

A psychiatric study of patients with diseases of the small intestine

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SUMMARY A group of 80 patients with diseases of the small intestine were given a standardized psychiatric assessment every time they attended the outpatients' department over a period of a year. Forty-six patients with idiopathic steatorrhoea, 23 patients with Crohn's disease, and 11 patients with alactasia were interviewed on 158 occasions. During this time 27 of them (34%) were found to be psychiatrically ill, their illnesses being minor affective disorders. Psychiatric illness was not related either to generalized malabsorption or to deficiencies of specific substances such as folic acid. Although a clear relationship was demonstrated between emotional disturbances and bowel action, diarrhoea was neither sufficient nor necessary for psychiatric illness, and distress associated with diarrhoea was unusual. No single characteristic type of personality was found in any of the patients with the three diseases, but some traits were considerably more commonly associated with some of the diseases than others, and patients with psychiatric illness were shown to attend the outpatients' department more frequently than stable patients. Patients with a family history or a previous history of psychiatric illness, or with depressive traits in their previous personality, were much more likely to fall ill in the survey year. A positive family history of psychiatric illness was significantly more common in idiopathic steatorrhoea. Three patients suffered relapses in the survey year, and in all of these the relapse appeared to be related to emotional factors.

Idiopathic steatorrhoea, alactasia, and Crohn's disease form a group of diseases that are peculiarly suitable for psychiatric study, since almost every aspect of the disease process can be measured. The diseases themselves can be diagnosed with precision, the first two conditions by jejunal biopsy, and doubtful cases of Crohn's disease by laparotomy and biopsy. The nature and frequency of the accompanying diarrhoea provide a convenient functional index of the degree of activity of the disease at any point in time. Finally, folic acid and vitamin B₁₂, where malabsorption is known to be associated with psychiatric symptoms, can each be measured in the blood. The present survey has added to this

list the use of a standardized psychiatric interview of known reliability.

The starting point of the present investigation was that the physician under whose care the patients were had noticed a particularly high incidence of psychiatric abnormalities in his patients with idiopathic steatorrhoea. Indeed, Paulley (1959) observed: 'even colleagues not interested in psychosomatic disorders have commented on their mental peculiarities.'

If these observations are correct, they could have four possible explanations. First, the psychiatric abnormalities seen in idiopathic steatorrhoea could be nutritional, and caused by the malabsorption of essential substances such as folic acid and vitamin B₁₂. If this were true one would predict a higher prevalence of psychiatric disorder in patients with idiopathic steator-

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rhoea than in patients with either of the other conditions, since generalized malabsorption only occurs in the former condition. More specifically, one could also predict that there might be a strong association between psychiatric morbidity and deficiencies of folic acid or vitamin B₁₂.

Second, the psychiatric abnormalities might be caused by the physical symptoms themselves: in the words of Avery Jones and Gummer (1960), 'the influence here is as much somatopsychic as psychosomatic'. The physical symptom most likely to cause distress is the diarrhoea with which each of the three diseases is associated. If this explanation were true one would not only expect to find differences in the prevalence of psychiatric morbidity between the three diseases, but one would expect that within the whole group of patients there would be a strong association between frequency and the degree of abnormality of diarrhoea and psychiatric morbidity. One would also predict that the patients with psychiatric illness would report some emotional distress associated with diarrhoea, since no one would expect them to experience it unconsciously. A further prediction would be that patients without diarrhoea should not be psychiatrically disturbed.

The third explanation would be that such psychiatric abnormalities as are present are part of a consistent constellation of personality traits associated with these diseases; such an explanation might be favoured by those who suppose that the diseases themselves are at least in part a manifestation of some psychological problem. If this explanation were true one would expect to discover consistent constellations of personality traits in the three diseases, and would be impressed if this was confirmed by reliable psychometric tests.

The fourth explanation would be that the impression that psychiatric illness is common is more apparent than real, and is caused by factors such as psychiatric patients attending the department more frequently and being less likely to lapse in their attendance than those without psychiatric conditions.

