Somatoform disorders in general practice.

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Chapter 4

Detection of psychiatric disorders in primary care with checklists for mental and physical symptoms.

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Abstract

Objective To examine the contribution of a mental and physical symptom count to the detection of anxiety, depressive and somatoform disorders.
Method In primary care 1046 consulting patients completed the Hospital Anxiety and Depression Scale (HADS) and the Physical Symptom Checklist (PSC-51). In a stratified sample of 473 patients DSM-IV psychiatric disorders were assessed using the WHO-SCAN interview. The diagnostic value of the HADS total score and the PSC-51 symptom count was examined with ROC-analyses.
Results The discriminative power of PSC-51 and HADS was highest for patients with both a somatoform disorder and an anxiety or depressive disorder, with an AUC of 0.86 (95% CI: 0.81-0.91) and 0.91 (95% CI: 0.87-0.94) respectively. Using both symptom counts together did not increase the diagnostic value for the detection of psychiatric disorders.
Conclusion The diagnostic value of the number of physical symptoms was similar to that of mental symptoms. Both symptom counts preferentially detected patients with comorbid disorders.

Introduction

Medically unexplained physical symptoms are the core feature of somatoform disorders. The comorbidity of anxiety and depressive disorders with somatoform disorders is substantial: one out of two patients with an anxiety or depressive disorder meets the criteria of a comorbid somatoform disorder. Patients with both diagnoses are considerably more handicapped, since the symptoms and functional limitations tend to add up.[1]

In clinical practice and in research both mental and physical symptom checklists are used to identify patients with psychiatric disorders. Symptoms of emotional distress, such as a depressed mood and anxiety, are essential components of the screening instruments for anxiety or depressive disorders. Questionnaires with unexplained physical symptoms, such as the Screening for Somatoform Symptoms (SOMS) or the 15-item list from the Primary Care Evaluation of Mental Disorders patient questionnaire (PRIME-MD PQ), are used to screen for somatoform disorders.[2] [3] [4] It is apparent that the reporting of physical symptoms and symptoms of anxiety and depression is interdependent. [5] Considering the extensive overlap between somatoform, anxiety and depressive disorders, both mental and physical symptom counts may contribute to the detection of each disorder. It has been demonstrated that counts of physical symptoms, in particular unexplained physical symptoms, are good predictors for anxiety or depressive disorders. [6] [7] This is in line with our finding that patients reporting mental distress reported all types of physical symptoms more often than patients without mental distress.[8] Higher counts of mental symptoms also tend to point to the presence of somatoform disorders. It is not clear if combining mental and physical symptom counts could contribute to a better detection of the common psychiatric disorders as seen in primary care.

Aims of the study

In this study we aimed at gaining insight into the relationship between symptoms and disorders. We examined the contribution of mental and physical symptom counts to the detection of the presence of anxiety, depressive and somatoform disorders. Special emphasis was given on comorbidity. We used interview-based DSM-IV diagnoses as criterion standard. In addition, we analysed whether using both symptom counts together had an additional diagnostic value to using only a physical or mental symptom count.

Material and methods

Study design

The SOmatisation study of the University of Leiden (SOUL) was designed to evaluate the prevalence and treatment of somatoform disorders and their comorbidity with anxiety and depressive disorders in primary care.[1] A population-based cohort was formed with a two-stage selection procedure. In the initial stage high-risk patients were identified by means of screening questionnaires. In the second stage all high-risk patients and a sample of 15% of the low risk patients were invited for a psychiatric diagnostic interview.

Setting

The study took place in eight university-affiliated general practices with approximately 21,500 enlisted patients in the vicinity of Leiden, The Netherlands.

Patients

Between April 2000 and December 2001 a random sample of 1778 attendees, aged 25 to 80, received the screening questionnaires by mail. After two weeks non-responders were sent a reminder, including a copy of the questionnaires. For each practice the researchers included consecutive patients on 13 to 30 arbitrary days within a three-month period using the (electronic) diaries of the GPs. To avoid language problems the study was limited to Dutch natives. Patients were excluded if they were unable to participate in an interview due to handicaps such as deafness, aphasia, or cognitive impairment. A total number of 1046 patients (59%) returned the questionnaires and indicated that they were willing to participate. A sample of 589 patients was invited for the interview and 473 (80%) participated.

