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PSYCHOSOMATIC APPROACH TO BRONCHIAL ASTHMA

A Study of 50 Adult Asthmatics.

By

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Interest in psychosomatic medicine has increased recently. Much work has appeared on bronchial asthma from a psychiatric and psychological point of view. Synoptical reviews of the literature have been published by *Leigh* (1953) and *Freeman et al.* (1964).

However, the results of the different investigations are to some extent contradictory; and there is no uniform conception of the significance of the psychological factors in asthma. In some measure this is probably due to the fact that various investigations base their studies on different theoretical conceptions and use different methods. The nomenclature is not uniform, and the selection, composition, and size of the material varies widely between one investigation and another. A defect in a number of the investigations is that, from a psychiatric point of view, they are selective, *i. e.* only those patients have been examined who either were referred to, or themselves consulted, a psychiatrist.

The main purpose of this study is descriptive. The primary problem has been to try to ascertain the degree of mental insufficiency and the type of psychiatric symptoms displayed by patients suffering from asthma, and whether they have any distinctive personality traits. It was noted if the onset of

asthma coincides with certain external occurrences which involved separation. The secondary problem is whether any connection exists between, on the one hand, such factors as the presence or absence of specific hypersensitivity, and the severity of the asthma, and, on the other hand, mental disorders.

MATERIAL

Method of Selection

The probands were taken from among patients who, during one year, *i.e.* between May 1, 1963, and April 30, 1964, were admitted as emergency cases in *status asthmaticus* to Medical Clinic II (allergy department), S:t Görans Sjukhus, Stockholm. They were all over 17 years of age, and were resident in the city of Stockholm. Here, by bronchial asthma is meant that the patients suffered from attacks of expiratory dyspnea with wheezing in the air passages. In the above-mentioned clinic special interest has been taken in asthmatics, and all these patients who are admitted are subjected to a routine examination for heart and lung function, allergological conditions, eosinophilia in the blood and sputum, pathologic bacterial flora in the sputum, etc.

All the patients examined has eosinophilia in the sputum. If their difficulties in breathing were regarded as mainly due to emphysema, as diagnosed by spirometry, they were not included in the material. If, besides asthma, they suffered from some other serious somatic disease, *e.g.* cardiac insufficiency or diabetes, they were likewise excluded.

All the probands were hospitalized because they were too ill to remain in their homes. Otherwise nearly all the patients with bronchial asthma underwent routine examinations and treatment as out-patients, and only in so far as this treatment proved unsatisfactory was hospital accommodation provided for them.

The above-mentioned measures were applied so as to obtain cases which, from a somatic point of view, were "genuine" and of a serious character. No selection was made from either a psychiatric or a psychological point of view.

By this method of selection 50 probands were obtained, 20 men and 30 women. Table 1 shows the age distribution. The youngest subject was 17 and the oldest 77 years of age.

Medical Aspect of the Probands' Asthmatic Disease

Four men and two women were regarded as having exogenous asthma. Their history showed that asthma was caused by contact with a certain allergen; and intradermal tests and provocation tests were positive. In the remaining probands no exogenous allergens could be found.

Besides attacks of asthma, 5 men and 8 women suffered also from the same complaints as those associated with chronic bronchitis, *i.e.* they had periods lasting several months a year during which they had a cough, slight rise in temperature, and sputum culture showed pathological bacterial flora.

TABLE 1
Age Distribution.

Years	Men	Women
10-19	1	2
20-29	—	1
30-39	2	2
40-49	3	7
50-59	9	10
60-69	5	6
70-79	—	2

TABLE 2
Age at Onset of Asthma.

Years	Men	Women
0-9	1	4
10-19	3	—
20-29	2	6
30-39	6	7
40-49	2	4
50-59	5	8
60-69	1	1

In 5 men and 2 women roentgenological examination and spirometry revealed signs of emphysema. They suffered also from attacks of asthma; they had had the disease for a long time. They had been going to the clinic for many years for check-ups, in some cases for more than 10 years, and signs of emphysema had developed only during recent years. They were also included in the investigation because in their case, asthmatic disease was considered to be the primary and the chief cause of their disorder.

In 8 men and 12 women allergic rhinitis was also present, with serial sneezing, clear watery discharge, and nasal obstruction.

Four women had had urticaria at some time during their lives. One woman had had allergic conjunctivitis.

Table 2 shows age at onset of asthma. Five of the probands contracted the disease before they were 10 years old. Many patients, however, were older when they fell ill. In a total of 15 cases, age at onset was over 50.

On the basis of the probands' oral statements and the hospital records an attempt was made to estimate the total length of time that each patient suffered

from the disorder, *i.e.* how long did they have such severe asthmatic trouble that they were unable to work, were hospitalized or otherwise seriously disabled. These data are naturally very uncertain. They have been divided into 4 different groups. *Group I*: Total duration of the complaint less than one year. *Group II*: From 1 to 5 years. *Group III*: From 6 to 10 years. *Group IV*: More than 10 years. Table 3 shows the distribution in accordance with these groups. There is wide dispersion in the duration of the disease: 4 patients had had asthma for less than one year, whereas 11 had suffered from the disease for more than 10 years.

TABLE 3
Total Duration of Asthma.*

	Men	Women
Group 1		
less than one year	2	2
Group 2		
1-5 years	6	10
Group 3		
6-10 years	9	10
Group 4		
exceeding 10 years	3	8

* Total duration of asthmatic complaints.

Continuous ACTH and/or steroid medication is considered by many authors to be an indication that the asthma has reached a certain degree of severity, since attempts are made to do without these medicines as long as possible owing to their side effects. In this material, 15 men and 18 women had been given continuous medication of this kind for not less than half a year. The remaining 5 men and 12 women were given symptomatic therapy and ACTH and/or steroid treatment only during short periods in connection with acute deterioration.