Method

All the patients seen on the survey were under the care of Dr B. Creamer at St Thomas' Hospital, London. Patients were seen every time they attended the outpatients' department or were admitted to the ward between August 1967 and August 1968. At the end of the year patients with the three diseases who were known to the department but had lapsed in their attendances were sent for specially. Altogether 46 patients with idiopathic steatorrhoea, 23 patients with Crohn's disease, and 11 patients with alactasia were seen on 158 separate occasions. In addition to the standardized psychiatric interview each patient

with malabsorption received a comprehensive series of blood tests. This seems to be the largest consecutive series of such patients ever seen by a psychiatrist, and the first time that a standardized psychiatric assessment of known reliability has been used.

Each interview lasted between half an hour and one hour, and some patients were seen on as many as eight occasions. The patient was first asked for a short medical and social history. Careful assessments were made about the frequency and nature of the bowel movements, and patients were asked how distressing they found any diarrhoea they experienced. A number of assessments were then made about the patient's previous personality, using traits that are commonly assessed when dealing with psychiatric patients. Thus assessments were made about abnormal moods, extraversion/introversion, and obsessional traits. In view of some of the published findings on abnormalities of personality found in these conditions, assessments were also made about sensitivity and ability to show anger.

Up to this point the interview had merely been aimed at collecting background information about the patient that was relevant to this particular piece of research. The patient was then given the standardized interview aimed at establishing psychiatric disturbance at that time. This consists of a systematic assessment of symptoms which the patient may have experienced in the previous week in 10 different symptom areas. After the patient has left the room the psychiatrist makes assessments about 12 types of abnormality that may have been displayed at interview, and writes a short formulation of the case. Each of the 22 ratings are made on a five-point scale, and there are simple rules for relating the intensity and frequency of each symptom to the five-point scale. The ratings are as follows:

<i>Reported Symptoms</i>	<i>Manifest Abnormalities</i>
Somatic symptoms	Slow, apathetic
Fatigue	Suspicious
Sleep disturbance	Histrionic
Irritability	Depressed
Lack of concentration	Anxious
Depression	Elated, euphoric
Anxiety	Flattened, incongruous
Phobias	Thought disorder, delusions, misinterpretations
Depersonalization	Hallucinations
	Intellectual impairment
	Depressive thought content
	Excessive concern with bodily functions

This standardized interview was devised at the Institute of Psychiatry by Goldberg, Cooper, Eastwood, Kedward, and Shepherd (1970), and the assessments made by it have been shown to have a high reliability between one psychiatrist and another. When the survey was completed, the following information was available for each patient: his present state, including bowel action;

a short medical and social history and a family psychiatric history; any previous history and details of his previous personality on a five-rating scale (mood, obsessional traits, introversion, sensitivity, or anger); 22 ratings of reported symptoms and manifest abnormalities for each attendance of the patient at the department during the year; a short formulation of his symptoms, a diagnosis of any psychiatric condition according to the International Classification of Diseases, the results of the Middlesex Hospital Questionnaire (Crown and Crisp, 1966), and the results of blood tests, which included where appropriate, Hb, ESR, plasma proteins, serum iron, serum B₁₂, serum folate, calcium, and PO₄.

Results

RELATIONSHIP OF PSYCHIATRIC MORBIDITY TO NUTRITIONAL FACTORS

Psychiatric morbidity was measured in two ways. The first was a severity rating, so that on the basis of the patients' scores on the 22 ratings they could be divided into normals, those with sub-clinical disturbance, and mild and moderate psychiatric disturbance. The second was a rating of how often they were thought to be disturbed during the survey year. If they were disturbed on some occasions but not on others they were said to be 'sometimes ill', while if they were consistently either healthy or disturbed they were described as 'always well' or 'always ill'. Table I relates psychiatric morbidity in the latter way to the three diagnostic groups. It can be seen that the distributions are similar, and that about one third of the patients were thought to be psychiatrically ill at some point in the survey year.

