A COMPARATIVE STUDY OF PSYCHIATRIC DISORDERS IN DIABETIC CHILDREN AND THEIR PARENTS

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Summary

1. The literature on the rate of psychiatric disorders among children with chronic physical illness in general and diabetes as a chronic illness in particular is reviewed.

2. A comparative study of the rate of psychiatric disorders among 50 diabetic children and their parents, and of 50 control children matched for age, sex and social class by occupation of father is described.

3. The three hypotheses tested are:
   i) that diabetic children will show a higher rate of psychiatric disorders than the controls.
   ii) that the parents of diabetic children will show more psychiatric disturbances than parents of controls.
   iii) that the marriage of the parents of diabetic children will be more poorly integrated than the marriage of the controls.

4. Apart from testing these hypotheses, the aim was also to find out how a British group of diabetic children compares with those reported in Sweden and the U.S.A.

5. The instruments used included a children's behaviour inventory, a teacher questionnaire and the symptom sign inventory, all of proven reliability. Mothers were the main informants.

6. No significant differences were found between the rates of psychiatric disorders observed among the diabetic children and the controls both at home and at school. The differences between the present finding and those described in the literature/
/literature were thought to be due to various factors including the age range of children studied by different workers, the instruments employed and the different therapeutic regimes of the various centres.

7. The mothers of the diabetic children were found to be significantly different from the mothers of controls in the amount of self-reporting of nervousness, the demands they have made on their general practitioners for psychiatric complaints and on psychiatric hospitals. The mothers of the diabetic children also impressed the present author as being more anxious and reactively depressed than the mothers of controls. The differences on the personal disturbance scale of the symptom sign inventory between the two groups of mothers did not reach significant levels. The latter finding was thought to be due to the fact that the personal disturbance scale was not sensitive enough in identifying psychiatric morbidity in subjects not acutely disturbed.

The marriages of the parents of diabetic children were not more poorly integrated than those of the controls. Fathers did not appear to be as deeply affected by the child's illness. The first and the third hypotheses are thus unproven but the second one is partially proven.

8. Of all the factors likely to be associated with psychiatric disturbance in diabetic children, only the sex of the child was found to be of some importance in that there was a suggestive evidence of an association. Although there was a preponderance/
preponderance of girls among the disturbed diabetic children, when the diabetic girls and boys were compared with control girls and boys separately on three measures (mother's general concern, total behaviour score, and teacher's rating of behaviour) no significant differences were found. The evidence was thus inconclusive.

Other factors which were not significantly associated with psychiatric disturbance in diabetic children but which showed a trend towards a positive correlation included lower socio-economic status, prolonged hospitalisations and increased psychiatric morbidity in mothers. The lack of significant relationships with these factors was thought to be due to the small number of disturbed children in the present sample.

9. It is concluded that, firstly, mothers need more opportunities to discuss their anxieties about the future outlook of their children with the attending physicians. Secondly, the traditional case work of the social worker may not be adequate in this situation. Social workers attached to the families need to know about diabetes and its management in children. Thirdly, it is recommended that group ventures similar to those already started by parents of autistic children, of mentally handicapped children and of children with other chronic handicaps, be launched by the British Diabetic Association for the parents of diabetic children.
CONTENTS

1. Acknowledgements i

2. Summary iii

3. Introduction and review of the literature 1

4. The aim of the present study 15

5. The hypotheses 16

6. The samples 17

   A. The diabetic group
      i) The clinical services for diabetic children in Edinburgh.
      ii) The composition and source of the diabetic group of children.
      iii) The therapeutic regime and policy of the diabetic clinic of the Royal Hospital for Sick Children, Edinburgh.
      iv) Cruachan - a half-way house.

   B. The control group
      i) The composition and source of the control group of children.
      ii) The control group compared with other childhood populations elsewhere.

7. Method 25
      i) Introduction of the study to the mothers of the diabetic children.
      ii) Introduction of the study to the mothers of the control children.
      iii) Introduction of the study to the teachers.
      iv) The instruments used for collection of data.
          a) Behaviour inventory.
          b) Hospital records.
          c) Psychiatric status and marital adjustment of parents.
          d) The symptom Sign Inventory.
e) The teacher questionnaire.

v) Processing of data.

