

BRIEF COMMUNICATION

## Attributions about common bodily sensations: their associations with hypochondriasis and anxiety

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### ABSTRACT

**Background.** Causal attributions about bodily sensations may determine help-seeking and influence patients' demands for medical treatment. The present study aimed to differentiate the causal attributions associated with health-related and non-health-related anxiety.

**Methods.** Anxious hypochondriacal, generally anxious, and non-anxious general practice attenders were compared on their propensity to give somatic, psychological or normalizing attributions for common bodily sensations, measured by number of each type of attribution in a given time period and the frequency of first response of each type.

**Results.** The groups differed in all three types of attributions. Giving more psychological and fewer normalizing attributions was related to general anxiety whereas giving more somatic attributions was related specifically to hypochondriasis.

**Conclusions.** Anxiety and hypochondriasis can be distinguished in terms of their associated patterns of attributions for bodily sensations, reinforcing the importance of attributional processes and interventions which use reattributional training.

### INTRODUCTION

The experience of somatic sensations is common, even among those who are healthy (Pennebaker, 1982). However, the interpretation given to those sensations is likely to have major consequences, both for the person's psychological state and for his/her behaviour. In particular, the decision to consult a doctor is likely to be influenced by attributional style for somatic sensations. More detailed understanding of such causal attributions should clarify some of the factors influencing the patient's decision to seek medical help, and should also inform focused interventions for some who seek help frequently.

Robbins & Kirmayer (1991) categorized the types of attributions that could be made for common somatic sensations into three types.

Normalizing attributions are thought to be the default attribution, where the person looks for some external or environmental explanation for the sensation. If unable to find a normalizing explanation the person may then turn to a pathological explanation, either somatic, where the sensation is seen as a symptom of illness, or psychological where it is seen as due to a psychological state, typically anxiety or worry.

In a previous study (Sensky *et al.* 1996), it was found that relative to infrequent general practice attenders, a group of patients who attended frequently, and who were also generally anxious, were less able to generate normalizing attributions when presented with common somatic sensations. As well as being high in anxiety, the frequent attenders also had high scores on the hypochondriacal beliefs subscale of the Illness Attitudes Scale (IAS; Kellner, 1981). Therefore, this study did not allow differentiation of the effects on attributions of general anxiety and

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hypochondriasis, both common among general practice attenders (Katon *et al.* 1990).

The present study aimed to test whether there were any differences in the type of attributions given for somatic sensations that were specific to anxiety or hypochondriasis. Also, in contrast to the earlier study in which both sample groups were selected on the basis of the frequency of visits to their doctor, the sample for the present study was gathered by screening those attending two general practices during randomly chosen surgeries. Thus, although strictly speaking a convenience sample rather than a truly randomly selected sample, the present sample is thus likely to be more representative of all adults attending these practices.

Subjects were selected on the basis of their anxiety scores, and those who were anxious subsequently divided into those who were high and low in hypochondriasis. These two groups were compared with subjects who were low in anxiety. Subjects were given a number of common somatic sensations and given 1 min in each case to think of reasons why it would happen to them. Analysis focused on the number of normalizing, somatic, and psychological reasons given as well as how often each type of attribution was given as the first response. It was predicted that both anxious groups would give fewer normalizing and more psychological reasons than non-anxious subjects but that only the anxious subjects who were also high in hypochondriasis would give more somatic reasons than non-anxious subjects. The number of reasons of each type given as a first reason was expected to follow a similar pattern.

## METHOD

### Participants

Participants were patients attending one of two large general practices in Chiswick, West London, and were a different sample from our previous study (Sensky *et al.* 1996). Individuals who were available at the clinics visited by the researcher were asked to fill in two brief self-report questionnaire measures: the anxiety scale of the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) and the hypochondriacal beliefs subscale of the IAS (Kellner, 1981). Patients were excluded from the study if they were younger than 18 or over 65 years of age,

had an inadequate command of English, and had a clear physical condition as assessed by screening questions (in practice one subject was excluded through having epilepsy and one through having diabetes). Of 95 patients screened, 31 scored as possibly anxious (HAD > 7). A median split on these subjects' hypochondriacal belief scores allocated those scoring above two to a hypochondriacal anxious group (HypAnx) and those scoring two or below to a general anxious group (GenAnx). The non-anxious group (NonAnx) comprised 16 randomly selected subjects who scored < 8 on HAD Anxiety. The control subjects all happened to score two or below on hypochondriacal beliefs. The total sample comprised 32 women and 15 men, with a mean age of 40 years. The three groups were matched for age, gender, and educational level.