On account of their illness 2 women were only able to work half time. Moreover, 7 men and 7 women were entirely unable to work; many of them had been in this condition for several years. Thus, in all 16 persons, 7 men and 9 women, had had their working capacity permanently reduced by not less than 50 per cent.

Four men and four women were hospitalized, they had spent more than half of the last year in hospital.

With regard to 2 men and 1 woman, on some occasions the attacks of asthma had taken such a grave turn that their life was in immediate danger, and they were saved only by means of artificial respiration, heart massage and, in certain cases, by the application of respirators. After the investigation had been completed, two of them died of acute asthmatic attacks. From a psychiatric point of view the last-mentioned group proved to be of special interest.

It is quite evident that the persons included in the material represent a severe form of bronchial asthma which had a great effect on their capacity for work; subsequently two of them died in *status asthmaticus*. However, the material consisted also of milder cases of the disease. The different degrees of severity of the disease are given in Table 4.

TABLE 4
Different Criteria of the Degree of Severity of the Asthma.

	Men	Women
Continuous steroid medication	15	18
Capacity for work reduced by more than one half	7	9
Hospitalized for more than half a year during last year	4	4
Perilous attacks of asthma	3	1

TABLE 5
Occupational Classification.

	Men	Women
Agriculture and forestry	1	—
Industry and handicrafts	1	2
Communications	8	—
Trade	5	1
Administration, management, independent profession (occupation)	5	12
Health and Medical services	—	2
Household work	—	13

Probands' Social Background

Training: 15 men and 17 women had had only elementary education. Three men and 10 women had passed the school certificate or some similar examination, while 2 men and 3 women had matriculated or had reached a similar academic level. None of the probands had had a university education.

Occupational distribution: This is shown in Table 5. The table gives the occupational groups contained in the Swedish official statistics. The 11 women who did not have permanent employment outside their homes, «housewives», were placed in the group «house work».

Distribution by social groups: Table 6 shows the material classified according to the social groups used in the Swedish official statistics. They correspond approximately to: Social group 1 = Well-to-do, Social group 2 = Middle Class,

Social group 3 = Workers and similar. Married women were placed in the social groups of their husbands.

Distribution according to civil status: This is shown in Table 7.

These data afford a good general idea of conditions in the large towns. This applies especially to occupational distribution and to the relatively high proportion of divorced persons. But persons with higher education and higher social positions are underrepresented.

TABLE 6
Distribution by Social Groups.

	Men	Women
Social group I	1	2
Social group II	7	20
Social group III	12	8

TABLE 7
Distribution by Civilian Status.

	Men	Women
Single	4	11
Married	15	11
Divorced	1	6
Widower, widow	—	2

METHODS

In order to obtain as complete a picture as possible of the probands, they have been investigated from several different standpoints. The following factors have been taken into account:

Psychiatric interviews.

Studies of the probands' general behaviour in hospital.

In certain cases conversations with relatives.

Data from the hospital records, from the somatic, and where available, also from the psychiatric, departments.

Inspection of the Temperance Board register with regard to all the probands.

All the psychiatric interviews were conducted personally by the author. Of all those who were questioned not a single person refused to cooperate, on the contrary, most of them were much interested in the investigation. Each interview lasted about 45 minutes. The majority of the probands were interviewed on several occasions.

The interviews took place some weeks after admission, by which time the probands' acute asthmatic complaints had decreased, consequently, during the interviews, the probands were, to a great extent, unaffected by their asthma. With a number of the probands supplementary conversations were held also during the attacks of asthma. In many cases there was a very substantial difference in their behaviour when suffering, and when not suffering, from asthma. This will be more fully described in what follows.

The interview started by the author explaining that he was engaged in a scientific investigation of the significance of social and psychological factors in asthma. The probands were requested to speak as freely and spontaneously as possible about their disease and its course, and which factors they themselves regarded as important. Nearly all of the histories which the probands related were especially valuable from a medical point of view. They were able to give exact dates and other details; they knew quite well all the medicines they had received, and the side effects, if any, that these had caused.

When they had accustomed themselves to the investigatory situation, the conversation glided successively into other subjects. The author endeavoured to conduct the conversation in such a way that the probands were encouraged to speak as spontaneously and as unconstrainedly as possible. Via other illnesses, working conditions, and the family situation, the conversation was gradually directed towards more personal considerations. In many cases a characteristic change in the proband's attitude was then observed. They were just as polite and obliging, but the replies tended to be shorter, less diversified and more evasive. They were reluctant to speak spontaneously about themselves. One gained the impression that in some way they became withdrawn. On some occasions the author then continued, at the outset, to go straight to the point. They never definitely stated that they did not wish to answer the question or that they found it indiscreet, but replied politely. In these cases, however, it was soon noticeable that the probands' asthma was aggravated immediately after the interview. They were unable to come to the subsequent interviews as arranged or, if they did turn up, they had more asthma than before and displayed a somewhat aggressive attitude. After this had been noted, the technique of interviewing was changed in this respect.

Studies of Probands' Behaviour During Hospitalization

In view of the fact that the author works as a physician in the clinic where the probands were treated for asthma, they regarded him as their "usual" doctor and not as a psychiatrist. This provided natural opportunities for studying the probands, without requiring any further arrangements, in a number of different situations where they behaved spontaneously and without any feeling of being observed. Since a number of the probands, who took part in the investigation, had received treatment in the clinic for several months at a time on various occasions during recent years, and during the intervening periods were controlled ambulant at the out-patient department attached to the

clinic, the author acquired extensive personal knowledge of several of these probands.

From a psychological point of view it was particularly important to observe the probands' behaviour on admission to hospital while suffering from severe attacks of asthma, *e.g.* at night. Another important source of information consisted in the reports by the personnel of the department on the probands' manner of reacting in various situations.

