The association of sexual and physical abuse with somatization: characteristics of patients presenting with irritable bowel syndrome and non-epileptic attack disorder

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ABSTRACT

Background. Physical symptoms are commonly presented for treatment in the absence of physical pathology. This study tests predictions arising from the theory that childhood sexual abuse leads to emotional distress, illness orientation and social dysfunction as adults and that one or more of these effects, in turn, leads to presentation of functional (i.e. unexplained) symptoms.

Methods. Two groups of patients with physical symptoms in the absence of organic disease (non-epileptic attack disorder or irritable bowel syndrome) were contrasted with organically diseased groups with comparable symptoms (epilepsy and Crohn's disease, respectively).

Results. Despite their contrasting clinical presentation, irritable bowel and non-epileptic attack groups were similar in recalling more sexual and physical abuse, as both children and adults, than their comparison groups. They were also similar in being more emotionally and socially disturbed and illness-orientated, but these putative mediating variables could not account for the relationship of abuse with presentation of functional symptoms.

Conclusions. Adults presenting functional neurological and abdominal symptoms are characterized by history of abuse. The current focus on childhood sexual abuse should be broadened to include sexual, and particularly physical, abuse in adulthood as well as childhood. The intervening processes that link abuse to somatization remain to be identified but are unlikely to include adult emotional and social disturbance or general illness-orientation.

INTRODUCTION

Patient commonly present with physical symptoms that require treatment in the absence of demonstrable physical pathology. Among the explanations that have been proposed is that unexplained physical symptoms are a way of communicating psychological distress; 'somatization'. Diverse sources of distress have been suggested, including family or work responsibilities (Fordyce, 1976), depression (Katon *et al.* 1982), or family conflict (Minuchin *et al.* 1978).

Recently, there has been particular interest in a further source of distress that can apparently lead to somatization, namely, childhood sexual abuse. In their recollections of childhood history, somatizing patients are characterized by an incidence of sexual abuse that is greater than that reported in community samples or by patients with comparable symptoms with a confirmed physical cause (Fry, 1993). In particular, somatizing patients presenting with unexplained gynaecological or gastroenterological symptoms are more likely to recall sexual abuse in childhood and as adults than are patients with comparable symptoms with an organic basis (Drossman *et al.* 1990, 1996; Reiter *et al.* 1991; Talley *et al.* 1994, 1995;

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Leserman *et al.* 1996). The association of childhood sexual abuse with adult somatization has been strengthened by studies that have shown that victims of sexual abuse are characterized by more intense or more frequent physical symptoms and greater health care utilization than comparable individuals (Sedney & Brooks, 1984; Briere & Runtz, 1988; Salmon & Calderbank, 1996).

The focus of previous research on gynaecological and gastrointerstinal symptoms reflects an assumption that symptoms are related to the organ systems that were targets of abuse (Levis, 1991). However, history of abuse characterizes patients who present a variety of unexplained symptoms (Arnold *et al.* 1990), including migraine (Haber & Roos, 1985) and back-pain (Schofferman *et al.* 1992). Therefore, it is more likely that childhood abuse is followed by general tendencies to experience physical symptoms or engage in illness behaviour.

The present study tests key predictions that arise from the view that childhood abuse is followed by adult emotional distress, which leads to the presentation of unexplained symptoms. The first aim of the study was to find whether the relationship of abuse to presentation of irritable bowel syndrome (IBS), demonstrated previously in USA clinical and community samples (Drossman *et al.* 1990; Talley *et al.* 1994, 1995) occurred also in a UK clinical sample. The second aim was to confirm whether the association of abuse with somatization extended to patients who present with neurological rather than abdominal symptoms: i.e. patients with non-epileptic attack disorder (NEAD), in which 'pseudoseizures' resemble the seizures of epilepsy (Ford, 1993). Preliminary studies have suggested that these patients are characterized by a history of abuse (Gross, 1979; Greig & Betts, 1992; Bowman, 1993; Scheepers *et al.* 1994). However, these studies have used small samples (Cartmill & Betts, 1992; Greig & Betts, 1992), have focused exclusively on female patients (Betts & Boden, 1992; Bowman, 1993), or have lacked control groups (Scheepers *et al.* 1994). The present study tested a large sample, including both male and female patients and with epilepsy patients as a comparison group. The third aim of the present study was to use these two contrasting clinical models to explore variables that might mediate

a link between abuse and presentation of unexplained symptoms. Specifically, we tested the role of emotional distress (Peters, 1988), and the inability to communicate distress and receive support for it through normal social relationships (Peters, 1988; Leserman *et al.* 1996). Similar findings in both gastrointestinal and neurological models would imply effects of general importance, whereas findings restricted to one model would not.