8. Results

A. Co-operation of the two groups of mothers.

B. Comparison between diabetic and control groups of children.

1. How well-matched the two groups are
   i) Age, sex and social class.
   ii) Sibship size of the children.
   iii) Age of parents at birth of child.

2. Psychiatric disturbance in diabetic children compared with the control children.
   i) Mother's general concern.
   ii) Behaviour inventory.
   iii) Total behaviour score.
   iv) Teacher's rating of behaviour.

3. Comparison of the disturbed diabetic children with the disturbed control children.
   i) Identification of disturbed children from the two groups
   ii) Factors on which the children were compared
       Age
       Social class
       Sibship size
       Mother's self-reporting of "nerves"
       Clinical assessment of psychiatric status of mothers
       The marriage
       Symptom sign inventory

C. Comparison of the psychiatric status of the parents of the two groups

1. i) Mother's self-reporting of nerves.
   ii) Mother's previous use of psychiatric help.
   iii) Clinical assessment of mother's mental state.
   iv) The symptom sign inventory
2. i) Father's state of "nerves".
   ii) Father's previous use of psychiatric help.
   iii) Drinking habit of fathers.

D. The marriage of the parents of the two groups

9. Factors associated with psychiatric disorders in diabetic children

1. Factors causally related
   i) Age at interview
   ii) Age at diagnosis
   iii) Duration of illness
   iv) Social class
   v) Sex of child
   vi) Hospitalisation experiences of child
   vii) Mother's psychiatric status

2. Relationship between psychiatric disorder and diabetic control

   assessed by: weight
   height
   hospital admission for poor control
   of diabetes

10. Comparison of the diabetic children and their parents
    with others reported in the literature

    i) The reaction of the child to the illness
    ii) The children's participation in the management
        of his illness:
        urine testing
        insulin injection
        dietary regime
    iii) Mother's initial reaction to the illness
    iv) The effect of the illness on the psychiatric
        status of the parents:
        mother
        father
    v) Effect of child's illness on the relationship
        between parents

11. Discussion and recommendations

12. References

13. Appendix
Introduction and review of the literature

Wolff (1969) has summarised the psychological implications of being ill. While the adult may accept a temporary regression to a situation of dependency when being nursed in an acute illness, restriction of movement can be more upsetting for some children than the experience of being nursed. Apart from physical restraint imposed by illness in general, many chronic illnesses require repeated hospitalisation, itself a cause of emotional disturbances in children (Prugh et al. 1953). Hewitt and Jenkins (1946) have shown that neurotic disturbances are the type of difficulties that could be expected to result from physical illness in children. These neurotic disturbances are usually characterised by anxiety, fears, nightmares and over-inhibited behaviour. Although the adverse effect of chronic physical illness on the emotional adjustment of children is well recognised, the prevalence of psychiatric disorders in children with chronic physical handicaps compared with normal children has been a matter of considerable controversy, (Kellmer Pringle 1964, Graham et al. 1967, Graham and Rutter 1968). Kellmer Pringle (1964) reviewed the literature on the emotional and social adjustment of physically handicapped children published between 1928 and 1962 and stated that no clear-cut conclusions emerged from the various studies she reviewed. She attributed this finding to the fact that different investigators used different research designs, studied a wide range of ages and handicaps and employed a wide range of different tests and measures. At present the situation is still the same. In their Isle of Wight study, Graham and Rutter (1968) compared the prevalence of/
of psychiatric disorder in children with neuro-epileptic disorders with children suffering from chronic physical disorders not involving the brain (asthma, diabetes, heart disease and talipes) and with children in the general population. They found that psychiatric disorders in the children with neuro-epileptic conditions were five times as common as in the general population and three times as common as in children with other non-neurological chronic physical handicaps. The rate of psychiatric disorders among the children with non-neurological chronic physical disorders was nearly twice as common as in the general population. Although the instruments used in these surveys were of proven validity and reliability, the ages of the groups compared varied a great deal. The neuro-epileptic group had an age range of 5-14 years, the group with other forms of chronic illness had an age range of 10-12 years and the general population of children were aged 10 and 11 years.

