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DOCTORS' PERCEPTION OF PATIENTS' COGNITIONS AND COMPLAINTS IN IRRITABLE BOWEL SYNDROME AT AN OUT-PATIENT CLINIC

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Abstract—Functional abdominal complaints (IBS) are widespread in the general population, especially among women. Non-organic dimensions of the complaint such as complaint-related cognitions and behaviour appear to be related to the prognosis. The prognosis could possibly be improved by changing these factors during medical consultations. Therefore, doctors have to perceive patients' cognitions and behaviour. But, do they perceive them correctly? One hundred and twenty patients with functional abdominal complaints referred to an out-patient clinic for internal medicine completed a questionnaire about their complaints and their complaint-related cognitions, behaviour, and anxiety prior to the first consultation. After the first consultation, doctors completed a similar questionnaire indicating their perceptions of patients' cognitions, anxiety, behaviour, and complaints. Complaints were perceived better than cognitions, anxiety, and behaviour. Doctors underestimated patients' expectations and secondary complaints and overestimated patients' pain-related attributions, and their catastrophizing and self-efficacy cognitions.

Keywords: Cognitions, Doctor-Patient Relationship, Functional Abdominal Complaints, Irritable Bowel Syndrome, Sex Differences.

INTRODUCTION

Functional abdominal complaints, otherwise known as irritable bowel syndrome (IBS), are widespread in the general population. The estimated prevalence is 14–25% [1–3]. Nearly half of such persons seek health care [3]. Over 40% of all gastroenterology referrals concern functional disorders [4, 5]. Consulters appear to differ from non-consulters in having more psychological distress and abnormal illness behaviour, as expressed in patients' health beliefs and concerns [6–9].

Although equal numbers of women and men in the general population report functional abdominal complaints [2], more women visit doctors because of these complaints [10]. This predominance of women may be a consequence of their excess morbidity in general [11] or of doctors' gender bias in referring patients [12] and in perceiving psychological disturbances [13].

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The prognosis of functional abdominal complaints appears to be poor: 35–57% are unchanged or worse after 2–7 yr [14–17], although one study presented a better outcome [18]. Psychological factors such as worrying about health, complaint attribution, and anxiety appear to be related to this prognosis [16, 17]. When psychological and somatic treatments (such as medication and dietary advice) were compared, psychological treatments appear to have produced better results [19–22]. Functional abdominal complaints are maintained by non-organic complaint dimensions such as complaint-related cognitions and behaviour. Analysis of these dimensions seems to be important [23]. By paying attention to patients' concerns, anxiety, expectations, and attributions during medical consultations and by changing these factors, abdominal complaints could possibly be diminished [24–29].

Doctors have to perceive patients' cognitions and emotions in order to change them. The present study explores the extent to which doctors are able to do this. As there is a discrepancy between the experiences and backgrounds of doctors and patients, one cannot expect perfect congruence between patients' complaint-related beliefs and doctors' perceptions of these beliefs. Doctors are especially trained to recognize somatic abnormalities. Therefore, one might expect greater similarity between doctors and patients with respect to somatic factors such as details of the abdominal complaints or the prevalence of secondary complaints, than with respect to psychological factors (cognitions, anxiety, and behaviour). The cognitions and emotions of female patients might be perceived more correctly than those of male patients [13] because research findings suggest that women express personal thoughts and feelings more easily [30]. Previous research suggests that one might expect more correct perceptions from female doctors [31] and by doctors in same-sex consultations (sex symmetry) [31, 32].

In light of the above, we have formulated the following questions to be answered in this study:

- Do doctors perceive patients' anxiety, pain-related cognitions and behaviour, and secondary complaints correctly?
- Are doctors' correct perceptions related to characteristics of patients (sex, age, educational background), complaints (duration), doctors (sex), and/or consultations (sex symmetry)?

METHODS

Subjects and Procedures

One hundred and thirty-four consecutive patients with abdominal pain referred by their general practitioners to the out-patient clinic for internal medicine between March 1991 and April 1992 were asked to participate in this study. All patients had to meet the entry criteria of initial referral and had to be able to read and understand Dutch. They also had to be between 15 and 65 yr old. They were asked to fill in a questionnaire prior to the first consultation. None of the patients refused to participate in the study.

After verification by two independent internists, 120 patients were diagnosed as suffering from functional abdominal pain. The remainder of this paper relates only to this functional group. There were 75 women and 45 men, with mean ages of 36 (SD = 12) and 40 (SD = 11) yr (NS), respectively. Thirty per cent had experienced abdominal pain for less than 6 months, 70% for more than 6 months. The mean duration of abdominal pain was between one and two years. Fifty-two per cent of these patients had a lower educational background whereas 48% a higher educational background (at least high school).