Other factors connected with the investigation. (Conversations with relatives, data from records, control through the Temperance Board).

In those cases where it was considered necessary the investigations were supplemented by conversations with the relatives of probands. Most frequently this concerned husbands and wives, brothers and sisters, and parents. Contact with them was established sometimes by means of telephone conversations and sometimes by personal interviews. The usual reason for contacting relatives was that the interviews with the probands had not sufficiently clarified the history of their disease. Such contacts were also resorted to in cases which were obscure from a psychiatric point of view and where diagnosis was problematic.

Since many of the probands had been hospitalized on several occasions for a number of years, the hospital records provided comprehensive case histories. Unfortunately, these records contained little that was of interest from a physiological point of view. The records from the psychiatric departments that treated such cases were much more informative in this respect, but this applied to only 1 man and 4 women.

As an element in the assessment of the alcoholic habits of the probands, the author went through the register of the Temperance Board so as to ascertain whether any of them had been in contact with the Board. Swedish legislation provides for the establishment of local institutions, *e.g.* Temperance Boards, whose function it is to apply measures for the restoration of alcoholics to a sober way of life.

RESULTS

Number of Persons who Applied for Medical Treatment for Nervous Disorders.

One man and 4 women were treated either in a mental hospital or in a psychiatric clinic. In addition to this 1 man and 1 woman had been hospitalized for nervous disorders. Both of them were treated in departments of internal medicine: the man had made a serious attempt to commit suicide; the woman was investigated on account of attacks of a feeling of weakness of a functional nature, which were regarded as being of a hysterical character. Thus, in all 2 men and 5 women had

received hospital care. Three men and 9 women had consulted a physician for open treatment of nervous disorders. Of these 1 man and 6 women had consulted psychiatrists.

During the last five years 6 men and 17 women had been given, for not less than several months consecutively, psychopharmacological drugs requiring a doctor's prescription. This was mainly a question of tranquillizers of the Miltown type. Thus on various occasions physicians had prescribed psychopharmacological drugs as beneficial for 56 per cent of the women. Soporifics mainly as barbital have not been included because they are contained in medicines for asthma in small doses.

TABLE 8

No of Persons who Applied for Different Kinds of Medical Aid for Nervous Complaints.

Hospital	care	Open care	Took psycho- pharma- cological agents	Did not receive psychia- tric help
Women:	5	9	17	9
Men:	2	3	6	9

The figures given here, for the number of persons who applied for medical help for their nervous complaints, can be regarded from a social aspect as, to some extent, a measure of mental insufficiency. Their value is increased if they can be related to the corresponding figures for the general population. However, the frequency of mental complaints in the general population is not fully known, especially with regard to the milder forms of nervous disturbance. Different investigators give widely varying frequencies (*Bremer 1951, Essen-Möller 1956, Fraser 1947, Leighton 1956, Pasamanick, Roberts, Lemkau & Kreuger 1957*).

In 1957 the Mental Medical Services Delegation made an investigation of neuroses in the City of Stockholm in order to obtain some idea of the frequency of milder forms of nervous

complaints occurring in the city (Official State Reports 1958). The main purpose of the investigation was to serve as a basis for estimating the need of psychiatric care in Stockholm. The statistical analysis was made by the Investigatory Institute of the Central Bureau of Statistics. The selection was representative, in all essential respects, of the adult population of Stockholm.

The investigation comprised 223 men and 265 women. They were interviewed by a specially trained interviewer according to a special questionnaire. This contained numerous questions some of which were designed to ascertain to what extent the subjects had received medical help for their nervous complaints. These questions were defined in the same way as those used in the present investigation, which enables direct comparisons to be made between the two materials.

TABLE 9

Comparison between the Probands and 488 Stockholmers selected at Random, with Regard to Previous Application for Help and to Consumption of Medicine for Nervous Complaints. The Figures Indicate Percentages.

	Probands		Stockholmers	
	Men	Women	Men	Women
Took psychopharmacological agents	30	56	15	25
Consulted a physician or were hospitalized for nervous complaints	25	30	22	32

Table 9 shows a comparison between the frequency for the probands who applied for medical help for their nervous complaints and the corresponding frequency for the Stockholmers comprising the investigation on neuroses. The table shows that the percentages for the "psychopharmacological agents consumed" are higher for the probands than those for the Stockholmers selected at random, this applies especially to the women. In respect of "consulted a doctor or received

hospital treatment for nervous complaints" the percentages are the same.

With regard to "psychopharmacological agents consumed", the difference between the two materials is, however, entirely due to their different age composition. The asthmatics are distinctly older. If standardization is made for age, the difference disappears completely.

Thus the comparison shows that there is no difference, between the probands and the 488 Stockholmers selected at random, with regard to previous application for help and the amount of medicine consumed for nervous complaints.

Psychiatric Diagnoses of the Probands

The probands were diagnosed psychiatrically on the basis of the data contained in their histories, and their behaviour both during hospitalization and during the interviews. The following diagnostic classification was applied: Mentally healthy. Mild neurotic symptoms. Severe neurotic symptoms. Neurotic symptoms in combination with personality disorders. Psychoses.

Mentally healthy. Seven men and 9 women were placed in this group. They had had no periods of mental insufficiency which had impaired capacity for work or their social life in general. On the whole their behaviour in the department and during the interviews was adequate. They had displayed no clear neurotic symptoms.

Mild neurotic symptoms. This group comprised 7 men and 9 women. Like "the mentally healthy group", they had not suffered any periods of serious mental insufficiency that had impaired their social relations. During the interviews, however, they exhibited signs of inner tension and unrest. Some of them had nonspecific neurasthenic traits with increased anxiety-preparedness, others had had mild obsessions and phobias. Some of them had occasionally taken drugs for their nervous state.