Questionnaires

Participants completed the Physical Symptom Checklist (PSC) and the Hospital Anxiety and Depression Scale (HADS).

The PSC is a checklist of 55 physical symptoms that were mentioned in the DSM-III classification. [9] It includes a broad array of symptoms, covering most organ systems. The PSC has 51 non-gender specific items and four gender specific items, one for men and three for women. We excluded the gender-specific items from the analyses to rule out bias. There are 11 general/ neurological items, 10 autonomic items, 8 musculoskeletal/pain items, 13 gastrointestinal items, 5 urological/genital items and 4 items about feeling hot/cold (see appendix). The presence of symptoms is rated on a severity scale from 0 to 3 (4-point Likert scale) for the preceding week. A symptom is

rated as present for the scores 2 and 3: ‘bothersome often or most of the time during the previous week’; the total score ranges from 0 to 51. In the present study the internal consistency of the PSC was 0.88 (Cronbach’s alfa).
The HADS [10] consists of 14 questions on mental distress (7 questions on depression and 7 questions on anxiety); the total score ranges from 0-42. It contains no questions on physical symptoms. The total HADS scale has been validated in general medical outpatients to detect psychiatric disorders: a cut-off point of 15 gave a sensitivity of 74% and a specificity of 84%. [11]

Interviews
WHO-certified psychologists used the Schedules for Clinical Assessment in Neuropsychiatry (SCAN 2.1; [12]) for the subsequent psychiatric diagnostic interviews. To avoid arbitrary interpretations, the interviewers did not classify the symptoms as part of a somatoform disorder or of an anxiety or depressive disorder. This was done afterwards following the diagnostic algorithm of the SCAN. We did not apply hierarchic rules between somatoform disorders and anxiety and depressive disorders. Within the chapters hierarchic rules were preserved. All chronic somatoform disorders (lasting at least 6 months) were identified. Somatoform disorders lasting less than 6 months, i.e. ‘Acute pain disorder’ or ‘Somatoform disorder Not Otherwise Specified’, were excluded. Anxiety disorders included panic disorder, agoraphobia, specific phobia, social phobia, obsessive-compulsive disorders, post-traumatic stress disorder and generalized anxiety disorder. Depressive disorders included major depressive disorder, bipolar disorder and dysthymia.

Analyses
Out of the 473 interviewed patients 60 had an anxiety and/or depressive disorder and 119 patients had a somatoform disorder. In two patients there were two different somatoform diagnoses. 93 Patients had an undifferentiated somatoform disorder, 13 had a chronic pain disorder, 9 had hypochondriasis, 4 a somatisation disorder and 2 a conversion disorder (body dysmorphic disorder was not diagnosed). A more detailed description of prevalence rates and comorbidity can be found elsewhere.[1] The following subgroups are presented in the results section: patients that only had an anxiety/depressive disorder (n=25), patients that only had a somatoform disorder (n=84) and patients with both a somatoform disorder and an anxiety/depressive disorder (n=35). For purposes of analyses patient numbers were weighted by the inverse of their probability of selection to adjust for differential sampling. This ruled out work-up bias and made figures representative for the original population.

The diagnostic properties of the symptom-counts were examined by Receiver Operating characteristics (ROC) analyses. ROC curves are based on the sensitivity and

specificity of the test and do not take into account the prevalence of the disease being tested for. The area under the curve (AUC) is an overall measure of the discriminative power of a test: 1.00 is the optimum value and 0.50 is the minimum value (no discriminative power). To create the ROC of HADS & PSC-51 together we modelled the predicted probabilities of the presence of a (co-morbid) disorder. The predicted probabilities were calculated through logistic regression analyses for each (co-morbid) disorder. The presence of a disorder was the dependent variable and the HADS total score and the PSC-51 count were the independent variables. The predicted probabilities were used in the ROC analyses.