Finally, in studies of sexual abuse, it is important also to assess variables that are correlated with it and that may account for its association with somatization; i.e. variables for which sexual abuse might be a 'marker'. Previous evidence has implicated history of physical abuse in addition to sexual abuse (Briere & Runtz, 1988; Salmon & Calderbank, 1996): both were therefore assessed in the present study. In addition, we recorded history of psychological abuse, because of the suggestion that many apparent sequelae of sexual abuse reflect disturbed emotional relationships in the family (Fry, 1993). Childhood abuse is also likely to be followed by adult abuse (Browne & Finkelhor, 1986; Fromouth, 1986). Therefore, we recorded abuse both as a child and an adult.

METHOD

Subjects and procedure

Separate groups of patients with functional symptoms (i.e. unexplained by physical pathology) or organically explained symptoms were recruited from two out-patient clinics in general teaching hospitals in Liverpool, i.e. gastrointestinal (GI) and neurological. Consecutive patients were approached who had diagnoses of irritable bowel syndrome (IBS), Crohn's disease (control for IBS), non-epileptic attack disorder (NEAD) or epilepsy (control for NEAD) until 40 had been recruited with each condition. IBS was diagnosed on the basis of clinical presentation and absence of evidence of organic disease (Manning *et al.* 1978) and Crohn's disease was diagnosed according to conventional radiological, endoscopic and histological criteria. Epilepsy and NEAD were diagnosed on the basis of clinical presentation and EEG recordings. Patients were approached individually by the male researcher after consultation

and asked to help with research into 'the previous life experiences of people with physical symptoms'. They were assured of confidentiality and anonymity before completing the questionnaire in a private room. Three subjects each in the IBS and NEAD groups declined before reading the questionnaire. Occasional items were omitted from otherwise completed questionnaires; degrees of freedom were adjusted in data analysis as appropriate.

Questionnaires

A frontsheet gathered demographic information (education was coded at two levels: none *v.* one or more school-leaving exam, trade or professional qualification). Experience of physical symptoms was measured by the 'somatization' subscale from the Hopkins Symptom Checklist (Deragotis *et al.* 1974). Two factor analytically derived subscales of the Illness Behaviour Questionnaire (Pilowsky & Spence, 1975) were included: 'disease concern' and 'disease conviction'. Anxiety and depression were measured by the Hospital Anxiety & Depression Scale (HADS) (Zigmond & Snaith, 1983). Social functioning was measured by the Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969). Recollection of childhood history was assessed by the Medical History Questionnaire used previously by Drossman *et al.* (1990). The questions about sexual abuse were initially developed for the National Population Survey of Canada. In keeping with most previous literature, sexual abuse was defined as a positive response to one or more of the following questions: 'Has anyone ever threatened to have sex with you when you didn't want this?', 'Has anyone ever touched the sex organs of your body when you didn't want this?', 'Has anyone ever made you touch the sex organs of their body when you didn't want this?', 'Has anyone ever tried forcefully or succeeded to have sex with you when you didn't want this?'. An additional question 'Has anyone ever exposed the sex organs of their body to you when you didn't want this?' was retained from the original questionnaire but not used here to identify abuse. A single question assessed physical abuse: 'When you were a child did an older person punch, hit or kick you?' Patients choosing 'occasionally' or 'often' rather than 'never' or 'seldom' were regarded as abused. A single question addressed psychological abuse: 'When you were a child did an older person insult, humiliate or try to make you feel guilty?' Once again, responses 'occasionally' or 'often' indicated abuse. Questions were written separately for childhood ($\leqslant$ 13 years; Drossman *et al.* 1990) and adulthood ($>$ 13), yielding six categories of abuse: sexual, physical and psychological, each as a child or adult.