A wide variety of reasons previously suggested for an increased rate of psychiatric disorder in physically handicapped children include the presence of a visible disability, the frustrations inherent in physical restrictions, adverse parental reactions to the child's handicap, the child's reaction to his handicap, perceptual abnormalities, poor speech and language resulting in the child being unable to express his wants adequately, low intelligence and the effects of drugs. While some of these factors are shared by children with different types of physical handicaps, some of the handicaps are unique in some important respects (Barker et al. 1953). In the Isle of/
of Wight study already referred to above, the group of children with non-neurological chronic handicaps consisted of a "mixed bag" of children suffering from asthma, diabetes, heart disease and talipes. Asthma and diabetes are examples of chronic diseases which have unique characteristics. They can be described as "hidden handicaps" in that when they are both under control, there is no external evidence of the handicap.

Diabetes and, more recently, spina bifida, are examples of chronic diseases in children with rising prevalence as a result of advances in paediatric knowledge and in the medical and surgical treatment of children's diseases. Before the first therapeutic administration of insulin extracts to Leonard Thomson, a 14 year old diabetic boy, on January 11, 1922 by Banting and his co-workers (G. Sayers et al. 1965) diabetes in children usually resulted in death within a couple of years. Diabetes in children imposes unique problems which are thought to contribute to the psychiatric disorders in some of these children. Farquhar (1967) has highlighted, like previous workers, the uniqueness of diabetes among the various types of physical handicaps that a child can have. He noted that some children are limited by physical diseases which curtail their activity or by intellects so poor that they are not aware of life's excitements and pleasures. "The well diabetic child can be as quick and as energetic as any other normal child because he has no pain, no breathlessness and no fatigue to remind him of his illness. He feels in full all the urges to enjoy food and fun and freedom. Yet he must tolerate a routine which includes not just daily injections but dull conformity to diet, urine-testing/
The factors that have been thought to be responsible for psychiatric disorders in diabetic children include dietary restrictions, the need for daily insulin injections and urinalysis, the limitations on their daily activities that diet and insulin impose, repeated hospitalisations, the stigma of being diabetic, adverse parental reactions and the future outlook for the diabetic child (Fischer 1948, Kennedy 1955, Pond 1968). Although there have been a number of investigations into the rate of psychiatric disorders in diabetic children, the amount of systematic research is limited and the findings are conflicting. Brown and Thompson (1940) in a study mainly designed to investigate the physical and intellectual development of sixty diabetics whose ages ranged between 22 months and 20 years found "no characteristic abnormalities of personality". Apart from administering the Stanford Binet test of intelligence, a psychoneurotic inventory was completed for the diabetics and their controls who were healthy older siblings of the diabetics. The intelligence and the height of the diabetics showed no deviation from "the average and from their sibling controls". The authors chose older siblings because they thought, erroneously, that the younger siblings had a greater chance of manifesting latent diabetes than the older sibling. The validity of this study could be questioned on the grounds that the controls were not comparable with regard to age. Moreover, the reliability of the psychoneurotic inventory over such a wide age/
/age range as 22 months to 20 years was not established.

In another study with a similar aim, McGavin et al. (1940) administered intelligence, visuo-motor and personality tests to 45 diabetic children in addition to psychiatric interviews with the children and their mothers. The authors found that 71 per cent of the children were emotionally disturbed. The disturbance took the form of feelings of inferiority which the children dealt with by being boastful, aggressive or seclusive. Their mothers were described as not being different from "any other unselected group of parents". The main criticism of this study is that the diabetic children were not compared with a matched control group.

Loughlin and Mosenthal (1944) studied the personalities of 114 children whose ages ranged between 6 and 18 years, attending a summer camp. The children were observed in groups as well as being individually interviewed. The average duration of the diabetes was 4.3 years for the entire group. Sixty per cent of these children were said to have "maintained normality". The disturbed group were described as showing neurotic states and disturbances of personality. This study also suffers from the short-comings of others of not being controlled and the details of the assessments were not given.

Bruch (1949) studied the physiologic and psychologic interrelationship in diabetes in children. With "psychologic observations", interviews with child and mother supplemented by home visits, she studied 37 children whose ages ranged from 4\(\frac{1}{2}\) years to 15 years. In her interviews she focussed on the emotional stability of the/
the home, the marital relationship of the parents, their attitude to their children and special attitudes in relation to the diabetic child. She compared her findings with what was already known about obese children and their families. She found that while over-feeding and over-protection were characteristic features of mothers of obese children, no typical personality structure or "family frame" was found in the diabetic families. Twenty-five per cent. of the mothers were tolerant and accepting of the task of rearing their children. Their children were well adjusted. Seventy-five per cent. of the mothers were rejecting of their children or adopted rigid, perfectionistic attitudes. Their diabetic children showed various degrees of maladjustment.