Immediately after each consultation, doctors completed a questionnaire with questions identical to those answered by patients. They had to answer each question according to the way that they thought

that the patient had answered it, thereby indicating their perceptions of the patient's scores. Thirteen doctors participated, six women and seven men, with mean ages of 30 (SD = 1.5) and 39 (SD = 7) yr ($p = 0.003$), respectively. All the female doctors and four male doctors were (senior) registrars in internal medicine. The other three male doctors were consulting internists.

Questionnaire

As patients had to complete the questionnaire before the first consultation, the questionnaire had to be short. For the purpose of analysis (see the *Statistical analysis* section), all variables were dichotomized later. The method of dichotomization is indicated for each of the subscales separately.

The questionnaire consisted of the following subscales:

State anxiety was measured using the shortened 10-item version of the Spielberger State Anxiety Inventory (STAI) [33] (Cronbach's $\alpha = 0.85$). The scores on each item ranged from (1) not at all, to (2) somewhat, to (3) moderately so, to (4) very much so. The sumscore was dichotomized into scores below and above 21. This standard score was based on the results of a previous study on patients with functional abdominal complaints [16], as well as on normative data from the STAI manual [33]. A score equal to or above 21 reflects an increased level of anxiety.

The nine questions regarding pain *attributions* [34] were derived from an earlier investigation [17] in which patients were asked to write down their ideas about what caused the abdominal pain. The scores on each of the nine attributions ranged from (1) total disagreement to (5) total agreement. Four items were excluded from analysis because of their low frequencies. The remaining five could be divided into three psychosocial and two somatic attributions (Table I). A dichotomy was obtained by joining the scores 'total agreement' and 'agreement' vs the scores 'total disagreement', 'disagreement', and 'I don't know'. A high score on each item reflects strong beliefs with regard to psychosocial or somatic causes for the pain, respectively.

Four questions about *expectations* (two active and two passive) regarding the visit to the out-patient clinic were formulated. Active expectations implied active participation by the patient. Passive expectations implied that the doctor was expected to take initiatives and responsibility (Table I). Scores on these items ranged from (1) I don't expect this, to (2) I expect this somewhat to (3) I expect this. These scores were dichotomized by joining the scores (1) and (2) vs (3).

Pain-related cognitions were investigated using the Dutch Pain Cognition List, an assessment instrument for the verbal cognitive component of chronic pain. The original scale consists of 50 items [35]. For the purpose of our study, nine items were selected. Factor analysis revealed two underlying factors. These were interpreted as self-efficacy cognitions (five items, $\alpha = 0.68$), e.g. 'I think I can influence the pain positively', and catastrophizing cognitions (four items, $\alpha = 0.71$), e.g. 'I often think, "Why must this happen to me?"'. Scores on each item ranged from (1) total disagreement, to (5) total agreement. The self-efficacy and catastrophizing sumscores were dichotomized according to comparable normative data [35] into scores below and above 16 and 12, respectively. High self-efficacy (score ≥ 16) reflects a strong belief in the ability to control the pain, whereas a score equal to or above 12 on the catastrophizing scale reflects catastrophizing thoughts about the pain.

Pain-related behaviour was investigated by asking patients about their avoidance behaviour and interference with daily activities. Both were assessed using four-point scales which were dichotomized by contrasting the scores 'no avoidance' vs 'avoidance' and 'much interference' vs 'hardly any interference'.

Several questions were asked about details of the *main complaint*, abdominal pain, namely duration (a nine-point scale with endpoints 'less than 1 month' and 'more than 5 yr'), severity (a five-point scale with scores from low to unbearable pain), and frequency of occurrence (a six-point scale with scores from less than once a month to daily). These scales were dichotomized into 'less than 6 months' vs 'more than 6 months' (duration), 'more than moderate' vs 'less than moderate' (severity), and 'daily' vs 'non-daily' (frequency).

Secondary complaints were measured by asking patients to indicate the presence or absence of 18 complaints, 13 gastrointestinal and 5 non-gastrointestinal. Only those complaints which were present in 10% or more of patients were considered for analysis. Thirteen complaints met this criterion (Table I).

Statistical analysis

Statistical analyses were performed using the Mann-Whitney *U* test, the sign test, and Cohen's kappa [36]. The Mann-Whitney *U* test was used for investigating sex differences within patients' cognitions. The sign test was used to determine the direction of dissimilarities between doctors and patients. Kappas were used to measure the similarity between patients' cognitions and complaints and such cognitions and complaints as perceived by doctors. This statistic, meant to measure inter-observer agreement, corrects both for chance similarity and unequal distribution of frequencies. To use kappa reliably all variables were dichotomized using the criteria mentioned above. The significance of the kappas was determined by means of their standard errors. A significant kappa reliably reflects similarity above the level of chance.