Data analysis

The gender and education of patients with functional *v.* organic symptoms were compared by χ^2. Interrelationships of different forms of abuse, and the relationship of abuse to patient gender and education were also examined by χ^2 (*P* values being calculated from Fisher's exact test where expected cell frequency did not reach 5). The proportion of female and educated patients differed between organic and functional groups. Therefore, for forms of abuse which differed in incidence between males and females, or between those with and without educational qualifications, the relationship of abuse to functional *v.* organic status was confirmed by logistic regression, including gender and education as covariates as appropriate. After confirming that continuous measures (age and psychological questionnaires) approximated a normal distribution, these were subjected to two-way analysis of variance including terms to contrast functional *v.* organic patients and gastrointestinal *v.* neurological patients and to examine their interaction. Age, gender and education were entered as covariates in analyses of questionnaires scores. Separate one-way analyses of covariance (with age, gender and education as covariates), related questionnaire scores to each form abuse in childhood and in adulthood. Finally, after checking for multicollinearity among the predictor variables, we used logistic regression to find whether the ability of sexual or physical abuse to predict membership of the functional group could be accounted for by other variables with which abuse was associated. The response variable was membership of the functional *v.* organic group. Predictor variables were entered in the following steps: gender and education (age proved to be unrelated to the response variable); psychological variables; psychological abuse; physical and sexual abuse.

RESULTS

Sample

In the functional groups, the number of female patients was greater (GI, 30/40 v. 20/40; neurological, 29/40 v. 24/40; $\chi^2 = 6\cdot13$, $P < 0\cdot05$) and the number of patients with educational qualification was lower (GI, 21/40 v. 30/40; neurological, 24/40 v. 31/40; $\chi^2 = 6\cdot65$, $P < 0\cdot01$).

Table 1. *Relationship of child to adult abuse: numbers of cases*

		Abused when a child					
		Sexual		Physical		Psychological	
		Yes	No	Yes	No	Yes	No
Abused when adult	Yes	14	18	11	5	21	18
	No	20	108	34	109	41	80
χ^2		12·10**		14·34**		4·95**	

** $P < 0\cdot001$.

Functional and organic groups were of similar age, but GI patients were older than neurology patients (means, 41 v. 34 years, $F_{1,156} = 14\cdot00$, $P < 0\cdot001$).

Patterns of abuse

Sexual abuse was reported by 34 (21%) and 32 (20%) patients in childhood and adulthood, respectively, physical abuse by 45 (28%) and 16 (10%) and psychological abuse by 62 (39%) and 39 (24%). For each type of abuse, patients reporting childhood abuse overlapped significantly, but not completely, with those reporting adult abuse (Table 1). In both adulthood and childhood, patients experiencing one type of abuse were more likely to experience the others also (minimum $\chi^2 = 10\cdot54$, $P < 0\cdot05$); one or more forms of abuse had been experienced in childhood by 77 patients (48%) and in adulthood by 51 (32%) of patients.

Table 2 shows that females were more likely

Table 2. *Numbers (and percentages) of male and female patients who recalled abuse of each kind: greater incidence in females is signifcant where shown*

	Abuse when a child						Abuse when adult					
	Sexual		Physical		Psychol.		Sexual		Physical		Psychol.	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Female	27*	(17)	28	(18)	41	(26)	28**	(18)	12	(7·5)	33**	(21)
Male	7	(4)	17	(11)	21	(13)	4	(3)	4	(3)	6	(4)

* $P < 0\cdot05$; ** $P < 0\cdot01$.