	Psychiatric Status			Total
	Always Ill	Sometimes Ill	Always Well	
Idiopathic steatorrhoea	8 (17%)	8 (17%)	30 (65%)	46 (100%)
Crohn's disease	4 (17%)	2 (9%)	17 (74%)	23 (100%)
Alactasia	2 (18%)	3 (27%)	6 (55%)	11 (100%)

Table I Frequency of psychiatric illness during the survey year

Of the three diseases only one, idiopathic steatorrhoea, is associated with generalized mal-absorption. If psychiatric disturbance was related to deficiencies of essential foodstuffs one might expect a higher incidence of psychiatric illness in patients with this disease, but inspection of Table II, which compares the frequency of psychiatric illness shows that this is not so. It may be argued that since the patients with idiopathic steatorrhoea were receiving treatment this might explain why the numbers of those psychiatrically disturbed were not higher. Of the various

	Always Ill	Sometimes Ill	Always Well
Idiopathic steatorrhoea (N = 46)	8	8	30
Crohn's disease and alactasia (N = 34)	6	5	23

Table II A comparison of the frequency of psychiatric illness¹

¹Chi square test shows that P is not significant at 0.1.

deficiencies that these patients are liable to suffer, the one most obviously relevant to psychiatric disturbance is folic acid deficiency. Serum folate results were available for 36 of the patients with idiopathic steatorrhoea who were not receiving folic acid tablets.

Table III relates serum folate to the evaluation of psychiatric status carried out at the time the blood was taken. It can be seen from this table that of the 23 patients who were well at the time serum folate was measured 52% had low levels, whereas of the 13 patients who were psychiatrically ill only 38% had low levels. Thus in a

Serum Folate	Psychiatric Status		
	Well	Ill	Total
Normal (above 6 ng/100 ml)	11	8	19
Low (below 6 ng/100 ml)	12	5	17
Not known, or on folic acid tablets	9	1	10

Table III Relationship of serum folate to simultaneous assessments of psychiatric status in patients with idiopathic steatorrhoea¹

¹Chi square test shows P is not significant at 0.1.

population where both folate deficiency and psychiatric illness were relatively common, there was not only no positive association between them, but folate deficiency was rather less common in those who were psychiatrically disturbed. It is difficult to explain this finding. It may be because stable patients are less querulous, and make fewer demands on the physician, so that folate deficiency is more likely to pass unnoticed. It is not because patients with low serum folate levels come up to the department less often, since the mean frequency of attendance for patients with normal and low folate levels are very similar. Whatever the explanation, these findings are strong evidence against folate deficiency being responsible for the psychiatric disturbance. Among the remaining tests that were carried out it was found that anaemia, low serum iron, and vitamin B₁₂ deficiency were all insufficiently common to enable useful statistical comparisons to be made.

RELATIONSHIP OF DIARRHOEA TO PSYCHIATRIC MORBIDITY

For each of the three diseases studied, a clear

	Normal Patients	Subclinical Disturbance	Psychiatric Illness
Idiopathic steatorrhoea	1.6	1.8	3.1
Crohn's disease	3.3	3.1	5.7
Alactasia	2.0	2.0	3.4
All patients	2.0	2.3	3.75

Table IV Mean frequency of bowel movement per day for each of three grades of psychiatric disturbance

relationship was found between severity of psychiatric disturbance and frequency of bowel movements per day (Table IV). It was also possible to demonstrate a relationship between psychiatric morbidity and the degree of abnormality of the stool. Of the patients who were psychiatrically ill during the survey year 41% described their stool as offensive as against only 9.8% of those who remained well. Nor can this merely be attributed to the tendency of disturbed patients to give dramatic descriptions of their stool, since Table V shows that there is also a clear difference in the numbers reporting normal motions.

	Offensive Diarrhoea	Diarrhoea	Normal Motions
Psychiatrically ill	11 (41%)	8 (29%)	8 (29%)
Well	5 (9.8%)	18 (35%)	28 (55%)

Table V A comparison of the type of stool during the survey year¹

¹A chi square test shows that the two distributions of numbers are significantly different at the 0.01 levels.