TABLE I.—FREQUENCIES OF PATIENTS' AND DOCTORS' PERCEPTIONS, KAPPAS BETWEEN DOCTORS AND PATIENTS, PERCENTAGES OF DOCTOR-PATIENT SIMILARITY, AND DOCTORS' UNDER- AND OVERESTIMATIONS

| Variables | % patients | % doctors | % similarity | kappa | % under-estimation | % over-estimation |
|---|------------|-----------|--------------|--------|--------------------|-------------------|
| Psychological factors | | | | | | |
| State anxiety (sumscore ≥ 21) | 50 | 63 | 58 | 0.15 | 14 | 28 |
| Psychosocial attributions | | | | | | |
| The abdominal pain has something to do with my agitated and busy life | 15 | 14 | 83 | 0.33* | 9 | 8 |
| The abdominal pain is caused by stress | 12 | 25 | 75 | 0.19 | 6 | 19† |
| I am afraid I might have cancer | 10 | 29 | 75 | 0.24* | 4 | 22† |
| Somatic attributions | | | | | | |
| The abdominal pain has something to do with my intestines, stomach, gall, or urinary tracts | 64 | 85 | 64 | 0.12 | 7 | 29† |
| The abdominal pain is a result of not being able to have stools | 16 | 17 | 89 | 0.58* | 5 | 6 |
| Active expectations | | | | | | |
| I expect the doctor to give me advice about how I can handle my complaints | 74 | 41 | 45 | -0.008 | 44† | 11 |
| I expect the doctor to discuss any emotional problem as well | 24 | 9 | 74 | 0.10 | 21† | 5 |
| Passive expectations | | | | | | |
| I expect the doctor to find a physical explanation for my complaints | 65 | 46 | 57 | 0.15 | 31† | 12 |
| I expect the doctor to do something about my complaints (for example, prescribe medication) | 55 | 40 | 56 | 0.14 | 29 | 15 |
| Catastrophizing (sumscore ≥ 12) | 43 | 61 | 50 | 0.04 | 16 | 34† |
| Self-efficacy (sumscore ≥ 16) | 35 | 53 | 58 | 0.19 | 11 | 30† |
| Avoidance behaviour | 68 | 63 | 85 | 0.43* | 15 | 10 |
| Interference with daily activities | 43 | 24 | 68 | 0.32* | 25† | 6 |
| Somatic factors | | | | | | |
| Abdominal pain | | | | | | |
| severe | 44 | 20 | 60 | 0.15 | 32† | 8 |
| daily | 56 | 63 | 75 | 0.48* | 9 | 16 |
| more than 6 months | 70 | 75 | 89 | 0.72* | 4 | 8 |
| Gastrointestinal complaints | | | | | | |
| flatulence | 37 | 12 | 68 | 0.19 | 29† | 4 |
| blown up, full feeling | 55 | 35 | 62 | 0.27* | 29† | 9 |
| abdominal rumbling | 61 | 25 | 52 | 0.13 | 42† | 6 |
| abdominal distension | 44 | 28 | 66 | 0.28* | 25† | 9 |
| constipation | 15 | 17 | 89 | 0.60* | 5 | 6 |
| diarrhoea | 25 | 17 | 87 | 0.60* | 11 | 3 |
| nausea | 26 | 16 | 81 | 0.44* | 15 | 5 |
| heartburn | 15 | 11 | 90 | 0.57* | 7 | 3 |
| belching | 24 | 19 | 80 | 0.42* | 13 | 7 |

(continued).

TABLE I.—*continued*

| Variables | % patients | % doctors | % similarity | kappa | % under- estimation | % over- estimation |
|---------------------------------|---------------|--------------|-----------------|-------|------------------------|-----------------------|
| Non-gastrointestinal complaints | | | | | | |
| headache | 34 | 26 | 81 | 0.54* | 14 | 5 |
| backache | 34 | 13 | 75 | 0.34* | 23† | 2 |
| nervousness | 13 | 18 | 82 | 0.31* | 6 | 12 |
| tiredness | 46 | 29 | 72 | 0.42* | 23† | 5 |

*Significant kappa calculated by means of the standard error ($p \leq 0.01$).

†Significantly greater under- or overestimation; placed at site of highest percentage (sign-test, $p \leq 0.01$).