Table 3. *Number of patients in each diagnostic group who recalled abuse of each kind. For each diagnostic group numbers are shown for males (M) and females (F) separately, and percentage is calculated as a proportion of each gender. Greater incidence in functional than in organic patients is significant where shown and remained significant in each case after controlling for gender and education (see text)*

	Abuse when a child						Abuse when adult					
	Sexual**		Physical***		Psychol.***		Sexual**		Physical***		Psychol.***	
	M N (%)	F N (%)	M N (%)	F N (%)	M N (%)	F N (%)	M N (%)	F N (%)	M N (%)	F N (%)	M N (%)	F N (%)
GI												
Functional	2 (20)	10 (33)	4 (40)	12 (40)	5 (50)	13 (43)	2 (20)	10 (33)	2 (20)	7 (23)	1 (10)	12 (40)
Organic	1 (5)	2 (10)	2 (10)	1 (5)	6 (30)	5 (25)	0 (0)	2 (10)	0 (0)	0 (0)	0 (0)	3 (15)
Neurological												
Functional	1 (9)	12 (41)	7 (63)	14 (48)	6 (54)	18 (62)	1 (9)	11 (37)	2 (18)	5 (17)	5 (45)	13 (44)
Organic	3 (18)	3 (12)	4 (25)	1 (4)	4 (25)	5 (20)	1 (6)	5 (20)	0 (0)	0 (0)	0 (0)	5 (20)

** $P < 0\cdot01$; *** $P < 0\cdot001$.

than males to report sexual abuse as a child ($\chi^2 = 4\cdot25$, $P < 0\cdot05$) and an adult ($\chi^2 = 9\cdot33$, $P < 0\cdot01$) and psychological abuse as an adult ($\chi^2 = 9\cdot21$, $P < 0\cdot01$). Gender and physical abuse were not linked either for child or adult reports ($P > 0\cdot05$). Patients with educational qualifications were less likely than those without qualifications to report adult sexual abuse (16/106 v. 16/53; $\chi^2 = 5\cdot01$, $P < 0\cdot05$) or childhood physical abuse (22/106 v. 22/53; $\chi^2 = 7\cdot60$, $P < 0\cdot01$).

Comparison of diagnostic groups

GI and neurology patients did not differ in reports of abuse. However, Table 3 shows that functional patients were more likely than organic patients to report child and adult sexual abuse ($\chi^2 = 9\cdot56$, $10\cdot00$, $P < 0\cdot01$), child and adult physical abuse ($\chi^2 = 26\cdot00$, $18\cdot01$, $P < 0\cdot001$) and child and adult psychological abuse ($\chi^2 = 12\cdot74$, $17\cdot93$, $P < 0\cdot001$). All relationships of abuse to functional status remained significant after controlling, as appropriate, for gender and education using logistic regression.

On the psychological variables, the only difference between clinics was a marginally greater level of somatization in neurology patients ($F_{1,152} = 4\cdot53$, $P < 0\cdot05$). By contrast, functional and organic groups differed markedly (Fig. 1); functional patients were more anxious ($F_{1,152} = 18\cdot53$, $P < 0\cdot001$) and depressed ($F_{1,152} = 14\cdot59$, $P < 0\cdot001$) had poorer social functioning ($F_{1,142} = 10\cdot89$, $P < 0\cdot001$), somatized more ($F_{1,152} = 18\cdot59$, $P < 0\cdot001$) and scored higher on disease conviction ($F_{1,151} = 11\cdot13$, $P < 0\cdot01$). The comparison of functional v. organic groups and of GI v. neurology patients did not interact for any variable; that is, differences between functional and organic groups were similar in the different clinics.