Tables IV and V confirm a well known psychophysiological relationship; they do not show what causes what. There are, of course, sufficient numbers of psychiatrically ill patients with normal motions, and stable patients with abnormal motions, to discount any simple causal relationship. If the diarrhoea causes the emotional disturbance, one would expect this causal chain to be mediated by distress. Table VI explores the relationship between psychiatric

	Distress	
	Yes	No
Ill	6	21
Well	1	52
Total	7 (9%)	73 (91%)

Table VI Relationship between psychiatric illness during the survey year and distress related to abnormal bowel action

illness and distress related to abnormal bowel action. It can be seen that the vast majority (91%) of patients do not report distress and easily come to accept the symptom as part of their illness. This applies to over three-quarters of those who were ill during the survey year. The position regarding diarrhoea and psychiatric illness can therefore be summarized by saying that while there is an undoubted relationship between the two, diarrhoea is neither sufficient nor necessary for psychiatric illness, and distress associated with diarrhoea is unusual.

PERSONALITY TRAITS

Each patient was carefully evaluated for cyclothymic and depressive traits. Patients were rated as depressive only if they described clear episodes of depression coming on for no obvious external reason and lasting for at least 24 hours at a time. The three patients rated as hyperthymic were asked leading questions because of their manner at interview, and patients whose habitual mood seemed to be within normal limits were rated as 'euthymic'. These results (Table VII) are mere

	Euthymic	Depressive	Cyclothymic	Hyperthymic
Idiopathic steatorrhoea	24 (52%)	19 (42%)	2 (4%)	1 (2%)
Crohn's disease	17 (74%)	1 (4%)	3 (13%)	2 (9%)
Alactasia	8 (73%)	3 (27%)	0 (0%)	0 (0%)

Table VII The predominant mood in the previous personality

clinical impressions based on a short interview, and there are no adequate data for a control population with which to compare them. Nonetheless, the incidence of depressive traits in the patients with idiopathic steatorrhoea seems very high. The three hyperthymic patients formed an interesting subgroup, since they were known to the physicians as members of a small group of patients with an excessive appetite. Presumably their very high calorie intakes could be related to the combination of a small-bowel absorption defect and their hyperthymic personalities, which in turn caused hyperactivity and excessive calorie demand.

Previous Surveys	Present Survey	
Schuffner and Snyders (1929)	Marked depressive traits	Depressive traits common (42%)
Paulley (1949)	Extreme sensitivity	Sensitivity common (55%)
Paulley (1959); Schuffner and Snyders (1929); Prugh (1951)	Obsessional traits	Obsessional traits (54%) ¹
Schuffner and Snyders (1929)	Introspective	Possibly more introverted
Paulley (1949)	Immature	No information
Paulley (1959)	Most unmarried	Most are married (35/46)
Paulley (1949)	Cannot show anger	Most can show anger (74%)

Table VIII A comparison of the personality traits described in patients with idiopathic steatorrhea

¹Not as common as in Crohn's disease

Previous Surveys		Present Survey
Feldman, Cantor, Soll, and Bachrach (1967); Paulley (1959)	Outwardly normal	Possibly more extraverted
Blackburn, Hadfield, and Hunt (1939); Bockus (1945); Hunt (1965); Stewart (1949); Whybrow, Kane, and Lipton (1968)	Anxiety common	Not confirmed
Paulley (1959); Stewart (1949)	Repressed rage important	Many unable to show anger (52%)
Crockett (1952)	Obsessional traits (40%)	Obsessional traits and symptoms (76%)
Crockett (1952); Whybrow <i>et al</i> (1968)	Depressive swings	Depressive traits unusual (4%)
Paulley (1959); Stewart (1949)	Extreme dependence	No assessment
Bockus (1945); Paulley (1959)	Emotional immaturity	No assessment

Table IX A comparison of the personality traits described in patients with Crohn's disease

The depressive traits in the patients with idiopathic steatorrhoea appeared to be related to psychiatric illness during the survey year, since of the eight patients who remained ill throughout the year, no fewer than six described such traits.

