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From Dualism to Psychobiological Interaction
A Comment on the Study by Tienari and his Co-workers

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Although the prevailing conception of the aetiopathogenesis of schizophrenia assumes the combined effect of a biological predisposition and of environmental stress, genetic factors have recently received more attention than environmental ones. Rather than concentrating on only one of these, Professor Tienari and his team have directed their research efforts to clarifying the joint effects of both. For that purpose, they have gathered a comprehensive body of material, starting from 19 447 schizophrenic women with 291 children given away for adoption; of the latter, 155 index children, with their biological and adoptive parents, were ultimately included in their study. A group of 185 control children was collected for comparison, and their parents (adoptive and biological) were also investigated.

The large volume of material, sophisticated method, and use of independent raters provided a favourable foundation for obtaining reliable results. Whereas 30% of the index group showed serious psychopathology (borderline or psychotic), the corresponding figure was 15% in the controls; grouping together all functional psychoses yielded an even clearer distinction between index and control adoptees. The difference was also quite clear when the DSM–III–R schizophrenia group alone was considered. Thus, the results give further support to the genetic contribution to the development of schizophrenia.

However, clear differences emerged only in adoptees raised in families which were rated as disturbed, and not in healthy families, regardless of the presence of a genetic factor in the child. Firstly, significant interaction was found between the adoptive mother's mental health and the genetic factor. Secondly, the psychiatric status of each parent functioned separately as a predictor of schizophrenia: if both parents were rated as disturbed, the joint effect of this had the highest impact for predicting schizophrenia. The conclusion drawn by Professor Tienari and his group seems well founded: there are not one, but two factors necessary for a schizophrenic outcome in the adoptee – a genetic factor and a disturbance in psychological interaction between the child and the parents.

At this stage, it remains an open question whether the genetic factor is a specific genetic error that is typical of schizophrenia or whether this influence consists of a non-specific predisposition, a kind of general sensitivity to the environment, which leads to the development of serious psychopathology only under unfavourable psychological circumstances. The results are consistent with both possibilities, but are more easily reconciled with the latter. If this turns out to be the case, the diagnosis of schizophrenia as a distinct disease entity may also need revision.

The index children had been adopted below the age of five, so that some of them had lived for quite a long time with a schizophrenic mother. Comparing children adopted soon after birth with those spending a longer period in the care of a biological mother with a schizophrenic predisposition might yield more information as to the origin of the sensitivity which later results in the precipitation of schizophrenia in some individuals. It is feasible to assume that the early emotional bond between the infant and the mother will be shaped in a different way, not only qualitatively but also quantitatively, if the genetically vulnerable child is attached to its biological mother as opposed to a mother who is free from schizophrenia. A study of the outcome of the separation–individuation development in the adoptees in the two groups would be of special interest. Are disturbances in the early formative stages of personality development sufficient for a later outbreak of schizophrenia, or is a long and more non-specific exposure to a disturbed psychological environment also necessary or perhaps sufficient for this?

The psychological conditions of growing up are likely to be particularly deviant in those children who fall ill without an inherited predisposition. Earlier findings, however, have been, contradictory in this respect (Paikin *et al*, 1974; Wender *et al*, 1974). In the Tienari study, the joint effect of disturbance in both parents had the highest statistical impact, which clearly points to the significance of the psychological milieu as an endangering/protecting factor. The further analysis of these results will be of interest, and may throw more light on the nature of distortions in the psychological milieu of the growing child which might lead to a psychopathological outcome irrespective of inherited traits.

Another conclusion evident from the results is that there is little reason to stigmatise the schizophrenic patient on either biological or psychosocial grounds. The genetic factor alone was not found to be enough to bring about the disturbance, but neither was a

serious mental disturbance in the mother. Even a mild disturbance in the mother interacted significantly with genetic factors, suggesting that the interaction between mother and infant is of special significance.

Indeed, it seems that the dualistic way of putting the question about the origin of schizophrenia – as having either a biological or a psychological aetiology – should be replaced by a different model which takes both of these factors into account.

Mechanism of psychobiological interaction

Professor Tienari's research also raises the question of how joint nature–nurture effects are brought about, and this problem can be approached from many different points of view. The significance of the earliest interaction between infant and mother has received surprisingly little attention in this respect, considering its obvious relevance. During the post-natal feeding period, in addition to vital biological care, the first infant–mother relationship is also created. At this stage, the mother plays an overall role in the child's survival and welfare. The 'good enough' mother also gives due attention to the diurnal cyclic variation in the infant's needs by understanding and responding to the various signals he or she sends.

In the satisfaction that the infant receives in this way from the mother, biological processes and psychological satisfaction are inseparably interwoven. In the mouth–nipple and other skin contact, as well as in physical care, the two merge in a psychophysical fusion (Lehtonen, 1991). At this stage of life, it is artificial to try to differentiate fully between the psychological and the biological processes; the dichotomic split, so typical of adult thinking about the relations between psychology and biology, is simply not valid. The life-giving satisfaction which the mother gives to the infant thus makes a natural setting for the first encounter between heredity and the psychological environment.

The internalisation of early psychobiological interactions is reflected in many ways later in life, among others in the capacity for dreaming, in the peculiar hypnagogic hallucinations described by Isakower and Lewin and in various primitive psychological functions and ways of relating (Isakower, 1938; Lewin, 1946; Volkan, 1975). Highlighting early psychobiological interactions may offer a rationale not only for joint nature–nurture effects, but also for the biological sequelae of psychic deprivation and/or conflict (Lehtonen, 1981). The alleviation or even disappearance of somatic symptoms during psychotherapy of psychosomatic patients can also be approached and understood as an adult reflection of early psychobiological interactions (McDougall, 1989).

We may ask whether there are differences between those who have a genetic predisposition to schizophrenia and those who do not in this original process of bonding between pleasure and physical experience in the infant. Do genetically vulnerable infants have a need for greater security and for more fundamentally satisfying interaction in their early psychophysical interplay with the mother, than those without this vulnerability? Are the same infants also more sensitive in general to environmental influences? The symptoms of schizophrenia may also be approached from the same point of view. Should they be understood as the result of a *breakdown* of the original link between the physiological processes of the body and psychological satisfaction?

Although these questions are at this stage still largely rhetorical, the conclusions arrived at (as described in the preceding paper) by Tienari and his colleagues, by stressing the joint effects of heredity and environment, lead us to search for those phenomena whereby such joint effects might actually take place. Furthermore, the integration of physical and psychic processes is pertinent not only to the earliest developmental stages, but also to later interactions. A good affective interplay between the child and the parent is important both for physical well-being and for psychological satisfaction for a long time after infancy, and the interaction between physical and psychological experience is also relevant for adults, most clearly in sexuality.

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