### Materials and procedure

Participants were approached in the waiting room and, after giving informed consent, completed the anxiety subscale of the HAD Scale (Zigmond & Snaith, 1983) and the hypochondriacal beliefs subscale of the IAS (Kellner, 1981). Because of time constraints, the other subscales of these questionnaire were not used. The full study was carried out immediately or after the person had seen their general practitioner. Each person was presented with 10 common bodily sensations or symptoms taken from the Symptom Interpretation Questionnaire of Robbins & Kirmayer (1991), for example 'you feel your heart pounding' and 'you notice your mouth is dry'. Each statement was printed at the top of a page, and subjects were given 1 min to write down for each one as many reasons as they could why this might happen to them. Each reason given by a subject was later categorized into one of three types – normalizing, somatic, or psychological. An independent rater, blind to the initial classification and to group membership, also categorized the reasons and showed an agreement of 98% with the initial classification.

## RESULTS

The mean number of reasons given by subjects for why they might experience a given sensation, categorized into normalizing, somatic or psycho-

Table 1. Means scores (standard deviations in parentheses) of number of each type of explanation per symptom and frequency with which each type of explanation was given as a first response (maximum = 10)

	HypAnx	GenAnx	NonAnx	P
Number				
Normalizing	0.8 <sup>a</sup> (0.6)	1.0 <sup>a</sup> (0.5)	1.5 <sup>b</sup> (0.7)	< 0.05
Somatic	1.4 <sup>a</sup> (0.7)	0.7 <sup>b</sup> (0.6)	0.2 <sup>c</sup> (0.7)	< 0.001
Psychological	1.2 <sup>a</sup> (0.5)	1.1 <sup>a</sup> (0.5)	0.5 <sup>b</sup> (0.6)	< 0.01
Number of 1st				
Normalizing	2.1 <sup>a</sup> (1.8)	3.9 <sup>b</sup> (2.7)	6.9 <sup>c</sup> (1.8)	< 0.001
Somatic	3.7 <sup>a</sup> (2.1)	1.9 <sup>b</sup> (2.0)	1.1 <sup>b</sup> (0.8)	< 0.001
Psychological	4.1 <sup>a</sup> (2.1)	3.3 <sup>a</sup> (1.9)	1.2 <sup>b</sup> (1.1)	< 0.001

Note: Means sharing a superscript horizontally do not differ significantly from each other.

logical, was analysed within a Group (HypAnx, GenAnx, NonAnx) × Type (Normalizing, Somatic, Psychological) ANOVA. There was a significant main effect of group ( $F(2, 44) = 40.5, P < 0.001$ ), qualified by a Group × Type interaction ( $F(4, 88) = 24.9, P < 0.001$ ). Simple main effects holding type constant showed that the groups differed significantly in each of the three types. Table 1 shows the mean and standard deviation scores for each group for the mean number of each type of reason per item, as well as the significance of the differences (Newman–Keuls) between the individual groups in each type of reason. Relative to non-anxious subjects, both anxious groups gave more psychological reasons and fewer normalizing reasons. The propensity to give more somatic reasons was seen in both anxious groups although it was significantly greater in the anxious subjects who were also high in hypochondriasis.

The number of reasons of each type given as the first reason was also analysed within the same Group × Type ANOVA, followed by simple main effects and Newman–Keuls tests. There was a main effect of type ( $F(2, 88) = 10.7, P < 0.001$ ) qualified by a significant Group × Type interaction ( $F(4, 88) = 15.1, P < 0.001$ ). The means and standard deviations are also shown in Table 1. Simple main effects holding type constant showed that the groups differed significantly in each of the three types. *Post hoc* tests showed that, relative to non-anxious subjects, both anxious groups were more likely to give a psychological reason and less likely

to give a normalizing reason as a first response. However, only the anxious subjects who also scored highly on hypochondriasis were more likely than non-anxious subjects to give a somatic reason as a first response.