It is difficult to compress the findings concerning personality, but in the interests of brevity the findings of previous surveys and published work have been contrasted with the findings of the present survey in the Tables VIII and IX.

FREQUENCY OF ATTENDANCE AT THE OUTPATIENT DEPARTMENT OF PSYCHIATRICALY DISTURBED PATIENTS

Of the 46 patients with idiopathic steatorrhoea, 19 had lapsed in their attendances, and had to be sent for in the last three months of the survey so that they could be included. In the 27 patients who were still attending the outpatients department spontaneously, the prevalence of psychiatric illness during the survey year was 43%, while over the whole group of patients the prevalence was only 34%. It therefore seems that the patients who continue attending are not representative of the whole population, since the sample contains more than its fair share of psychiatric patients. However, with the rather small numbers involved this difference falls short of significance at the 10% level.

Over the whole group of 80 patients, the mean annual frequency of attendance at the department was then considered according to the

Grade of Psychiatric Disturbance	Mean Frequency of Attendances	Number
Normal	1.1	32
Subclinical	1.4	21
Psychiatric illness: mild	2.4	25
Psychiatric illness: moderate	5.0	2

Table X Frequency of attendance during the survey year

psychiatric status of each patient when seen for the first time on the survey. There is an undoubted association between frequency of attendance and severity of psychiatric disturbance (Table X). It can therefore be concluded that, relative to all patients with small gut diseases attending the department, psychiatric patients are likely to overrepresent themselves by attending the department more frequently than more stable patients.

OTHER FACTORS THAT MIGHT AFFECT PSYCHIATRIC MORBIDITY

Two negative findings are of some interest. The physical status of the patients with idiopathic steatorrhoea—as assessed by the degree of response to a gluten-free diet, and by Paneth cell deficiency on jejunal biopsy—does not appear to be relevant to psychiatric morbidity. Another factor that was explored was failure to stick to the prescribed diet in idiopathic steatorrhoea and alactasia. Only 70% of those with idiopathic steatorrhoea, and 30% of those with alactasia, did stick closely to their diet but failure to do this was no more common in psychiatric patients than in normals (Table XI).

	Taking Diet		Total	
	Yes	Deviating	No	
Steatorrhoea	32	8	6	46
Alactasia	4	5	2	11
Psychiatrically ill during year	12	6	3	21
Always well	24	7	5	36

Table XI The relationship between psychiatric morbidity and deviations from, or failure to take, the prescribed diet

A previous history of psychiatric illness was far more common in patients with idiopathic steatorrhoea than it was in Crohn's disease ($P < 0.05$), and this perhaps tends to confirm the finding concerning depressive traits being more common in the former condition (Table XII); 50% of those who were psychiatrically ill during the survey year had a previous psychiatric history, as against 27% of those who remained well.

A family history of psychiatric illness was more common in idiopathic steatorrhoea, since 28% of

	Treatment by Psychiatrist	Visits to GP for 'Nerves' or Nervous Breakdown	Illness Described	No Illness
Idiopathic steatorrhoea	15%	22%	4%	59%
Crohn's disease	9%	5%	5%	81%
Alactasia	18%	27%	0%	55%

Table XII Previous psychiatric history

this group described a formal psychiatric illness requiring medical treatment in either a parent or sibling, as against 19% of patients with Crohn's disease and 9% of those with alactasia. The difference between the former condition and the other two combined is significant at the 0.05 level. There was a powerful interaction between having a family history of psychiatric illness and being psychiatrically disturbed during the survey year. Considering the patients with idiopathic steatorrhea, of those who were ill throughout the year 63% had a positive family history, as against 38% of those who were sometimes ill, and only 17% of those who remained well.