Severe neurotic symptoms. To this group were assigned 3

men and 9 women. It considered of two categories. The first category comprised 2 men and 4 women who had had periods of manifest, severe mental insufficiency that led to incapacity to work and, in some of the subjects, to treatment in a psychiatric hospital. In the investigatory situations they exhibited typical symptoms, often of a hysterical character, but phobias and obsessions also occurred. The second category, which contained 1 man and 5 women, had never had any manifestations of mental insufficiency that had caused social reactions. Nor had they consulted a physician for their nervous complaints. On their first contact with the investigator they also denied that they had any mental complaints whatsoever, but on closer acquaintance it became evident that they were suffering from very severe psychopathological symptoms of a paranoid or obsessional neurotic nature. They often found the interviews disagreeable.

Neurotic Symptoms in Combination with Personality Disorders

Two men and 2 women were placed in this group. All of them had grave neurotic symptoms, but also such as are usually associated with the concept personality disorders. They all had a long history of social maladjustment leading to problems arising in connection with their work-places and their married life. The men tended to indulge in alcohol and the women to be promiscuous.

Psychoses. This group consisted of 1 man and 1 woman. Both were typical cases of chronic schizophrenias, and both had received treatment in mental hospitals. When investigated they displayed florid psychotic symptoms of a schizophrenic nature.

Despite the fact that 5 men and 8 women were over 60 none of them showed any mental changes in the form of memory or personality disturbances, states of nocturnal confusion, etc., as a consequence of organic changes in the brain.

Table 10 gives a summary of the psychiatric diagnoses classified according to age groups.

TABLE 10
Psychiatric Diagnoses According to Age Distribution.

Age	Mentally healthy		Mild neurotic symptoms		Severe neurotic symptoms		Neurotic sympt. and personality disorders		Psychosis	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
10-19	—	—	1	1	—	1	—	—	—	—
20-29	—	1	—	—	—	—	—	—	—	—
30-39	1	1	1	1	—	—	—	—	—	—
40-49	—	—	1	3	1	3	1	1	—	—
50-59	4	2	2	2	1	4	1	1	1	1
60-69	2	4	2	1	1	1	—	—	—	—
70-79	—	1	—	1	—	—	—	—	—	—
Total	7	9	7	9	3	9	2	2	1	1

Probands' Alcohol Drinking-Habits

Most of the persons investigated were very moderate in this respect. Many were even total abstainers.

Five men, but no woman, had been in contact with the Temperance Board. Three of them had only been examined, and the Temperance Board did not consider that any further measures were indicated. In their case it has been a question only of a few misdemeanours due to intoxication. With regard to the other two, one had been placed under supervision for a short time, and the other had spent a short time in an institution for alcoholics. At the time that the investigation was made no measures of this kind were being applied to any of them.

At the psychiatric examination none of them showed any clinical signs of chronic alcoholism. In two of them no psychopathological symptoms could be detected; one had mild neurotic symptoms, and two had neurotic symptoms together with personality disorders.

Only one of the persons investigated, who, for psychiatric reasons, had been placed in the group "neurotic symptoms

combined with personality disorders", thought that alcohol mitigated asthmatic trouble. He explained that he had largely taken alcohol "as medicine for asthma". Most of the subjects, however, held rather the contrary view, and showed an aversion to the consumption of alcohol.

Mental Side Effects of ACTH and/or Steroid Medication

As was previously stated, 15 men and 18 women had received such medication continuously for not less than half a year. In addition to this, some others had been given the same treatment for a shorter time in connection with acute deterioration of their asthma.

Very few mental side effects were observed, however, although many subjects had received relatively large doses for a long time. Nor, as a rule, did the probands themselves experience any mental changes in connection with this medication.

When going through the probands' histories it was found, however, that in two of them acute onset of episodic psychosis had occurred, which must be connected with steroid medication. One was a man aged 48 who had suffered from severe asthma for many years, which, on several occasions in recent years, had necessitated hospitalization for long periods. He had been given large doses of steroids and ACTH. In 1959, in connection with prolonged and large doses of steroids, this patient had suffered from acute psychosis with confusion, and certain symptoms suggestive of acute manic psychosis. This state continued for 3 days and then disappeared spontaneously when steroid medication was discontinued.

The other case was that of a woman aged 63 who had suffered from asthma for 30 years and had been hospitalized many times. She had received practically continuous steroid treatment ever since 1953. In connection with an acute exacerbation of her asthma in 1963 she had received, during a period of some weeks, maximally high steroid doses; acute psychosis had then developed, the symptomatology of which

was dominated by paranoid delusional ideas. This psychosis also rapidly disappeared when steroid medication was decreased.

An interesting point is, that both these patients, exhibited psychopathological symptoms before and after these psychotic attacks. The man had been classified as "neurotic with personality disorders". and the woman as definitely neurotic" with dominant obsessional neurotic, and mild paranoid, traits.

Occurrence of Depressive Traits in the Probands

Previous investigators have drawn attention to the fact that asthmatics often suffer from depression. Some investigators consider moreover that this is a dominant trait. (*Knapp & Nemetz 1957, Schatia 1941, Trueting & Repley 1948*).

In this investigation, besides classification according to psychiatric diagnoses, which has already been described, the occurrence of depressive traits has also been noted.

Such traits were observed in 10 men and 12 women. All of them, with the exception of one woman, had only relatively mild depressive symptoms in the form of some sadness of mood and slight retardation. This woman displayed rather more serious symptoms, with ideas of inferiority, and suicidal wish. Nine years ago one man had made a serious attempt to commit suicide.

Personality of the Probands

Besides the psychopathological phenomena which have hitherto been described, attempts have been made to gain a conception of the personality of the probands. In the literature lively discussions occur whether any specific "asthmatic personality" exists, *i.e.* do asthmatics have certain personality traits which distinguish them from persons suffering from other diseases or from healthy persons. (*Barendregt 1957, Groen 1951-52, McDermott & Cobb 1939, Rees 1956, Retterstöl 1961*).