One complicating factor is that although subjects in both the GenAnx and HypAnx groups met criteria for at least probable anxiety, the anxiety scores of the HypAnx group were significantly higher than those of the GenAnx group ( $M_s = 14.1$  v.  $11.1, P < 0.05$ ). In addition, the GenAnx subjects did also have significantly higher scores than the NonAnx subjects on hypochondriasis, ( $M_s = 0.5$  v.  $0.1, P < 0.05$ ), although both groups were significantly lower than the HypAnx ( $M = 4.8$ , both  $P_s < 0.001$ ). Because of these small but statistically significant group differences, analyses of covariance were carried out on each type of attribution, using either anxiety scores or hypochondriacal scores as a covariate.

The difference between the groups on overall number of psychological reasons and number of psychological reasons given as a first response were both reduced to non-significance after covarying out anxiety scores (both  $F_s < 1$ ) whereas they both remained significant after covarying out hypochondriasis scores ( $F(2, 43) = 5.4, P < 0.01$  for number of reasons;  $F(2, 43) = 5.4, P < 0.01$  for number of first reasons). In contrast, the group differences on somatic reasons remained significant after covarying anxiety scores ( $F(2, 43) = 4.9, P < 0.05$  for overall number;  $F(2, 43) = 7.6, P < 0.001$  for number of first reasons) whereas they were reduced to non-significance after covarying hypochondriasis scores ( $F(2, 43) = 2.0, NS$ , for overall number;  $F(2, 43) = 1.8, NS$ , for number of first reasons). The group differences on normalizing reasons were reduced to non-significance after covarying anxiety scores ( $F < 1$  for overall number;  $F(2, 43) = 2.9, NS$ , for number of first reasons) but remained significant after covarying hypochondriacal scores ( $F(2, 43) = 4.4, P < 0.05$  for overall number;  $F(2, 43) = 10.1, P < 0.001$ , for number of first reasons). Thus, it appears that the difference between groups on giving normalizing and psychological reasons was related to differences in their anxiety scores whereas the difference on giving of somatic reasons was related to differences in their hypochondriacal belief scores.

## DISCUSSION

This study set out to examine whether individual differences in explaining common somatic sensations are related to general anxiety or to specific hypochondriacal attitudes. The results support both positions. The tendency to make somatic (illness) attributions was specifically related to hypochondriacal attitudes, as reported by Barsky *et al.* (1993) using a different methodology. In contrast, general anxiety was related specifically to a tendency to make psychological attributions. The results point to clear differences in attributional patterns associated with general anxiety and those associated with hypochondriacal beliefs. Beck and colleagues have argued for the importance of identifying the specific cognitions associated with anxiety and depression (Beck *et al.* 1987). What the present study shows is that this cognitive content-specificity can be taken further to include the cognitions underlying different types of anxiety.

There were two measures of attributional response – overall number of each type of attribution and number of each type given as the first response. The group differences in first responses are important as it has been found that search for explanations for phenomena are often truncated after finding one explanation that ‘fits’ (Shaklee & Fischhoff, 1982). Therefore, people are unlikely to go beyond their first explanation, if that explanation provides a plausible fit for the sensation. The difference between groups in overall number is also important as it suggests that even if further search is engaged in it is likely that more explanations of the same type will be generated (the difference in number was maintained even after taking into account first explanations). This finding is consistent with the ‘belief perseverance’ effect (see Koehler, 1991) in which biased beliefs persist, even after people are

exhorted to think more carefully or be as unbiased as possible. What is required to overcome this bias is for the person to be instructed specifically to come up with an alternative belief or explanation.

The present study could usefully be replicated using a larger sample of general practice attenders who were selected on a randomized basis. However, the results are important in reinforcing the importance of attributional processes in anxiety and hypochondriasis, and therefore support interventions where reattributional training is part of the package (e.g. Goldberg *et al.* 1989). The methods used here may also provide an outcome measure which is less open to response bias than questionnaires designed to assess attributional style and may, therefore, be useful in assessing not only whether, but how, interventions might work.

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