

# HEREDITY AND ENVIRONMENTAL FACTORS IN THE DEVELOPMENT OF PSYCHOGENIC DISEASES

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*Psychoanalytic diagnostic methods and measures have been applied to 50 neurotic twins belonging to 21 MZ and to 16 same-sex and 13 opposite-sex DZ pairs. The 100 subjects consist of 64 adults and 36 children or adolescents. All 100 subjects were personally seen and psychologically examined. The mean intrapair difference of all MZ twin pairs amounts to 3.81 scaling points in a scored degree of severity of the neurosis; that of all DZ pairs to 5.00 points. The distribution of 657 neurotic symptoms in a chi-square table of the 21 MZ and 29 DZ twin pairs shows that 32.7% of the symptoms are concordant in the MZ sample, but only 16.7% in the DZ sample. Hereditary influence could be shown in the manifestation of neurotic depressive symptoms, maladaptive oral and aggressive behavior, as well as in schizoid behavior deviations. Hereditary factors play a role in the formation of the neurotic character structure. Regarding the environmental pathogenic factors, subjects more heavily stressed in early childhood were found, on the whole, more severely neurotic in later life.*

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I want to report about a 10-years twin investigation. It was intended as a contribution to the etiology of neurosis. Our concept of neurosis comprises disturbances of psychoneurotic and psychosomatic nature as well as neurotic traits of character. Mentally deficient, psychotic patients, or such who suffered from primary organic illness were eliminated. (Our objective was to evaluate the influence of heredity and/or environmental factors in the development of psychogenic illnesses.)

## MATERIAL AND METHODS

We have drawn our twins from the register of the largest German psychoanalytic outpatient clinic, the Institute for Psychogenic Diseases of Health Insurance of West-Berlin. According to Mr. P. E. Becker, it is important that the rate of twins in this sample of neurotic patients was neither higher nor lower than in the normal population. From this we conclude: to be a twin means no higher risk for acquiring a neurosis.

We gained the 50 twin pairs from a 20-years-outpatient-register of the period 1950-1969. Methodologically we ensured that the series was free from concordance/discordance-selectivity. Our sample is to be defined as a "limited representation" series.

To make our twins comparable with each other we devised a quantifying model for psychogenic disorders, scaling neurotic illness by degree of severity. This method allows a quantitative comparison for the distinction of intrapair differences in twins.

All subjects, the 50 index twins as well as their 50 partners, were personally examined by me. (I am a psychoanalytically trained medical doctor). Every one of the 100 twins was psychoanalytically interviewed a number of times, each session lasting for several hours. In addition to psychoanalytical diagnosis we gave projective tests and a standard intelligence test to every child; a short set of standard psychoanalytical questions was also presented to nearly all subjects: a dream, an early childhood recollection, three hypothetical wishes, how to spend a large sum won in the lottery, possible animal identification.

The zygosity determination was undertaken by Mr. P.E. Becker from Göttingen, who is a member of our team. The sample comprises 21 MZ pairs and 16 same-sex and 13 opposite-sex DZ pairs. The 100 subjects consist of 64 adults and 36 children or adolescents.

## RESULTS AND DISCUSSION

*Nature-Nurture question.* The mean intrapair difference of all MZ twin pairs amounts to 3.809 scaling points, that of all DZ pairs to 5.00 points. The difference is not due to chance. Conclusion: Inter-individual variance of neurotic impairment and manifestation of disease as expressed by the severity of neurosis score, is also hereditary determined. I say: “also”. The Chi-square table of the distribution of 657 neurotic and psychosomatic symptoms in our 21 MZ and 29 DZ twin pairs shows that in the MZ sample 32.76% of the symptoms are concordant but only 16.72% in the DZ sample. This difference has high statistical significance. The concordance rate of the same-sex DZ is 17.2%, that of the opposite-sex pairs 16.2%. That means: sex bears no remarkable specific meaning as a source of systematic error!

Table. Concordance for 657 neurotic and psychosomatic symptoms in twins

	Concordant symptoms	Discordant symptoms	Concordance rate (%)
MZ pairs (N = 21)	76	156	32.76
DZ pairs (N = 29)	50	249	16.72
DZ pairs, same sex (N = 16)	28	135	17.2
DZ pairs, opposite sex (N = 13)	22	114	16.2

Furthermore, hereditary factors play a role in the formation of the so called neurotic character structure; that means whether a patient develops either more of a schizoid or a depressive or an obsessive-compulsive or a hysterical personality. This result confirms the supposition of Sigmund Freud, that the preferred mechanisms of resistance to neurosis are partly rooted in constitution. If one differentiates by single neurotic symptoms, one obtains statistically confirmed evidence of a hereditary influence in neurotic depressive symptoms and certain social and behavioral deviations which resemble schizoid structures. Further in the following clusters of symptoms: maladaptive oral behavior (including nailbiting, abuse of alcohol and nicotine, drug addiction, etc.); maladaptive aggressive behavior (aggressively determined educational problems in children, uncontrolled out-breaks of rage, etc.).

In order to answer the question: “What are the relevant *environmental pathogenic-factors* responsible for the occurrence of neurosis?”, we used with the same twin sample two ways of assessment: by statistics and by case history.

*Results of the statistical approach.* Subjects more heavily stressed in early childhood are on the whole more severely neurotic in later life. The most important environmental neurosis-generating influences occur in the period from 0 to 6 years of age. In brief, we could describe three main groups of stressing environmental factors: (1) absence of key persons to love; (2) emotional rejection; and (3) special additional frustrations/conflicts.

1. The absence of the important love subjects involves mothers and/or fathers and can be permanent or transitory.
2. The rejection observed can begin on the part of the parents with an unwanted pregnancy; it can be accentuated through disappointment over a twin pregnancy. The aversion can affect both twins. If it is selectively directed to one of them, this is especially pathogenic.
3. Additional neuroticizing frustrations of statistically relevancy are: not to have been breastfed, presence of additional problematic persons in the family (grandmother and so on) and the presence of other siblings as real competitors.

The *effects* of these stressing environmental factors were higher severity degree of neurosis, greater number of symptoms and pathological influences on the neurotic character structure. Furthermore, we found special neurotic deformations regarding various aspects of Ego-achievements (e.g., school performance, I.Q., success at work, and present social class).

The second approach to find pathogenic environmental factors with the twin method was the case history, the detailed *discordancy analysis of MZ twins*. This method revealed that in *males* the twin whose motor activities were restricted and who was less identified with an ideal of masculine expansiveness, whose mother brought him up to be very subdued and overadapted, would develop the more severe neurotic illness. Because of the different ways of identification and Edipus-complex in the *female*, the pathogenic constellation in females were more complicated. Further research is being carried out with this method and encourages us to hope for interesting results.

At the end we ask: Hereditary influences on psychogenic diseases — is that a contradiction? The answer is: no. The facts we obtained with thorough attention to methods force us to conclude that both hereditary *and* environmental factors are involved in the process that is finally manifested as neurotic and psychosomatic illness.

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