The probands had unquestionably certain distinguishing per-

sonality traits which astonished the investigator, although these were far from appearing in all of them. As has previously been stated, certain details in their behaviour were characteristic of the probands at the interviews. They were punctual; and if they did happen to be a little late they always apologized. In general they were very polite and, from a conventional point of view, good contacts were established. On their histories they gave particularly detailed reports which were almost too discursive; but they were reticent about their private lives and about how they experienced their disease from a psychological point of view.

They gave the impression of being very conscientious and had a strong sense of duty. Many had worked at the same place all their lives. Many of them worked despite the fact that they suffered from severe asthma. Although they had had attacks of asthma during the night and were able to sleep only a few hours they had gone to work the next day. In some of them it seemed that the asthma had been aggravated in connection with their having had so much work to do. To start with, they had then continued to work; their condition had successively deteriorated owing to the asthma and, finally, they were unable to go on and were hospitalized in *status asthmaticus*. When their condition had improved while they were in hospital they were anxious to start work again as soon as possible. They displayed a hard-won courageous attitude, characterized by self-discipline. Thus they possess many valuable social qualities which, in the author's opinion, are not sufficiently stressed in the literature, although sometimes there is just a suggestion of servility, finicalness, and lack of self-confidence. They may experience difficulties in maintaining their interests.

During attacks of asthma their self-disciplinary attitude often breaks down. They then evince obvious anxiety, feel desperate and depressed; and one can surmise suspicion and a slightly hostile attitude to the world around them.

The personality traits just referred to were found in a more or less marked degree in 13 men and 10 women. In some of

these they were so pronounced that they represented distinctly obsessional-neurotic phenomena; in others there were merely indications of these traits in an otherwise healthy personality.

Onset or Exacerbation of Asthma in Connection with Certain Events that Involved Separation

It has been well known for a long time that a psychological trauma can precede the onset of asthmatic complaints. (McDermott & Cobb 1939, Miller & Baruch 1950, Rees 1956). The significance of separation has been pointed out especially.

In order to try to clarify, in accordance with the starting point of this investigation, the significance of mental traumata, the author has noted the number of probands where the onset of asthmatic complaints was associated with important social events, which meant separation for the person in question, and which are known from experience to cause frustration. Such events have been: the death of a close relative, divorce, and grown-up children leaving home and the mother then living alone. In certain respects also marriage can be regarded as one of these events, when it means separation from patients.

In this connection it is interesting to note the attitude of the probands when the conversation was leading up to this subject. Hardly anyone mentioned spontaneously that the onset of asthma coincided in time with any of the above-mentioned events. It was only after the end of the interview, when the different data of the histories were coordinated, that, in some cases, a coincidence in time was detected. Five women became asthmatic after a death had occurred in the family. Two women became asthmatic when they had to live alone because their children were grown-up and had left home. In 2 men and 1 woman the onset of asthma occurred in connection with their marriage.

One man got asthma in connection with his father's bankruptcy, which meant a great social upheaval for the whole family, since they had to leave the firm which they had owned for several generations.

TABLE 11
*Distribution by Psychiatric Diagnoses for those Probands where Separation and Onset of
 Asthma Coincided in Time.*

Mentally healthy		Mild neurotic symptoms		Severe Neurotic symptoms		Neurotic sympt. and personality disorders		Psychosis Psychosis	
Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
-	1	2	5	1	4	1	1	-	-

Thus, in 3 men and 11 women there was a time relation between external events that implied separation and the onset of asthma. Their distribution according to psychiatric diagnoses is shown in Table 11.

The time relation between separation and onset of asthma is illustrated by the next case history.

Case No. 45. Woman aged 45, divorced. Her mother and her maternal aunt and uncle had asthma. During her climacteric her mother had had nervous trouble and had received insulin treatment in a psychiatric clinic. The patient's father was both physically and mentally healthy. He was a farmer in the Stockholm district. The patient was born in wedlock, and was the next youngest of 5 siblings. The other children were all healthy. She considered that conditions during her childhood were good. After primary school she had 3 years in a modern school. Subsequently, she first worked as a shop-assistant and then became a clerk. At present she has a relatively well-paid job as a secretary. When she was 21 she married. When she was 22 she suffered from attacks causing a sensation of faintness and from stomach pains. She was admitted to a department of internal medicine for investigation. No somatic genesis of the complaints was detected; they were regarded as psychogenic. The patient was unhappy in her marriage. There were no children; and, on her initiative, there was a divorce when she was 26. After this she lived alone.

When she was 33 she began to be troubled with vasomotor rhinitis. This was so mild, however, that she did not trouble to consult a physician. When she was 42 slight symptoms of asthma developed. During the first years they troubled her very little; she did not consult a physician. When she was 42 slight symptoms of asthma developed. During the first years they troubled her very little; she did not consult a physician and she never had to ask for leave of absence from her work.

In the spring of 1963, when she was 43, her mother died. After this she

became nervous, lost her appetite, was irascible, and slept badly. She went to a physician who had a private practice and was given a nerve tonic, but without much effect. During the summer of the same year her asthma became much worse. Above all, she suffered from severe night attacks. In the intervals between these attacks she could be quite healthy. She was given leave of absence. She received the usual symptomatic treatment without appreciable effect, and was admitted to a hospital in status asmaticus. The allergological investigation did not show the presence of any pathogenic allergen. When conversing with her she is compulsively talkative and tense, but beneath this exterior she is depressed and, from time to time, has tears in her eyes. She does not, of her own accord, speak about her relations with her mother or how she experienced her mother's death.