Diabetic camps have often provided a good opportunity to study large numbers of juvenile diabetics, although these clearly did not constitute representative samples. Moreover, such studies always suffer from lack of matched controls. Bennett and Johannsen (1954) and Etzwiler and Sines (1962) studied diabetes in summer camps. Bennett and Johannsen, using questionnaires and projective tests studied 58 diabetic children whose ages ranged between 7 and 9 years. The authors found that the older the child at onset of his diabetes, the better he is able to control his negative emotions. This finding is similar to that of Loughlin and Mosenthal (1944) but contrary to that of McGavin et al. (1940) that the earlier the child developed diabetes the more readily he accepted it emotionally as part of the growing up process. Bennett and Johannsen also found that diabetic children from higher socio-economic homes were better/
better adjusted than children from the lower social classes. Etzwiler and Sines (1962) investigated the family, social and academic implications of the management of juvenile diabetes. Using questionnaires supplemented by information obtained from parents, teachers, physicians and camp counselors, the authors studied 72 diabetic children aged 6-15 years attending a summer camp. These authors reported that 66 per cent. of the group were reported to be well adjusted both at camp and by their teachers. The parents were found to show no excess of emotional disturbance compared with "randomly selected individuals". These studies were in fact not controlled.

Fischer and Dolger (1946) described the behaviour and psychological problems of 43 diabetic patients who had been observed from childhood to adolescence and early adulthood. All were twelve years or less at the onset of the disease. Twenty were under continual observation for 10 years and twenty-three were observed for from 15 to 20 years. Family and social histories were taken and thereafter regular contact was maintained. School progress and adjustment were also studied. It was found that financial status and emotional stability of the family were important for the good adjustment of the children. Forty-four per cent. of the children were rated as showing good, thirty per cent. as fair, and 26 per cent. as showing poor adjustment. These authors, like Kubany et al. (1956) could find no consistent difference in the degree of personality change between those in whom diabetes developed in early childhood, namely before the age of six/
/six years and those in whom it developed between six and twelve years of age. This is contrary to the findings of Loughlin and Mosenthal (1944) and McGavin et al. (1940) already discussed. Fischer and Dolger also found that the specific problems of childhood became less disturbing with "the onset of maturity". During adolescence, problems relating to vocation and marriage appeared. In those showing maladjustment in the whole group, the degree of maladjustment was unrelated to the duration and severity of the disease. The conclusions of this longitudinal study can be challenged mainly because of lack of proper controls and the crudeness of the indices used to assess adjustment of the group.

Other studies which arrived at conflicting conclusions suffer from lack of controls and/or the non-reliability of their measuring instruments. Boulin et al. (1951) studied 30 diabetics aged 4-19 years with projective and intelligence tests and found that 63 per cent. were maladjusted. No controls were used. In keeping with one of the general theses of psychosomatic medicine that significant relationships may be found between certain disease states or medical syndromes and certain personality or behaviour patterns, Dunbar et al. (1936) postulated that certain psychological traits were characteristic of diabetes and rheumatic fever respectively. Crowell (1953) studied 31 diabetics and 22 rheumatic fever patients with projective tests, the Minnesota Multiphasic Personality Inventory and Taylor's manifest anxiety scale in order to test the Dunbar hypothesis. He found that both the diabetic and rheumatic fever patients could/
could well be considered to come from the same population of subjects with a chronic illness. This finding also refutes the conclusion of Menninger (1935) that diabetics have typical behaviour patterns which differentiate them from other disease groups.

The literature is also replete with conflicting assertions and impressions about the place of emotional stress in the causation of diabetes mellitus. Benedek (1948) using psychoanalytic techniques studied 6 males and 3 females aged 8-37 years and concluded that conflicts, for example, related to sexual or aggressive impulses can precipitate diabetic glycosuria in genetically predisposed individuals. Others, like Daniels (1936), Hinkle et al. (1951) and Mirsky (1948), similarly studied small numbers of patients and stated that the onset of the symptoms of diabetes usually occurred in a setting of significant life stresses. These psychological traumata are said to reactivate an infantile neurosis which leads to the development of sufficient internal stress to induce the disease in the individual with physiological systems of limited capacity. Other workers (Kubany et al. 1956, Rosen and Lidz 1949, Gandel and Benjamin 1946, and Brown and Thompson 1940) deny any such associations. Reservations about conclusions derived from psychoanalytic studies arise from the fact that these studies do not meet the requirements of valid scientific research. The cases are few in number, there are no controls, and the exercise is not reproducible.