We examined the effect of excluding symptoms for fatigue, sleep and forgetfulness from the PSC-51 (resulting in the PSC-45), since it is ambiguous whether these symptoms are physical or mental. This did not make a difference; the AUCs of the PSC-51 were similar to that of the PSC-45 (not shown).

Analyses were conducted using SPSS for Windows 12.0 software. P-values of <0.05 were considered statistically significant.

Table 1.Scores on Hospital Anxiety Depression Scale and Physical Symptom Checklist for different age and gender groups: mean with standard error between brackets.

	HADS total score	**PSC-51 symptom-count**	**PSC-51 symptom-count**	
			for subgroup with HADS total score < 15	for subgroup with HADS total score ≥ 15
Men				
Age groups in years:				
- 25-39 (n=73)	9.9 (0.9)	3.6 (0.6)	* 2.0 (0.4)	8.1 (1.4)
- 40-49 (n=87)	9.8 (0.8)	4.4 (0.6)	3.2 (0.5)	8.0 (1.7)
- 50-59 (n=99)	8.9 (0.7)	* 3.6 (0.5)	* 2.3 (0.3)	10.2 (1.3)
- 60-69 (n=50)	8.7 (0.7)	4.3 (0.6)	3.4 (0.5)	10.1 (1.4)
- 70-79 (n=31)	10.1 (1.0)	4.1 (0.7)	3.0 (0.6)	6.5 (1.7)
Women				
Age groups in years:				
- 25-39 (n=208)	10.2 (0.5)	5.4 (0.4)	* 3.7 (0.4)	10.2 (0.9)
- 40-49 (n=181)	10.0 (0.5)	5.5 (0.4)	4.3 (0.4)	10.2 (1.2)
- 50-59 (n=187)	10.4 (0.6)	* 6.2 (0.4)	* 4.4 (0.4)	12.1 (1.0)
- 60-69 (n=73)	8.7 (0.8)	4.8 (0.6)	3.9 (0.5)	11.1 (2.4)
- 70-79 (n=58)	11.9 (1.0)	6.2 (0.7)	4.5 (0.8)	10.0 (1.2)
Total	9.9 (0.2)	5.1 (0.2)	3.6 (0.1)	10.1 (0.4)

* Men significantly lower than women p<0.05.

Results

Reporting of symptoms

In the consulting population the average HADS total score was 9.9 (95% CI: 9.5-10.3) and participants reported an average of 5.1 symptoms (95% CI: 4.7-5.5) on the Physical Symptom Checklist (PSC-51) as bothersome (often or most of the time) during the previous week.

The reporting of physical and mental symptoms was interdependent: the correlation of the PSC symptom-count with HADS total score was 0.6 ($p<0.01$). It is therefore informative to describe PSC-51 symptom counts for different subgroups of patients depending on HADS scores. Table 1 describes PSC-51 symptom counts for different age and gender groups and for subgroups of patients with low (<15) or high (≥15) HADS scores. Unexpectedly, participants in the older aged groups did not report more symptoms than those in the younger age groups. It was the level of mental distress rather than age or gender that accounted for the number of reported physical symptoms. When scores on the HADS were low the participants reported an average of 3.6 symptoms (95% CI: 3.4-3.8) compared to an average of 10.1 symptoms (95% CI: 9.3-10.9) when scores on the HADS were high. In subjects with low HADS scores women reported slightly more symptoms than men, this was a significant difference in the age group 50-59 years and in the age group 25-39 years.