As the amplitude of kappa strongly depends on the prevalence of the similarity in the response categories distinguished, we will also present the percentage of observed doctor-patient similarity in order to assess this influence. In those cases in which there was no similarity between doctors and patients, the directions of these dissimilarities as expressed by doctors' over- and underestimations were investigated. Overestimations were defined as cognitions or complaints which were perceived by doctors but not reported by patients. Underestimations were defined as those cognitions or complaints reported by patients but not perceived by doctors.

Statistical significance for all tests was set at the 1% level.

RESULTS

Patients' cognitions

The pain-related cognitions, behaviour, and anxiety which patients presented are shown in the first column of Table I. Using the criteria mentioned above, it was shown that half of the patients felt anxious before visiting the doctor. Psychosocial attributions were reported by about one tenth, and general somatic attributions were reported by more than half of the patients. Active and passive expectations were present in the majority of the patients. Almost half of the patients had catastrophizing and one third self-efficacy cognitions. More than half of the patients avoided at least one activity as a result of the pain and reported that their daily activities were interfered with by the pain. Female patients reported significantly higher scores on state anxiety, severity of the pain, and avoidance behaviour as compared with male patients. They also reported significantly higher scores on the following secondary complaints: abdominal rumbling, abdominal distension, constipation, nausea, headache, and tiredness. No differences in the cognition scores between male and female patients were found.

Doctors' perceptions

The frequencies of patients' scores differ from the frequencies as perceived by doctors with respect to some psychological factors (patients' complaint-related cognitions, behaviour, and anxiety) as well as with respect to some somatic factors (first two columns of Table I).

The percentages of doctor-patient similarity with respect to attributions appear to be higher than those of anxiety, expectations, and catastrophizing and self-efficacy cognitions (third column of Table I). Doctor-patient similarity as expressed by kappa (fourth column of Table I) shows that 5 out of the 14 psychological factors (the psychosocial attributions concerning an agitated and busy life and concerning the

fear of cancer, the somatic attribution concerning stools, avoidance behaviour, and interference with daily activities) were perceived better than could have been expected on the basis of chance. Of the 16 somatic factors, 13 were perceived better than could have been expected on the basis of chance.

Doctors' underestimations and overestimations

In those cases in which doctors and patients had dissimilar scores, the directions of these dissimilarities were investigated. The percentages of under- and overestimations are shown in the last two columns of Table I. Doctors appeared to make significantly more overestimations with respect to the perception of the psychosocial attributions concerning stress and concerning the fear of cancer. Furthermore, they made more overestimations with respect to the perception of the somatic attribution concerning the intestines or stomach and with respect to the perception of catastrophizing and self-efficacy cognitions. Significantly more underestimations were found in both active expectations and in the passive expectation concerning the finding of a physical explanation for the complaints. Other significant underestimations were found in the severity of the abdominal pain, interference with daily activities, four of the nine gastrointestinal secondary complaints (flatulence; blown up, full feeling; abdominal rumbling; abdominal distension), and two of the four non-gastrointestinal secondary complaints (backache and tiredness).

Differences in doctors' perceptions between subgroups of patients

Our second question concerned the relationship between, on the one hand, patients' sex, age, education, duration of the abdominal pain, doctors' sex, and the sex symmetry in the interaction and, on the other hand, doctors' perceptions of patients' cognitions and complaints. The frequency of the pain was perceived better in male patients than in female patients. The somatic attribution concerning stools and the severity of the pain were perceived better in patients with long-lasting pain as compared with patients with a shorter duration of pain. No differences were found when older and younger patients were compared and in the comparison of patients with lower and higher educational levels. Female doctors appeared to perceive the somatic attribution concerning the intestines or stomach and the complaint 'belching' better than their male colleagues. In sex-symmetric interactions, the somatic attribution concerning the intestines or stomach and the complaint 'abdominal rumbling' were perceived better than in asymmetric interactions.

DISCUSSION

Our findings indicate that, overall, during the first visit to the out-patient clinic, doctors perceived complaints and details of the complaints more correctly than complaint-related cognitions, behaviour, and anxiety. Dissimilarities between doctors and patients were found in doctors' underestimations of most expectations, the severity of the pain, interference with daily activities, and complaints related to abdominal gas. Doctors overestimated the presence of most attributions, and of catastrophizing and self-efficacy cognitions.

