($n = 70$).

	VSI (r)	HADS-A (r)	HADS-D (r)	Mean	SD
VSI				30.5	16.7
HADS-A	0.48***			4.9	3.5
HADS-D	0.14	0.51**		4.6	2.4
IBS-SQ	0.27*	0.11	0.13	24.2	9.8
SHC-Non-GS	0.03	0.09	-0.04	11.5	7.8

* $p = 0.02$.

** $p = 0.01$.

*** $p \leq 0.0001$.

VSI = Visceral Sensitivity Index, HADS-A and HADS-D = subscales of the Hospital Anxiety and Depression Scale, IBS-SQ = Irritable Bowel Syndrome Symptoms Questionnaire, and SHC-Non-GP = Subjective Health Complaints minus scores of the subscales pseudoneurology and gastroenterology.

reported higher scores on the VSI than those ($n = 53$) with scores on HADS-A < 8 ($p = 0.0004$, Table II).

Subjective health complaints

Women scored significantly higher on severity of SHC, mean $14.7 (\pm 5.5)$ than the men, mean $11.2 (\pm 6.8)$ ($p = 0.03$). Gastrointestinal complaints were reported by 96%, musculoskeletal and pseudoneurology complaints by 93%, allergy by 77%, and flu by 60% of the patients. Mean number of complaints last month was $13.8 (\pm 6.0)$, significantly more in women (mean 14.7 ± 5.5) compared with men (mean 11.2 ± 6.8 , $p = 0.03$). Thirty-three (47%) of the patients reported 15 or more complaints during the last 30 days, which is in accordance with two previous studies in patients with subjective food hypersensitivity [5,23]. The dominant complaints were: tiredness (89%), gas discomfort (89%), stomach pain (76%), headache (71%), and diarrhea (66%).

Mean score for SHC-Non-GS was $11.5 (\pm 7.8)$, and there was no significant difference between women, mean $12.5 (\pm 7.8)$ and men $8.6 (\pm 7.2)$, $p = 0.06$.

Hospital anxiety and depression scale

Mean score on HADS-A was $4.9 (\pm 3.5)$ and on HADS-D $4.6 (\pm 2.4)$. Seventeen (24%) patients reported case-level anxiety (HADS-A ≥ 8) and ten (14%) case-level depression (HADS-D ≥ 8). Comparing men and women did not show any significant differences in either anxiety ($4.4 (\pm 3.5)$ vs. $5.1 (\pm 3.5)$) or depression ($4.9 (\pm 1.9)$ vs. $4.6 (\pm 2.6)$). There was a significant correlation between HADS-A and HADS-D ($r = 0.52$, $p < 0.0001$).

Table II. Known-groups validity of the Visceral Sensitivity Index (VSI). The VSI related to scores on Irritable Bowel Syndrome Symptom Questionnaire (IBS-SQ) and scores on Hospital Anxiety and Depression Scale (HADS-A) in patients with subjective food hypersensitivity ($n = 70$).

	n	Visceral sensitivity index	
		Mean ($\pm$ SD)	p -Value*
IBS-SQ ≥ 25	34	34.7 (± 16.6)	<0.0001
IBS-SQ < 25	36	16.4 (± 4.9)	
HADS-A ≥ 8	17	41.9 (± 14.7)	0.0004
HADS-A < 8	53	28.5 (± 16.8)	

*Unpaired Student's t -test.

Irritable bowel syndrome symptom questionnaire

Mean IBS symptom score was 24.2 (± 9.8), similar in men and women (21.2 (± 8.5) vs. 25.3 (± 10.1)).

Multiple regression analysis

Neither gastrointestinal (IBS-SQ) nor non-gastrointestinal (SHC-Non-GS) symptom severities were significantly correlated to scores on psychological factors (HADS-A, VSI, HADS-D) when these were considered together, $p = 0.08$ and 0.68 , respectively (Table III). Adding age to the model, increased the amount of explained variance in non-gastrointestinal symptom severity from 2.2% to 11.3% ($p = 0.10$), while the amount of explained variance in gastrointestinal symptom severity remained unchanged (9.4%, $p = 0.16$). In the final model (including age), the VSI was a significant predictor for gastrointestinal symptom severity ($p = 0.02$), but not for non-gastrointestinal symptom severity ($p = 0.51$). Age was the sole significant predictor of non-gastrointestinal symptom severity ($p = 0.01$), whilst gastrointestinal symptom severity was not predicted by age ($p = 0.85$). Too few men precluded a meaningful evaluation of the influence of sex.