Case No. 22. Man aged 17, single. No allergic or mental illness in the family. The patient was born in wedlock as the only child. Both parents healthy. Good childhood conditions. As a child he had only slight illnesses. His father, together with his uncle, ran a building enterprise which had belonged to the family for several generations. The idea was, that in time the patient should also manage the business. When he was 16 the firm went bankrupt. This meant a great change for the whole family. His father became reserved and silent; his mother had fits of weeping and had difficulty in sleeping; she took a job as a shop-assistant in order to divert her mind. The patient was in the finishing-class of the modern school. He began to feel tired and listless, and found it difficult to keep up with his school work. Previously he had had relatively good marks, but these were now low; and he obtained only indifferent results in his school-certificate examination. There was never any discussion, among the members of the family, on the situation that had arisen. He began to be taciturn, and withdrew from his comrades. In the summer of the same year he began to be troubled with vasomotor rhinitis. After some weeks he developed a cough, and in the autumn typical asthmatic symptoms appeared, especially in the mornings. The asthma increased in severity, and he was given leave of absence from the work which he had started as an assistant clerk, and finally, he was hospitalized. When one conversed with him, he was taciturn and reserved to start with, and was unwilling to speak about his personal condition, but gradually he opened out and then a good contact was established. He was very afraid of showing that he was weak, so that, when at last he spoke more adequately about what a shock the bankruptcy had been for the whole family, he immediately pulled himself together, and said: "We never think any more about it".

Relation between Certain Somatic and Psychiatric Variables

It would be of interest to know if there is any connection between some somatic or allergic manifestations other than those associated with asthma on the one hand, and psycholo-

TABLE 12
Duration of Asthma in Relation to the Psychiatric Diagnoses.

Duration group	Mentally healthy		Mild neurotic symptoms		Severe neurotic symptoms		Neurotic sympt. and personality disorders		Psychosis	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1.	—	—	2	1	—	1	—	—	—	—
2.	4	5	1	2	1	2	—	1	—	—
3.	2	1	4	4	1	3	2	1	—	1
4.	1	3	—	2	1	3	—	—	1	—

For explanation of the duration-groups see Table 3.

gical-psychiatric variables on the other. For this reason, in the present investigation the psychiatric diagnoses have been brought into relation with the simultaneous occurrence of other somatic symptoms. As has been previously pointed out, 4 men and 2 women had exogenous asthma, *i.e.* it was possible to demonstrate that the disease was caused by an exogenous allergen. From a psychiatric point of view, these 6 subjects did not differ from the probands as a whole, the occurrence and type of the symptoms of mental insufficiency were the same.

Nor did those, who suffered not only from asthma but also from bronchitis and/or emphysema, differ from a psychiatric point of view. Moreover, probands who in addition to asthma, suffered from one of the following diseases: allergic rhinitis, atopic dermatitis, urticaria or allergic conjunctivitis were not found to differ with regard to degree of mental insufficiency or type of nervous symptom, from the material as a whole.

As previously stated, the probands were divided into four groups according to the total duration of their asthma. Table 3 shows this grouping. If these groups are brought into relation with the different categories of psychiatric diagnoses, it will be found that, to a great extent, the distribution of the psychiatric diagnoses is similar in the various groups representing different durations of asthmatic complaints. No connec-

tion was observed between the duration of asthma and the degree of the mental disorder (Table 12). Thus, there were probands who had had asthma for less than one year and displayed clear neurotic symptoms, whereas other probands, who had suffered from severe asthma during a period of 10–20 years, were considered to be mentally healthy at the time of the psychiatric examination. In order to illustrate the latter point, a case of this kind is described here.

Case No. 11. A married docker aged 50, in possession of an early retirement pension. His father and one of two siblings suffered from asthma. There was no case of mental illness among his relations. He was born in wedlock. Although his childhood environment was characterized by the family's straitened circumstances, the patient considered that this childhood had been harmonious. He had obtained moderately good marks in primary school. After leaving school he immediately began to work on the docks as a stevedore. He remained at the same work-place during the whole of his working life, *i.e.* until the age of 50 when he was granted an early retirement pension on account of asthma. He married when he was 26. Had two adult sons, both married. Had good relations with his wife and his children.

Already in his teens he had suffered from some recurrent attacks of pneumonia. The first typical attack of asthma had occurred when he was 18. To start with, the complaint was sporadic, especially in spring and autumn, but during the last two decades the complaint had increased successively, in the form of both asthmatic attacks and of continuous illness. In the last 10 years he had been hospitalized several times; and during recent years each stay in hospital had lasted several months; in fact, he was only able to be at home for some weeks in between his hospital treatments.

By the allergological examination it has not been possible to find an allergen of importance for the disease; in some instances the complaint had been induced by infection. For a number of years the patient had been receiving relatively large doses of steroids.

In conversations with both the patient and his wife it seemed that he never suffered from any manifest mental symptoms. Occasionally, when the asthmatic attacks were very severe at night he would cry; but he soon regained his courage. A characteristic feature was his optimistic attitude; he always tried to see the bright side in difficult situations. When he was in hospital he usually endeavoured to console his fellow patients. Despite his severe chronic asthma he had toured the mediterranean countries with his wife.

At the psychiatric interview his behaviour was adequate; good affective contact was established. He is frank and affable. No psychopathological phenomena were observed.

TABLE 13
Degree of Severity of Asthma in Relation to the Psychiatric Diagnoses.

Degree of severity group	Mentally healthy		Mild neurotic symptoms		Severe neurotic symptoms		Neurotic sympt. and personality disorders		Psychosis		Total	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
I	2	3	2	2	—	4	1	2	—	1	5	12
II	5	6	5	7	3	5	1	—	1	—	15	18
III	—	—	—	—	1	1	1	—	1	—	3	1

Explanation of the degree of severity groups:

I = Those probands who received exclusively symptomatic therapy and ACTH or steroids only for acute exacerbations.

II = Continuous steroid medication.

III = Perilous asthma attacks.