PSYCHIATRIC DIAGNOSES

No mention has been made in the analyses presented so far of the nature of the psychiatric illnesses from which the patients suffered. In fact, the situation has not greatly changed since Robert Burton described 'flatulent melancholy' in 1621: 'some fear and are sad, some be sad and fear not, some neither fear nor grieve.' All the patients in this series were suffering from affective illnesses (Table XIII). Among these patients

	<i>Idiopathic Steatorrhoea</i>	<i>Crohn's Disease</i>	<i>Alactasia</i>
Depression	9	5	3
Depression and anxiety	5	1	1
Anxiety states	2	0	1

Table XIII *Psychiatric diagnoses*

seven were also diagnosed as being abnormal personalities, mainly sensitive, inadequate personalities, although one was an aggressive psychopath. Predictably, two of the depressions in the group with Crohn's disease had obsessional features. Only one patient displayed psychotic features, a patient with alactasia whose depression was accompanied by paranoid misinterpretations.

How normal were the 'normals', who 'neither feared nor grieved'? Of the 30 'normals' with idiopathic steatorrhoea, 12 had abnormalities not amounting to formal mental illness. There were four mild depressions and anxiety states which were thought to be subclinical in severity, and four mild personality disorders without any affective disturbance. The remaining four were an impotent man, a virgin wife, a patient with an organic syndrome, and a mental defective. It is often difficult to draw the line between psychiatric illness and 'normality'. Many would count the virgin wife as a 'case'—she certainly responded to psychotherapy in the survey year—but it was an incidental finding in a girl who in all other respects seemed contented and well adjusted. Even in the 18 remaining 'normals' there were two who described undoubted mental illnesses in the past, one described a paranoid psychotic

illness, and the other a severe depression. The 15 'normals' with Crohn's disease were similar, in that six had subclinical abnormalities: three patients with personality disorders, two with subclinical depression, and one with premature ejaculation.

Discussion

The results of this survey give no support to a theory relating psychiatric morbidity either to generalized malabsorption or to malabsorption of specific substances such as folic acid. A relationship has been demonstrated between psychiatric morbidity and bowel action, but it has been shown that it is highly unlikely that the psychiatric disturbance is secondary to the diarrhoea.

Although the psychiatric patients are likely to be among the frequent attenders of the department, the overall prevalence of 33.6% of psychiatric illness in the whole group of patients during the survey year calls for some comment. We have already seen that the traditional variables with which clinical psychiatry deals—family psychiatric history, previous psychiatric history, and depressive traits in the previous personality—are all determinants of illness during the survey year. The results of the present survey do not allow one to tell whether psychiatric disturbance is any more common in this group of outpatients than in any other, but it is perhaps of interest that, using the same interview in a general practice setting, the point prevalence of psychiatric illness among the consulting population was found to be approximately 30% (Goldberg and Blackwell, 1970).

It is difficult to interpret the finding that a positive psychiatric family history was more common in idiopathic steatorrhoea than in the other two conditions, since one really needs to know the expectancy of such a history in the general population, and this information is not available. One possible explanation would be that there is some genetic linkage between psychiatric illness and the 'genetically-determined enzyme defect' that is thought to be responsible for idiopathic steatorrhoea.

Having shown that psychiatric disturbance is relatively common in these diseases, it remains to show whether it is an important determinant of either the onset or the course of the disease process. It has already been shown that no single invariable personality constellation was found to characterize either the group as a whole or any one disease in particular. Although psychiatric abnormalities were numerous they were also very widely assorted, so that it is a little difficult to associate a particular personality type with each disease. During the course of the year only three of the patients suffered clinical relapse, but in each of these the relapse came at a psychologically

stressful time in the patient's life, and the patients were clinically disturbed at interview at the time of their relapse. The tendency for relapse to be related to emotional stress has been noted by Stewart (1949), Crockett (1952), Grace (1953), Hunt (1965), and Whybrow, Kane, and Lipton (1968), and was confirmed in this survey. It would of course be necessary to follow such a population over a number of years in order to try and establish such an observation on a more secure footing.

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