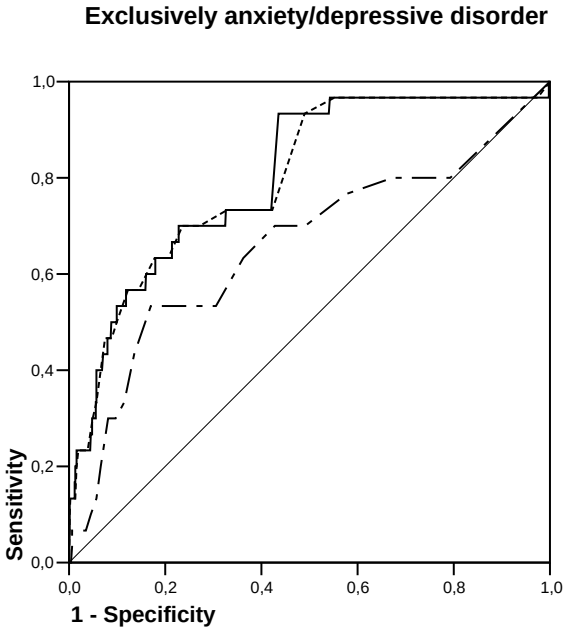
Table 2. ROC curve analyses of PSC-51 symptom count, HADS total score and HADS & PSC-51 together: area under the curve (AUC) with 95% confidence intervals. The sampling scheme is taken into account.

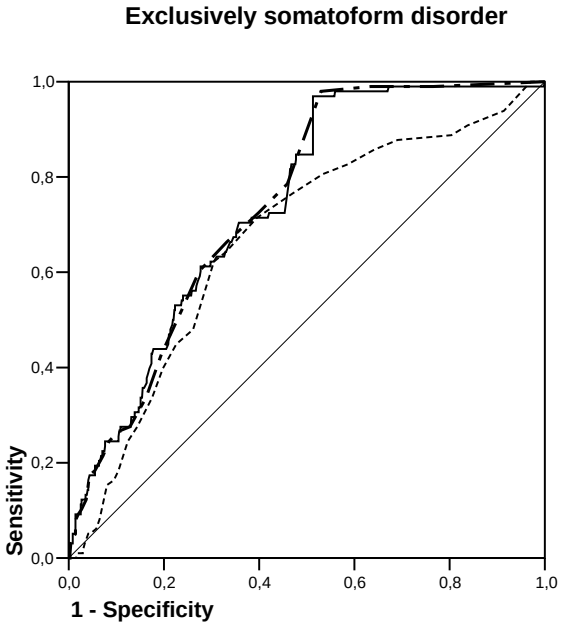
	PSC-51 symptom count		**HADS total score**		**HADS & PSC-51 (predicted probability)**	
DSM-IV diagnoses	AUC	95% CI	AUC	95% CI	AUC	95% CI
Anxiety/depressive disorder	0.78	(0.71-0.84)	0.87	(0.83-0.92)	0.87	(0.83-0.92)
Somatoform disorder	0.80	(0.76-0.83)	0.75	(0.71-0.80)	0.81	(0.78-0.85)
- USD*/ chronic pain disorder	0.78	(0.74-0.82)	0.73	(0.68-0.78)	0.79	(0.75-0.83)
- Other**	0.83	(0.73-0.93)	0.86	(0.77-0.96)	0.88	(0.77-0.96)
Exclusively anxiety/depressive disorder	0.66	(0.54-0.78)	0.80	(0.71-0.88)	0.80	(0.72-0.88)
Exclusively somatoform disorder	0.74	(0.70-0.79)	0.67	(0.61-0.73)	0.74	(0.70-0.79)
Both somatoform disorder and anxiety/depressive disorder	0.86	(0.81-0.91)	0.91	(0.87-0.94)	0.92	(0.89-0.95)