Relation between the Severity of Asthma and the Psychiatric Diagnosis

From a medical point of view asthma has been divided into three degrees of severity: Group I: patients who received exclusively symptomatic therapy and ACTH or steroid treatment only in connection with acute exacerbations. Group II: patients who were given continuous steroid medication for not less than half a year. Group III: patients who had suffered from perilous asthmatic attacks. In Table 13 these groups are placed in relation to the psychiatric diagnoses.

Table 13 shows that from a psychiatric point of view, group I and group II do not differ from the material as a whole. If continuous steroid medication is taken as a criterion that the asthma has reached a certain degree of severity, then no increase in mental illness is observed among persons suffering from more severe asthma.

In group III which comprised patients who had had perilous asthmatic attacks, all 4 persons displayed grave psychiatric symptoms. From a practical clinical point of view, they represent an important group that often requires all the resources of a modern hospital in order to prevent the disease from be-

coming lethal; and even with such facilities, these patients cannot always be saved. In the present material two of them died in *status asthmaticus*. Consequently, they will be described in detail.

Case No. 8. Carrier aged 56, married. No known allergic or mental illness in the family. The patient was born in wedlock as 6/6 siblings. He had moderately good results in his primary-school education. He first worked as a lorry driver until he was 37, and then as a carrier. He married when he was 33 and has one son.

Since the age of 37 he has suffered from asthma. The allergological investigation did not show any specific hypersensitivity. Since he was 44 the patient has been hospitalized some 10-15 times. The diseases has been characterized throughout by very severe asthmatic attacks with rapid unexpected onset. After the age of 50 he has received continuous steroid treatment.

About the same time as the asthma started he began to display mental peculiarities; he was bizarre and introverted, stopped driving a lorry; became a messenger and rode a bicycle. He suffered from periodic hallucinations, and delusional ideas, and aggressivity. During one of these periods he was put in a mental hospital at his wife's request. During recent years, personality changes increased successively, and the patient became dirty and unkempt. The asthmatic attacks became more and more severe, but there have been intermittent periods which were relatively free from complaints, when he was able to work as a carrier. This was largely due to the fact that he had an understanding wife.

In 1964 he was again admitted to hospital on account of a severe attack of asthma, which, despite respirator treatment, could not be relieved, and the patient died. Psychiatric diagnosis: Schizophrenia.

Case No. 14. Office clerk aged 50, married. His mother suffered from allergic rhinitis, otherwise no known allergic or mental diseases in the family. He was the only child and was born in wedlock. Elementary-school education and military service were unexceptionable. He had worked as a clerk the whole of his life and had done his work well. Married at 25, he had one daughter, who was healthy. His wife had suffered from nervous symptoms that had caused her to consult a psychiatrist.

He had suffered from bronchitis since he was 38, and from asthma since he was 43, and from severe asthmatic attacks since the age of 46, after which he had received continuous steroid treatment. The allergological examination did not reveal any agent that induced disease. On certain occasions he had especially severe attacks of asthma, when he was pulseless. He was then given super pressure respiration, heart massage and adrenalin intracardially. During the last year he had also had symptoms of complicating emphysema and cor pulmonale.

According to his own and his wife's report he was quite healthy mentally until the asthma began. Thereafter he suffered from successively increasing nervousness and unrest; had difficulty in sleeping; felt pronounced anxiety in connection with the attacks of asthma, when he experienced extreme fear of death, which must be regarded as fully adequate for the situation. During recent years he had continuously taken psychopharmacologic agents, such as tranquillizers. He had, for a long time, thought of consulting a psychiatrist, as he considered that there might be certain psychological factors which contributed to his illness, but he had never done so.

At the first interview he said, quite generally, that certain psychological factors might be involved, but when it came to a closer discussion of this point, he did not wish to state more concretely what he meant, but was more inclined to be withdrawn. A number of obsessional neurotic and phobic symptoms also occurred.

Diagnosis: Neurosis with obsessional and phobic symptoms.

Case No. 17. Man aged 48, divorced. Grew up under unhappy childhood conditions. His father was an alcoholic. There was disharmony between his parents, who subsequently divorced. The patient was 2/4 siblings. One brother had eczema. The patient had suffered from rickets as a child, otherwise he had been healthy in childhood. His attendance at an elementary and a trade school had been normal. Subsequently, he worked as a plater, and later he got a relatively well-paid job as a plant technician on a large oil works. He married when he was 26 and some years later his daughter was born. When he was 29 he suffered from hysterical paralysis in his right arm, after which, for six months, he had severe attacks of anxiety which made him incapable of working. Thereafter he was healthy both physically and mentally until he was 42 or 43. Then something happened which affected not only his social life but also his mental and physical health. He began to drink; had to take a worse-paid job and his wife left him. Some years later he became asthmatic. From the outset his asthma was very severe and was characterized by sudden intense attacks. In the allergological examination the provocation tests were positive for a number of animal extracts, *e.g.* horses. He was given specific hyposensitization and steroid treatment. When he was 44 respirator treatment had to be applied for one of the attacks of asthma. Next year when he was staying in the sanatorium in Åre he suffered from episodic psychosis with manic symptoms and stupefaction, which was interpreted as a cortisone psychosis. At present he has no fixed residence. The psychiatric examination showed that he was suffering from severe personality disorders with grave hysterical and paranoid symptoms that at times were on the verge of manifest delusional ideas.

Psychiatric diagnosis: Personality disorders with a tendency to abuse alcohol and to exhibit paranoid and hysterical symptoms.

Case No. 38. Spinster aged 54. No known allergic or mental illnesses in the family. She was born in wedlock as Nr. 3/7 siblings. Her education at a

primary school and a people's high school was quite normal. Subsequently, she worked as a receptionist for a doctor and did her work well. She is unmarried, has no children, and lives alone. Since her youth she has had a toxic goitre. On some occasions she has had gastric hemorrhage from a duodenal ulcer.