Relationship of abuse to psychological variables

In general, patients reporting childhood abuse were more disturbed than those who did not (Table 4). Specifically, sexual abuse was associated with greater somatization ($F_{1,154} = 8\cdot88$, $P < 0\cdot01$), depression ($F_{1,154} = 16\cdot28$, $P < 0\cdot001$), anxiety ($F_{1,154} = 11\cdot01$, $P < 0\cdot001$), disease conviction ($F_{1,154} = 5\cdot28$, $P < 0\cdot05$) and disease concern ($F_{1,154} = 8\cdot41$, $P < 0\cdot01$). Physically abused patients somatized more ($F_{1,154} = 22\cdot78$, $P < 0\cdot001$), had greater disease conviction
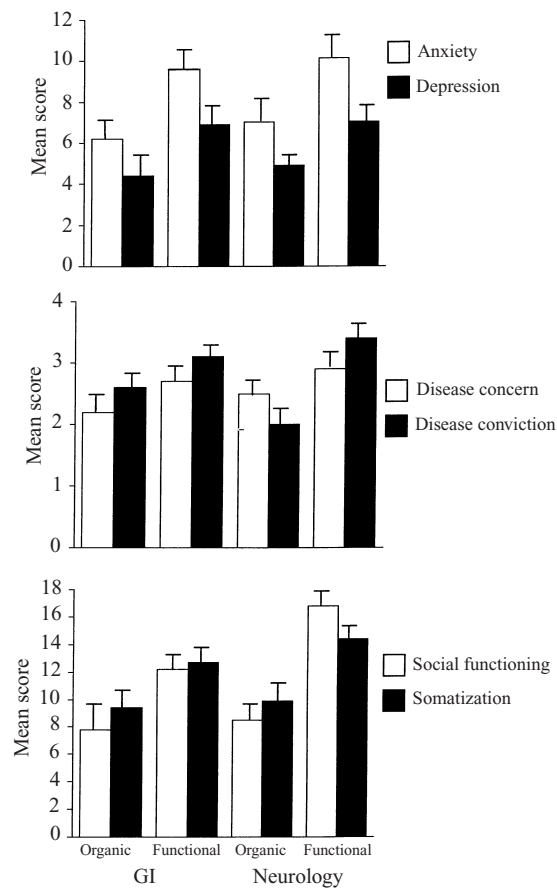

FIG. 1.   Group mean questionnaires scores (bars show S.E.M.).

($F_{1,154} = 9\cdot59$, $P < 0\cdot01$) and were more depressed ($F_{1,154} = 6\cdot17$, $P < 0\cdot05$). Those reporting psychological abuse also somatized more ($F_{1,154} = 20\cdot45$, $P < 0\cdot001$), were more depressed ($F_{1,159} = 9\cdot27$, $P < 0\cdot01$) and anxious ($F_{1,154} = 7\cdot30$, $P < 0\cdot01$) and showed more disease concern ($F_{1,154} = 6\cdot55$, $P < 0\cdot01$) and disease conviction ($F_{1,154} = 4\cdot80$, $P < 0\cdot05$). Fewer relationships were significant with adult abuse: sexual abuse was associated with greater somatization ($F_{1,154} = 5\cdot78$, $P < 0\cdot05$) and anxiety ($F_{1,154} = 5\cdot01$, $P < 0\cdot05$); physical abuse was associated with greater anxiety ($F_{1,154} = 4\cdot18$, $P < 0\cdot05$) and disease conviction ($F_{1,154} = 4\cdot22$, $P < 0\cdot05$); psychological abuse was associated with greater somatization ($F_{1,154} = 6\cdot82$, $P < 0\cdot01$), depression ($F_{1,154} = 5\cdot02$, $P < 0\cdot05$), anxiety ($F_{1,154} = 7\cdot47$, $P < 0\cdot01$) and social dysfunction ($F_{1,154} = 7\cdot03$, $P < 0\cdot01$).

Table 4. *Mean (S.D.) of psychological variables in groups defined by the presence or absence of each type of abuse*

| | Abuse when a child | | | | | | Abuse when adult | | | | | |
| | Sexual | | Physical | | Psychol. | | Sexual | | Physical | | Psychol. | |
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Somatization	15·5* (8·01)	10·25 (8·77)	16·88* (9·41)	9·20 (7·6)	15·33* (9·72)	8·85 (9·72)	15·15* (10·46)	10·42 (8·18)	14·87 (8·0)	11·04 (8·88)	14·82* (9·01)	10·25 (8·5)
Depression	8·14* (3·93)	5·21 (3·61)	7·22* (4·63)	5·29 (3·38)	7·08* (4·22)	5·05 (3·40)	6·5 (3·50)	5·64 (3·91)	7·25 (3·78)	5·69 (3·86)	7·05* (3·65)	5·44 (3·85)
Anxiety	10·91* (5·31)	7·5 (4·52)	9·55 (5·52)	7·74 (4·52)	9·61* (5·51)	7·39 (4·2)	10·00* (4·62)	7·82 (4·80)	10·62* (5·32)	7·99 (4·79)	10·33* (5·05)	7·58 (4·64)
Disease conviction	3·50* (1·54)	2·64 (1·91)	3·55* (1·93)	2·53 (1·84)	3·16* (2·53)	2·26 (2·05)	3·31 (1·33)	2·70 (2·02)	3·75* (1·34)	2·71 (1·95)	3·23 (1·45)	2·69 (2·03)
Disease concern	3·73* (2·53)	2·31 (2·11)	3·06 (2·55)	2·43 (2·15)	3·24* (1·94)	2·55 (1·86)	2·87 (1·91)	2·55 (2·30)	3·50 (2·39)	2·52 (2·26)	3·02 (2·37)	2·48 (2·24)
SADS	12·90 (8·01)	11·28 (7·58)	12·30 (8·21)	11·35 (7·47)	13·05 (7·5)	10·69 (7·5)	13·1 (8·05)	11·25 (7·5)	14·30 (7·28)	11·30 (7·71)	14·77* (7·5)	10·66 (7·41)