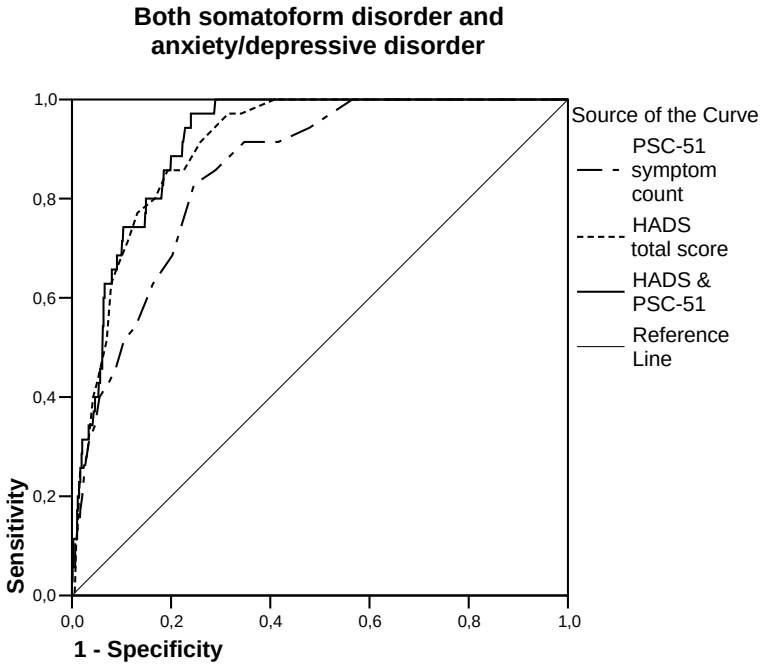
* USD = undifferentiated somatoform disorder

** Somatization disorder, hypochondriasis and conversion disorder (body dysmorphic disorder was not diagnosed)

Figures 1 to 3. ROC curve analyses of HADS total score and PSC-51 symptom count. Three patient groups with disorders compared to all other patients.







Discriminative power of HADS and PSC-51

Receiver Operating Curves of HADS and PSC-51 in relation to anxiety/depressive and somatoform disorders are presented in figures 1 to 3. Areas under the curve (AUC) are summarised in table 2.

In the first part of table 2, comorbidity between somatoform disorders and anxiety/depressive disorders was not taken into account. For all anxiety/depressive disorders, with or without comorbid somatoform disorder, the HADS tended to be a better discriminator than the PSC-51 (AUC of 0.87 (95% CI: 0.83-0.92) versus 0.78 (95% CI: 0.71-0.84)). For somatoform disorders the PSC-51 tended to be the better discriminator (AUC of 0.80 (95% CI: 0.76-0.83) versus 0.75 (95% CI: 0.71-0.80)).

In the second part of table 2, comorbidity was taken into account by describing patients with comorbid disorders separately. The findings were similar, with the best discriminative power of the HADS for patients who only had anxiety/depressive disorders (AUC of 0.80 (95% CI: 0.71-0.88) versus 0.66 for the PSC-51 (95% CI: 0.54-0.78)) and the best discriminative power for the PSC-51 for patients only suffering from somatoform disorders (AUC of 0.74 (95% CI: 0.70-0.79) versus 0.67 for the HADS (95% CI: 0.61-0.73)). None of these findings were statistically significant at the 5% probability level. The discriminative power was significantly better both for PSC and for HADS for the detection of patients with both a somatoform disorder and an anxiety or depressive disorder, with AUCs of 0.86 (95% CI: 0.81-0.91) and 0.91 (95% CI: 0.87-0.94) respectively.

In the last column of table 2 the AUCs are presented when both HADS and PSC-51 were used together. There was no additional diagnostic value when both symptoms counts were used together to predict the presence of a psychiatric disorder.-

Example using cut-off points

We selected cut-off points for PSC-51 and HADS to illustrate their contribution in detecting psychiatric disorders in a primary care population. No optimal cut-off points for all groups emerged from the ROC curves. The PSC-51 was considered high when the symptom count was 5 or more, referring to Escobar's abridged somatization construct SSI 4/6 [13], and the HADS was considered high when the total score was 15 or more. Table 3 shows the sensitivity and specificity of the symptom counts. Figure 4 shows the number of patients that scored high on the symptom counts. Trends are in line with the findings described by the AUCs. The majority of the patients who only had an anxiety/depressive disorder and the majority of the patients with both a somatoform and an anxiety/depressive disorder were detected through the HADS, with sensitivities of 0.65 and 0.85 respectively. A substantial group of patients who only had a somatoform disorder was only detected through the PSC-51, with a sensitivity of