Since the age of 44 she has suffered from asthma; no allergen could be observed to account for the disease, which has been characterized by the rapid onset of unexpected, severe attacks of asthma. Between these attacks she can be almost entirely free from her complaint. These attacks tend to come at the time she should have had her menstruation. For one year she has been given continuous steroid medication, and during the whole of last year she was almost constantly hospitalized.

At her first interview she denied that she had had any kind of mental trouble whatsoever. She had never consulted a physician to get help with mental trouble; and she had never thought that she was in need of any nerve remedy. She made a good formal contact, and at first sight she seemed to be well poised. She was anxious to assert how cheerful and extroverted she was and how everyone liked her. But very soon this attitude relinquished, and it became evident that she was suffering from serious mental symptoms. It transpired that she had not wished to consult a psychiatrist because she was afraid that he would say that she was "mad". She refused to take nerve medicine because she believed that it would poison her. Every night she set her alarm to wake her every fourth hour, regardless of whether or not her asthma was in a quiescent period, so that she should not be taken by surprise by an asthmatic attack during her sleep.

Her asthma became noticeably worse when she spoke about her mental condition, and therefore, subsequent interviews had to be conducted more formally. During the last half year she has had particularly frequent and severe attacks of asthma. On several occasions these required super pressure respiration, respirator treatment, etc. Finally she died of an attack of asthma.

Psychiatric diagnosis: Severe neurosis with some paranoid traits.

DISCUSSION AND CONCLUSIONS

The purpose of this investigation is to give a psychiatric and psychological description of patients suffering from protracted, severe asthma. It is reasonable to assume that persons with severe asthma of long duration will display also nervous symptoms. This assumption is supported by some other investigations. Thus, *Knapp & Nemetz* (1957) found that there was a positive correlation between the degree of severity of the asthmatic and the mental symptoms. The results of this investigation support, however, the conception that the dura-

tion of asthma does not necessarily affect mental health. Some probands who had had severe asthma for more than 10 years did not show any neurotic traits. It could also be demonstrated that probands, suffering from such severe asthma that continuous steroid treatment was required, did not exhibit more nervous symptoms than the other probands. But all the four probands who had suffered from perilous asthmatic attacks displayed grave psychopathological symptoms of different kinds. It is difficult to explain the reason for this. Two possibilities are conceivable. First, the nervous symptoms can be the consequence of the great mental strain caused by severe asthmatic attacks. Second, it may be supposed that, in these cases, mental factors can contribute to make the attacks of such a dangerous nature.

Among psychiatrists and psychologists for a long time much interest has been shown in investigating the pathogenic significance of psychological factors in asthma. (*French & Alexander 1941, McDermott & Cobb 1939, Miller & Baruch 1950, Rees 1956*). Interest has been focused especially on events which have brought about separation. In this material, in 14 cases (3 men and 11 women) there was a connection in time between social events involving separation and the onset of asthma. It is difficult to judge the etiological significance of separation in these cases, but it is possible that this was not merely a question of fortuitous coincidence.

The present study shows, as did also previous investigations (*McDermott & Cobb 1939, Trueting & Ripley 1948*), that certain psychological traits were characteristic of some of the asthmatic patients. This applied to obsessional neurotic traits of varying intensity. In some cases these traits were present only as slight indications in otherwise healthy personalities, whereas in others they were manifest as clearly developed symptoms of obsessional neurosis. The occurrence of depressive symptoms was also usual. Ten men and 12 women displayed such symptoms. This is also in agreement with the findings of earlier investigations (*Knapp & Nemetz 1957, Schatia 1941, Trueting & Ripley 1948*).

In respect of grave psychopathologic symptoms the probands did not differ from the general population. There was no increase in psychoses or chronic alcoholism in the material. Scandinavian morbidity studies give frequency figures of the same order of magnitude for general population as were found for this material. (*Bremer 1951, Essen-Möller 1956, Larsson & Sjögren 1954*).

Nor was any increase observed in neurotic conditions of such a character and degree of severity that they led to the continuous use of psychopharmacological drugs or required medical or hospital care. It was found that the probands did not consume more psychopharmacologic agents, nor did they consult a physician, or were hospitalized for nervous complaints, more often than a representative selection of Stockholmers. This does not necessarily contradict, however, the findings of the investigations, which showed that there is a higher frequency of neurosis among asthmatics than in the general population. Moreover, these investigations were based on psychological test methods, and matched control material was used. (*Dekker, Barendregt & de Vries 1961, Rees 1956*). A number of the probands had manifest neurotic symptoms of a paranoid or obsessional type and did not consult a physician.

The most important conclusion in connection with this investigation is, that from a psychiatric point of view, the asthmatics are a heterogeneous group. There are widely varying types and degrees of severity of mental disease represented in the material. There are persons who are healthy mentally and those with neurotic states with varying symptomatology and degrees of severity, and there are chronic schizophrenics.

SUMMARY

50 adult patients, 20 men, 30 women, suffering from bronchial asthma have been subject to psychiatric examination by routine clinical methods. All the patients were admitted to hospital as emergency cases in status asthmaticus. The greater part of the

material represented severe cases of asthma, but it contained also some milder cases. Besides bronchial asthma they were not suffering from any other serious somatic disease.

A description is given of the probands from a social, allergological, and psychiatric point of view. Different allergological and psychiatric factors have been placed in relation to each other, without it being possible to show any definite connection between them. The relation between the degree of severity of the asthma and the mental symptoms is discussed.

Neurotic conditions of such a nature, that they led to the continuous use of psychopharmacological drugs, or required medical or hospital care, were not more usual among the probands than in a representative selection of Stockholmers. Frequency of psychoses and chronic alcoholism was not raised compared with that for the general population.

It was concluded that, from a psychiatric point of view, the probands formed a heterogeneous group.

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