* Abused patients differed from non-abused by ANOVA (see text).

Logistic regression analyses

The data met two criteria for the absence of multicollinearity: the minimum tolerance was 0·36, and the maximum conditioning index was 18·20. However, preliminary analysis indicated that the (non-significant) coefficient associated with physical abuse in adulthood was unstable and, in view of the association of this variable with childhood physical abuse, it was eliminated from analysis. In the regression analysis, the model was improved significantly by each successive step: gender and education ($\chi^2 = 10·40$, $P < 0·01$); psychological state ($\chi^2 = 34·87$, $P < 0·001$); psychological abuse ($\chi^2 = 8·9$, $P < 0·05$); physical and sexual abuse ($\chi^2 = 9·90$, $P < 0·01$); cumulating to a proportional reduction in the log-likelihood (χ^2) of 0·31. In the final model, the Wald test identified three unique predictors. Probability of being a functional patient was increased by childhood physical abuse (odds ratio and 95% CI: 6·40, 2·26, 18·12) and anxiety (odds ratio and 95% CI associated with unit increase: 1·12, 1·05, 1·35). Probability was decreased by disease concern (odds ratio and 95% CI for unit increase: 0·75, 0·61, 0·93).

DISCUSSION

We studied two groups of patients with functional symptoms of very different kinds. In addition to contrasting clinical presentation, views of aetiology and pathophysiology of IBS and NEAD have differed markedly (Ford, 1993; Haster & Owyang, 1995). Nevertheless, these patients were indistinguishable on the historical and psychological variables that we measured. By contrast, each differed markedly from their respective controls who had symptoms that were similar in nature but physically explained.

In both functional groups, many more patients recalled sexual and physical abuse, both as adults and children, than did the controls. Although women were more likely both to have experienced sexual abuse and to present functional rather than organic symptoms, gender alone could not account for the association of abuse with functional symptoms. For gastrointestinal patients, our results confirm previous evidence of association between abuse and functional disorder in USA samples (Drossman

et al. 1990; Talley *et al.* 1994, 1995; Leserman *et al.* 1996), showing that they generalize to the UK. Evidence that NEAD patients are characterized by a history of abuse has, until now, been confined to preliminary studies, compromised by small samples, absence of control groups or an exclusive focus on sexual abuse in female patients (Cartmill & Betts, 1992; Greig & Betts, 1992; Bowman, 1993; Scheepers *et al.* 1994). Our findings confirm this evidence, in a large sample and by comparison with an appropriate clinical control. Differences in methodology and, in particular, criteria for defining childhood, preclude comparison between our findings and the higher incidence suggested by two of these studies (Bowman, 1993; Betts & Boden, 1992).

Our results show that the primary focus of previous research on childhood sexual abuse is too narrow. In the present study, the increased recollection of childhood sexual abuse in somatizing patients extended to a greater recollection also of physical abuse as a child and of both physical and sexual abuse as adults. Although there was a large overlap between patients recalling abuse of different kinds, the forms of abuse were not equivalent. Indeed, in the logistic regression analyses, sexual abuse had no unique effect. Instead, it was recollection of childhood physical abuse that uniquely characterized the functional groups. It should not be assumed that sexual or physical abuse contain the important causal factors; their association with somatization might arise because they are markers for other causal variables. In particular, somatic abuse generally arises in the context of parenting or other care-giving that is emotionally disturbed, i.e. psychological abuse. In the present study, psychological abuse was clearly associated with somatic abuse. However, the logistic regression analyses showed that psychological abuse could not explain the association of physical abuse with functional presentation.