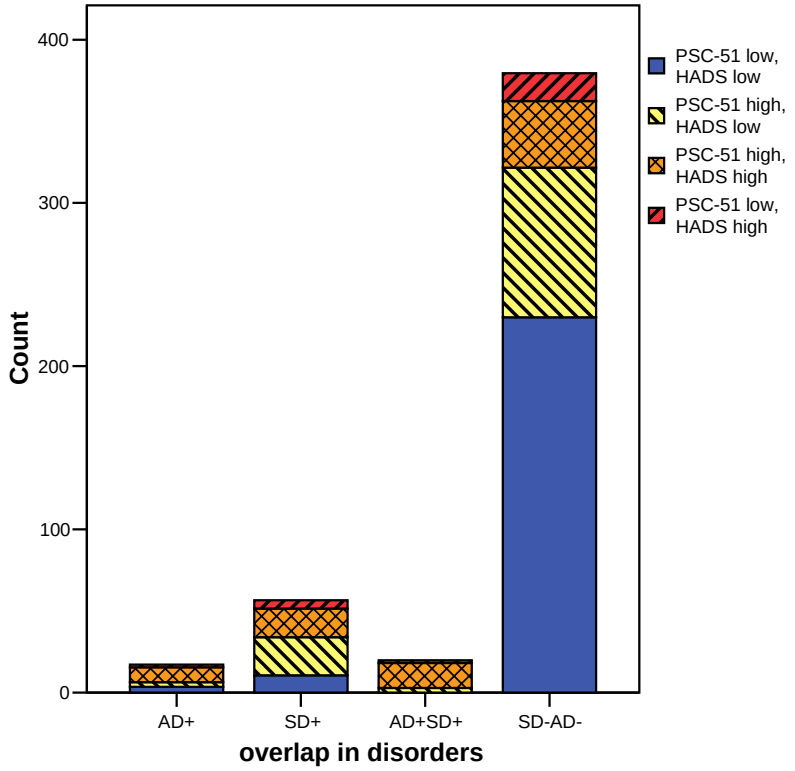
0.72, whereas a large group of patients without disorders also scored high on PSC-51 and HADS. This is in line with the low specificities shown in table 3.

Table 3. Screening characteristics of the PSC-51 symptom count (5 or more) and the HADS totalscore (15 or more): sensitivity and specificity for the presence of (comorbid) somatoform and anxiety/depressive disorders in primary care. The sampling scheme is taken into account.

	PSC-51 5+		**HADS-total 15+**		**HADS-total 15+ & PSC-51 5+**	
DSM-IV diagnoses	Se	Sp	Se	Sp	Se	Sp
Anxiety/depressive disorder	0.81	0.60	0.76	0.81	0.65	0.87
Somatoform disorder	0.78	0.64	0.52	0.83	0.43	0.87
Exclusively anxiety/depressive disorder	0.71	0.58	0.65	0.79	0.53	0.84
Exclusively somatoform disorder	0.72	0.61	0.40	0.79	0.32	0.84
Both somatoform disorder and anxiety/depressive disorder	0.90	0.59	0.85	0.80	0.75	0.85

Se = sensitivity; Sp = specificity

Figure 4. Number of patients with disorders* that screened positive on PSC-51 (5 or more) or HADS total score (15 or more) or both. The sampling scheme is taken into account.



* AD+ : exclusively anxiety/depressive disorder
SF+ : exclusively somatoform disorder
AD+ SF+ : both anxiety/depressive disorder and somatoform disorder

Discussion

The diagnostic value of a physical symptom count (PSC-51) turned out to be similar to that of a mental symptom count (HADS) to detect common psychiatric disorders in primary care. Thus, it does not seem to make a difference whether a physical symptom count or a mental symptom count is used. For both symptom counts the diagnostic value was best to detect patients with a co-morbid somatoform disorder and anxiety or depressive disorder. Using both HADS and PSC-51 did not contribute to a better detection of disorders.