Discussion

Our patients with subjective food hypersensitivity were, as in prior studies, characterized by multiple unexplained symptoms, which the patients self-attributed to food hypersensitivity [5,8]. The presence of multiple co-morbid disorders has been suggested as a marker for psychological influences on etiology [24]. In a recent interview study of a similar patient material, 57% of the patients fulfilled the DSM-IV criteria of at least one psychiatric disorder [8]. Anxiety disorders (34%) and depression (16%) predominated. Also on questionnaires, the patients scored significantly higher than controls on all psychometric scales except for depression. In the present study, 24% of the patients reported anxiety and 14% depression on the HADS questionnaire. Although psychological factors may conceivably influence the patients' health care seeking behavior and symptom attributions [24,25], they did not, when considered together, explain significant amounts of the variance in the patients' symptom severity. Gastrointestinal symptom-specific anxiety (VSI) was the sole independent psychological predictor of gastrointestinal symptom severity. In univariate analysis the VSI explained approximately 7% of the variance in IBS-SQ

($p = 0.02$), which agrees with two prior studies where the VSI was significantly related to the presence and severity of IBS [11,12]. Since the majority (94%) of our patients had IBS, it appears as if gastrointestinal-specific anxiety is a feature of patients with IBS, independent of their symptom attributions. Age was the sole predictor of non-abdominal symptoms, which seemingly were largely unrelated to psychological factors.

The present study concerns patients with abdominal symptoms believed to be caused by food hypersensitivity. The population prevalence of this condition is not well known. Figures of 3–35% have been reported [26]. Although more than 60% of patients with IBS relate their symptoms to the ingestion of food [27,28] and most of our patients had IBS, we should be careful about generalizing our finding to other patients with IBS. The Norwegian version of the VSI demonstrated excellent consistency [19] similar to that obtained by Labus et al. with the English version [11]. Likewise, the test-retest reliability of our version proved to be satisfactory [19]. In the known-groups validation of the VSI, the questionnaire discriminated significantly between groups of individuals with different scores on general anxiety and intestinal symptom severity. The VSI correlated significantly with IBS-SQ and with HADS-A, but HADS-A explained only 1.3% of the variance in IBS-SQ, suggesting that general anxiety is even less important than symptom-specific anxiety for symptom generation in these patients.

A number of previous studies have shown significant associations between anxiety and depression on one hand and functional gastrointestinal disorders including IBS on the other [8,29,30], but causality cannot be assessed by association studies. One meta-analysis found limited evidence for a linear dose-effect-like relationship between the number of medically unexplained symptoms and severity of psychiatric disorder as would be expected in case of a causal relationship [31], and another concluded that psychological treatments for IBS have questionable sustainability [32]. These results agree with the present finding that psychological factors could explain only a small percentage of the variance in somatic symptom severity in our patients with subjective food hypersensitivity.

In the present study approximately 90% of the total variance in symptom severity was not explained by the psychological factors examined. Hence, alternative explanations are required. The concept of central sensitisation has long been a major issue in the pathophysiology of functional disorders [33,34]. During the last years, however, several studies have indicated the involvement of peripheral mechanisms as well. Thus,

Table III. Multiple regression analysis of severity of gastrointestinal (IBS-SQ) and non-gastrointestinal (SHC-Non-GS) complaints as dependent variables and scores on general and symptom-specific anxiety, depression and age as independent variables in patients with subjective food hypersensitivity ($n = 70$).

	IBS-SQ			SHC-Non-GS		
	R^2	B	p -Value	R^2	B	p -Value
HADS-A, VSI, HADS-D	0.094		0.088	0.022		0.686
HADS-A, VSI, HADS-D, AGE	0.094		0.164	0.113		0.096
HADS-A		-0.322	0.465		0.584	0.103
VSI		0.186	0.024		-0.042	0.513
HADS-D		0.620	0.285		-0.559	0.220
AGE		-0.015	0.850		0.155	0.012

HADS-A and HADS-D = subscales of Hospital Anxiety and Depression Scale, VSI = Visceral Sensitivity Index, B = regression coefficients B , and p -values are for the final model including age.

the enteric nervous system, the immune system and the enteroendocrine system may all be affected in IBS [35,36]. Recently, the concept of peripheral sensitisation has been supplemented by a model emphasizing intestinal dysbiosis as a key factor [37]. In humans, conditions that are known to predispose to IBS, such as enteric infection, antibiotic use, and stress, may all change the intestinal microbiota [37], which in turn may trigger local and systemic immune activation, low-grade mucosal inflammation, increased intestinal permeability, and disturbances of intestinal motility and fermentation [38]. Increased intestinal permeability has been incriminated in a number of conditions [39,40] and could indeed be a culprit in the pathogenesis of IBS [41].