The second way in which our functional groups were similar, despite their very different clinical presentation, was in their current psychological distress, physical disease orientation and social dysfunction. They were each more anxious and depressed, experienced more physical symptoms indicative of somatization, had greater illness behaviour (disease conviction) and poorer social function than their respective comparison groups. That is, they were more impaired than patients with comparable chronic symptoms arising from serious physical pathology. Our theory was that abuse leads to presentation of functional symptoms because it increases one or more of these putative mediating variables: psychological distress, illness orientation and social dysfunction. Abuse of each kind was, indeed, related to greater dysfunction or illness orientation. The stronger relationship with childhood than adult abuse is consistent with the view that childhood abuse is the more emotionally damaging. Emotional distress and illness orientation were associated both with history of abuse and with presentation of functional symptoms. However, the logistic regression analyses showed that the link between physical abuse and functional presentation could not be accounted for by increased emotional distress and illness orientation. There is further evidence of the independence of current distress, abuse history and functional diagnosis in Drossman *et al.*'s (1996) recent examination of these variables.

In conclusion, we have shown striking similarity in history of abuse and in current psychological state between two groups of patients presenting contrasting types of functional symptom. By comparison with control groups with similar chronic symptoms arising from serious physical pathology, functional groups recalled more sexual and physical abuse and reported more psychological distress and illness orientation and poorer social functioning. The results were, however, inconsistent with the theory that abuse leads to somatization by disturbing the aspects of psychological function that we measured. It remains for future work to identify the mediating variables whereby abuse is followed by somatization. However, the focus of such work should be broadened to include physical as well as sexual abuse, and abuse in adulthood as well as childhood.

REFERENCES

Arnold, R. P., Rogers, D. & Cook, D. A. G. (1990). Medical problems of adults who were sexually abused in childhood. *British Medical Journal* **300**, 705–708.

Betts, T. & Boden, S. (1992). Diagnosis, management and prognosis of a group of 128 patients with non epileptic attack disorder. Part II: previous childhood sexual abuse in the aetiology of these disorders. *Seizure* **1**, 27–32.

Bowman, E. S. (1993). Etiology and clinical course of pseudoseizures. Relationship to trauma, depression and dissociation. *Psychosomatics* **34**, 333–342.

Briere, E. J. & Runtz, M. (1988). Differential adult symptomatology associated with three types of child abuse histories. *Child Abuse and Neglect* **4**, 357–364.

Browne, A. & Finkelhor, D. (1986). Impact of child sexual abuse: review of the research. *Psychological Bulletin* **99**, 66–77.

Cartmill, A. & Betts, T. (1992). Seizure behaviour in a patient with post traumatic stress disorder following rape. Notes on the aetiology of pseudo-seizures. *Seizure* **1**, 33–36.

Derogatis, L. R., Lipman, R. S., Rickells, K., Ulenhuth, E. H. & Covi, I. (1974). The Hopkins Symptom Checklist [HSCL]: a self-report symptom inventory. *Behavioral Science* **19**, 1–15.

Drossman, D. A., Lesserman, J. S., Nachman, G., Zhiming, L. I., Gluck, H., Toomey, T. C. & Mitchell, M. C. (1990). Sexual and physical abuse in women with functional or organic gastrointestinal disorders. *Annals of Internal Medicine* **113**, 828–833.

Drossman, D. A., Li, Z., Leserman, J., Toomey, T. C., Yuming, J. B. & Hu, Y. J. B. (1996). Health status by gastrointestinal diagnosis and abuse history. *Gastroenterology* **110**, 999–1007.

Ford, C. V. (1993). Somatisation and non-epileptic seizures. In *Non-epileptic Seizures* (ed. J. A. Rowan and J. R. Gates), pp. 153–164. Butterworth Heinemann: Boston.

Fordyce, W. E. (1976). *Behavioral Methods for Chronic Pain and Illness.* Mosby: St. Louis.