How can these more correct perceptions of somatic factors be explained? In consulting patients with abdominal pain, doctors explicitly ask about stools and

accompanying problems as part of the medical history. That somatic complaints are most correctly perceived can be expected by virtue of the professional practice of medicine. Somatic aspects are the doctors' primary concern, especially in an out-patient clinic for internal medicine. Doctors underestimated the severity of the pain. It is possible that, while patients look at themselves as unique persons with unique complaints, doctors more often perceive the patient as just another case with a familiar or common complaint [37]. The underestimations of complaints related to abdominal gas, backache, and tiredness may be due to their low diagnostic value and to the fact that these are regarded as vague complaints by the doctor.

How correct are patients' complaint-related cognitions and behaviour perceived in this study? The psychosocial attributions concerning an agitated life and the fear of cancer, the somatic attribution concerning stools, avoidance behaviour, and interference with daily activities were perceived better than could have been expected on the basis of chance. As these factors are related to the course of the condition, perceiving them correctly is a positive finding. However, anxiety and catastrophizing cognitions, which appear to influence the prognosis negatively, are not perceived correctly [16, 17]. Positively changing these factors during the consultations would therefore be difficult. It is generally believed that stress and the fear of cancer occur often in patients with abdominal complaints. It is possible that doctors, with these ideas in mind, perceive these factors more easily and even overestimate them. There is also another explanation for the overestimation of these attributions which also may have influenced doctor-patient (dis)similarity with respect to all other factors. Patients had to complete the questionnaire before and doctors after the first consultation. We do not know what happened to the patient during this first contact. By communicating with their patients, doctors may have evoked thoughts and fears which patients denied or did not previously admit, which would be quite understandable in, for example, the case of the fear of cancer. Doctors' overestimations, as indicated after the consultation, might thus also be explained as patients' underestimations.

Why is it important that complaint-related cognitions, behaviour, and anxiety are recognized as well? The severity of functional abdominal complaints is also influenced by non-organic dimensions (cognitive, behavioural, environmental) [23]. Doctors' primary somatic concern in dealing with patients with abdominal pain engenders the risk of overlooking these non-organic factors such as anxiety, catastrophizing cognitions, and avoidance behaviour [16]. Correctly perceiving psychological factors offers the possibility of influencing these factors, of giving effective reassurance to patients, of preventing somatic fixation [38] by correcting somatic attributions, of enhancing self-efficacy cognitions, and of giving behavioural instructions. It furthermore offers the possibility of increasing patients' satisfaction and of lowering medical consumption and the risk of iatrogenic complications.

An important aspect of this study was the investigation of the role of patients' and doctors' sex in the perception of complaint dimensions. Overall, few differences were found. Sex differences may be hard to show because, in general, the perception of cognitions and anxiety appeared to be low. Contrary to expectations, cognitions were not perceived better in female patients. The differences in perceptions which were found can be considered more positively with respect to female doctors and

sex-symmetric consultations. The positive consequences of these findings will have to be verified through follow-up studies.

Some methodological issues should be discussed. In this study, Cohen's kappa was not used in the usual way, namely for investigating reliability between two observers. Furthermore, the two categories of observers, patients and doctors, did not judge precisely the same issues. Patients reported their own point of view whereas doctors reported their perception of the patient's point of view. Nevertheless, a number of significant kappas emerged within this study, at least with respect to somatic factors.

A methodological issue already mentioned concerns the design of the study. In comparing the scores of patients and doctors, it is important to realize that they did not complete the questionnaires at the same time. Patients' cognitions may have changed during the first consultation. Completing the questionnaire may have evoked confounding reactions. This problem could have been solved by measuring patients' cognitions again after the first consultation. Yet, this would have complicated the design of the study and might have diminished patients' cooperation with respect to the follow-up study.

Doctors' perceptions may have been influenced positively by the fact that all participating doctors examined different patients. Doctors gradually learned which questions they had to answer after concluding the consultation. However, when the perceptions of each doctor for his/her first five patients with abdominal pain were compared with the perceptions for the next five patients, perceptions did not appear to become more correct. It is obviously not enough to know what to look at. Doctors must also have the skills to find patients' complaint-related cognitions and behaviour.

In the present study, a broad definition of IBS has been used. IBS is also defined more restrictively using the criteria formulated by Manning [6, 39]. Could our research findings possibly have been different if we had defined IBS more restrictively? Analysis post hoc did not show relevant differences between restrictive IBS patients and other patients. The differences found referred to more correct perceptions of complaints about defecation in patients with restrictively defined IBS. As the restrictive form of IBS is defined by complaints about defecation, these differences could be expected.

Doctors' perceptions of patients' cognitions and behaviour could possibly be improved by teaching them to handle these factors within the curriculum of medical training. Results of further research on the way patients' cognitions change in the course of a few consultations, on how doctor-patient interaction contributes to this process, and on how all of this influences the prognosis, might support the benefit of such training.

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