Although conventional tests of food allergy were negative, more than 60% of our patients had indications of atopic disease [42]. Interestingly, this group of patients has abnormally high numbers of "IgE-armed" mast cells in their duodenal mucosa besides increased intestinal permeability [42]. Further studies on possible immunological mechanisms underlying the patients' perceived food hypersensitivity are clearly warranted. Maybe the symptomatology of our patients with subjective food hypersensitivity depends more on biological, and less on psychological mechanisms than what is generally assumed in patients with IBS [43,44].

Low-digestible carbohydrates typically provoke IBS-like symptoms in patients with IBS [45] as well as in patients with subjective food hypersensitivity [46] or post-infectious IBS [47]. Consistently, reducing the demands on intestinal fermentation by a diet low in carbohydrates alleviates the symptoms [48,49]. Further dietary studies are eagerly awaited because an effective treatment could elucidate the unresolved problem of whether psychological factors are the

cause or consequence of IBS, or whether they simply are parallel manifestations of an underlying disorder.

In conclusion, when considered together, psychological factors, including gastrointestinal-specific and general, non-specific anxiety, as well as depression, did not explain significant amounts of the variance in severity of symptoms in our patients. Approximately 90% of the total variance in symptom severity remained unexplained, suggesting that anxiety and depression may not be important predictors of symptom severity in patients with subjective food hypersensitivity and IBS.

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Appendix

Visceral Sensitivity Index (VSI)

Item	Strongly agree	Moderately agree	Mildly agree	Mildly disagree	Moderately disagree	Strongly disagree
1. I worry that whenever I eat during the day, bloating and distension in my belly will get worse	1	2	3	4	5	6
2. I get anxious when I go to a new restaurant	1	2	3	4	5	6
3. I often worry about problems in my belly	1	2	3	4	5	6
4. I have a difficult time enjoying myself because I cannot get my mind off of discomfort in my belly	1	2	3	4	5	6
5. I often fear that I won't be able to have a normal bowel movement	1	2	3	4	5	6
6. Because of fear of developing abdominal discomfort, I seldom try new foods	1	2	3	4	5	6
7. No matter what I eat, I will probably feel uncomfortable	1	2	3	4	5	6
8. As soon as I feel abdominal discomfort I begin to worry and feel anxious	1	2	3	4	5	6
9. When I enter a place I haven't been before, one of the first things I do is to look for a bathroom	1	2	3	4	5	6
10. I am constantly aware of the feelings I have in my belly	1	2	3	4	5	6
11. I often feel discomfort in my belly could be a sign of a serious illness	1	2	3	4	5	6
12. As soon as I awake, I worry that I will have discomfort in my belly during the day	1	2	3	4	5	6
13. When I feel discomfort in my belly, it frightens me	1	2	3	4	5	6
14. In stressful situations, my belly bothers me a lot	1	2	3	4	5	6
15. I constantly think about what is happening inside my belly	1	2	3	4	5	6

Visceral Sensitivity Index (VSI)

Spørsmål	Helt enig	Ganske enig	Litt enig	Litt uenig	Ganske uenig	Helt uenig
1. Jeg er bekymret for mageplager når jeg spiser	1	2	3	4	5	6
2. Er engstelig når jeg ikke vet hva jeg spiser	1	2	3	4	5	6
3. Jeg bekymrer meg ofte over plager fra magen	1	2	3	4	5	6
4. Har problemer med å hygge meg fordi magen forstyrrer	1	2	3	4	5	6
5. Jeg frykter ofte at avføringen vil være unormal	1	2	3	4	5	6
6. På grunn av magen, forsøker jeg sjelden nye matvarer	1	2	3	4	5	6
7. Samme hva jeg spiser, får jeg ubehag	1	2	3	4	5	6
8. Når jeg får mageplagene, blir jeg bekymret og engstelig	1	2	3	4	5	6
9. På nye steder sjekker jeg straks hvor jeg finner toalettet	1	2	3	4	5	6
10. Tenker hele tiden på hvordan magen har det,	1	2	3	4	5	6
11. og at ubehaget kan være tegn på alvorlig sykdom	1	2	3	4	5	6
12. Straks jeg våkner, er jeg redd for å få mageplager,	1	2	3	4	5	6
13. og mageplagene skremmer meg	1	2	3	4	5	6
14. Når jeg er stresset, plager magen meg ekstra mye	1	2	3	4	5	6
15. Tenker hele tiden på det som skjer inne i magen min	1	2	3	4	5	6