The AUC of ROC analysis is a valid overall measure of diagnostic accuracy as it takes into account all possible cut-off points. It adequately served our purpose to compare two questionnaires in different patient groups, since each disorder could have rendered another optimal cut-off point. We provided sensitivity and specificity rates for frequently used cut-off scores as an illustration. It was not our primary goal, though, to establish whether the symptom counts have enough predictive power to result in an accurate screening instrument for daily practice. . A good screening instrument should probably not merely include symptom counts, but also other factors such as “worried about illness” or “functional limitations”.

The comorbidity of somatoform disorders with anxiety/depressive disorders partly explained the diagnostic value of a physical symptom count in patients with anxiety/depressive disorders. The diagnostic value of the PSC-51 was significantly higher for patients with comorbid disorders than for patients who only had an anxiety/depressive disorder. The same line of reasoning applies to somatoform disorders: the comorbidity partly explained why a mental symptom count had diagnostic value for somatoform disorders. The diagnostic value of the HADS was higher for patients with co-morbid disorders than for patients who only had a somatoform disorder.

Various checklists for physical symptoms have been used in research. They differ in number and type of symptoms or in time span. Some checklists make an inventory of recent symptoms (‘state’) and some make an inventory of the symptoms over the past two years (‘trait’). We considered the diagnostic value of the number of recent physical symptom reported on a checklist of 51 symptoms for current psychiatric disorders. It seems plausible that there are somatic explanations for at least a number of the reported symptoms, and the diagnostic value of the PSC-51 might have been higher if the rating had been limited to medically unexplained physical symptoms. [6 14]

Clinical judgment would have been necessary to establish possible somatic explanations for the physical symptoms. Since we used self-rating instruments, this was no option. In a previous study we demonstrated that the presence of symptoms on the PSC is more strongly related to the presence of mental distress than to the presence of physical disease.[8]

The value of somatic items in screening questionnaires for depression has been questioned. It might lead to an over-identification of depression in pain patients. In patients with chronic pain as well as in a general population sample specific somatic items of a self-rating depression scale were found to be weak markers of depression and/or failed to discriminate between depression and anxiety/stress. [15]
Our findings suggest that in primary care a physical symptom count may be just as effective in detecting psychiatric disorders as a mental symptom count. It seems that it is the number of symptoms rather than the kind of symptoms that determine its diagnostic value. Since most patients in primary care present with physical symptoms, a physical symptom checklist may well play an important role in meeting the patients' request for care.

Acknowledgements

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Appendix: list of symptoms from the Physical Symptom Checklist

1. Feeling tired or having low energy
2. Easily fatigued without exertion
3. Shortness of breath without exertion
4. Palpitations
5. Pain or pressure on the chest

6. Dizziness or light headedness
7. Fainting or loss of consciousness
8. Sleeplessness
9. Sleeping a lot
10. Forgetfulness

11. Tingling sensations
12. Trembling
13. Muscle weakness or paralysis
14. Muscle tension
15. Muscle aches or soreness

16. Trouble walking
17. Loss of voice
18. Deafness
19. Double vision or blurred vision
20. Blindness

21. Seizure or convulsion (epileptic)
22. Nausea
23. Vomiting
24. Dry mouth
25. Trouble swallowing

26. Choking a lot
27. Intollerence of specific foods
28. Loss of appetite
29. Weight loss (last month)
30. Heartburn

31. Abdominal pain
32. Abdominal distress (gassy)
33. Diarrhoea
34. Constipation
35. Flatulence

36. Sweating
37. Flushes (hot flashes)
38. Intolerance to heat
39. Chills
40. Intolerance to cold

41. Headache
42. Joint pain
43. Pain in extremities
44. Back pain
45. Other pain

46. Frequent urination
47. Difficulty urinating
48. Pain during urination
49. Burning sensation in sexual organs or rectum
50. Pain during intercourse
51. Sexual indifference

When applicable:

52. Impotence
53. Irregular menstrual periods
54. Painful menstruation
55. Excessive menstrual bleeding