Fromouth, M. E. (1986). The relationship of childhood sexual abuse with later psychological and sexual adjustment in a sample of college women. *Child Abuse and Neglect* **10**, 5–15.

Fry, R. (1993). Adult physical illness and childhood sexual abuse. *Journal of Psychosomatic Research* **37**, 89–103.

Greig, E. & Betts, T. (1992). Epileptic seizures induced by sexual abuse: pathogenic and pathoplastic factors. *Seizure* **1**, 269–274.

Gross, M. (1979). Incestuous Rape: a cause for hysterical seizures in four adolescent girls. *American Journal of Orthopsychiatry* **49**, 704–708.

Haber, J. & Roos, C. (1985). Effects of spouse abuse and/or sexual abuse in the development and maintenance of chronic pain in women. *Advances in Pain Research and Therapy* **9**, 889–895.

Haster, W. L. & Owyang, C. (1995). Irritable bowel syndrome. In *Textbook of Gastroenterology 2nd edn* (ed. T. Yamada), pp. 1832–1855. Lippincott: Philadelphia.

Katon, W., Kleinman, A. & Rosen, M. (1982). Depression and somatisation. *American Journal of Medicine* **72**, 127–135.

Leserman, J., Drossman, D. A., Tooney, T. C., Nachman, G. &

Glogan, L. (1996). Sexual and physical abuse history in gastroenterology practice: how types of abuse impact health status. *Psychosomatic Medicine* **58**, 4–15.

Levis, D. J. (1991). A clinicians plea for a return to the development of nonhuman models of psychopathology: new clinical observations in need of laboratory study. In *Fear, Avoidance and Phobias: A Fundamental Analysis* (ed. M. R. Denny), pp. 395–427. Erlbaum: New Jersey.

Manning, A. P., Thompson, W. G., Heaton, K. W. & Morris, A. F. (1978). Toward a positive diagnosis of the irritable bowel. *British Medical Journal* **2**, 653–654.

Minuchin, S., Rosman, B. L. & Baker, L. (1978). *Psychosomatic Families: Anorexia Nervosa in Context.* Harvard University Press: Cambridge, MA.

Peters, S. D. (1988). Child sexual abuse and later psychological problems. In *Lasting Effects of Child Sexual Abuse* (ed. G. E. Wyatt and G. J. Powell), pp. 101–118. Sage: Newbury Park.

Pilowsky, I. & Spence, N. D. (1975). Patterns of illness behaviour in patients with intractable pain. *Journal of Psychosomatic Research* **19**, 279–287.

Reiter, R. C., Shakerin, L. R., Gambone, J. C. & Milburn, A. K. (1991). Correlation between sexual abuse and somatization in women with somatic and nonsomatic chronic pelvic pain. *American Journal of Obstetrics and Gynecology* **165**, 104–109.

Salmon, P. & Calderbank, S. (1996). The relationship of childhood physical and sexual abuse to adult illness behaviour. *Journal of Psychosomatic Research* **40**, 329–336.

Scheepers, B., Budd, S., Curry, S., Gregory, S. & Elson, S. (1994). Non-epileptic attack disorders: a clinical audit. *Seizure* **3**, 129–134.

Schofferman, J., Anderson, D., Hines, R., Smith, G. & White, A. (1992). Childhood psychological trauma correlates with unsuccessful lumbar spine surgery. *Spine* **17**, 138–144.

Sedney, M. & Brooks, B. (1984). Factors associated with a history of childhood sexual experience in a non clinical female population. *Journal of the American Academy of Child Psychiatry* **23**, 215–218.

Talley, N. J., Flett, S. L., Zinsmeister, A. R. & Melton, J. L. (1994). Gastro-intestinal tract symptoms and self reported abuse: a population based study. *Gastroenterology* **107**, 1040–1049.

Talley, N. J., Fett, S. L. & Zinsmeister, A. R. (1995). Self-reported abuse and gastrointestinal disease in outpatients: association with irritable bowel-type symptoms. *American Journal of Gastroenterology* **90**, 366–371.

Watson, D. & Friend, S. (1969). Measurement of social evaluative anxiety. *Journal of Consulting and Clinical Psychology* **33**, 448–457.

Zigmond, A. J. & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica* **67**, 361–370.