In the last ten years, attempts have been made to improve the quality of investigations into the adjustment problems of diabetic children.
The more recent studies have been better controlled and the instruments used to measure adjustment have been more sophisticated (Sterky 1963, and Swift et al. 1967). Sterky studied 145 diabetic children in Stockholm with an age range of 7-20 years and compared these with 126 children matched for age, sex and social class. Whenever possible, the children were also matched for size of family and the dwelling standard of the homes. The children and their mothers were observed and also interviewed in diabetic clinics. School reports were also requested from teachers. Sterky found that 54.5 per cent. of the diabetic children compared with 55.6 per cent. of the non-diabetics were free of psychiatric symptoms. The number of symptoms per case was, however, numerically higher among the diabetics. Thus whenever the diabetic children were disturbed they were more disturbed than the controls. Significant differences were found with regard to emotional lability and difficulties with peer relationships, the diabetics showing the higher frequency. In addition, Sterky found that 27.6 per cent. of the mothers of diabetic children compared with 11.1 per cent. of mothers of non-diabetics were mentally disturbed. The difference was significant statistically.

There are important criticisms to be made of Sterky's methodology. First, he attempted to match too many factors in selecting his control group of children. Apart from factors like age, sex and social class by occupation of father, he also attempted to match the pairs with regard to the numbers of siblings, ordinal position, and the dwelling standard of the family. The first subject fulfilling or coming/
/coming nearest to fulfilling these requirements was chosen as a control. As these factors became cumbersome, he ended up with 8 pairs whose age differences ranged between 12 months and 20 months and 19 pairs in which the fathers of diabetic children belonged to a higher social class than the fathers of non-diabetics. Secondly the age range of the samples was between 7 and 20 years. Although Sterky showed that the most pronounced increase in psychiatric symptoms per case occurred after puberty, and in girls more than in boys, he did not make it clear how much of the total maladjustment found in his whole sample was due to the psychiatric symptoms of his older diabetics, some of whom would be faced with the problems of adolescence. Thirdly, he assessed the mental state of the children partly during and between clinic procedures such as blood sampling, investigations of physical exercise capacity, physical examinations and dietary interviews. Some of these procedures could be sources of anxiety for the children and lead to an inaccurate assessment of the mental state of the children. Moreover, some interview data were derived only from telephone conversations with children and their parents.

In the study of Swift et al. (1967), 50 juvenile diabetics whose ages ranged from 7 to 17 years were compared with another 50 children with an age range of 7-15 years. The samples were matched for age, sex, social class, class grade in school and race. The children and their parents were intensively studied with a semi-structured interview technique and a battery of intelligence, projective and other psychol-
/psychological tests. Teachers were asked to report on the adjustment of the children in school. The results of this study showed diabetic children to be more abnormal than non-diabetic controls in that the diabetics were more anxious, more dependent, less adequate in self-percept and showing greater oral preoccupations. The over-all rating and adjustments to home and peers were significantly worse among the diabetics than the controls. The diabetic children were found to come from less happy homes than the controls. It was also found that the longer the duration of diabetes, the worse its control. Since the mean age of onset of the disease in this sample was 7.54 years and the oldest children were 15-17 years, it would appear that at adolescence, the control of diabetes became erratic. This study can be criticised on the following grounds. The amount of discrepancy between the ages of the "pair" was not clear. The authors simply stated that some adjustment downward had to be made in age at the end of the matching "because of a trend toward a higher mean age for the controls". In addition to a semi-structured interview, projective tests were used in the psychiatric assessment of the subjects. Because the interviewer was aware of which children were diabetic, the authors attempted to reduce the amount of bias by submitting the projective data to independent raters. The rated results were quite variable. Finally, the number of parents of controls who refused to participate was not stated. These short-comings might well have influenced the findings of the study.
The studies reviewed so far have focused on the effects of diabetes on the child and his mother. Other workers have studied the effect of the handicap on the marriage of their parents and yet others have studied the attitudes of the children themselves towards their illness. Crain et al. (1966) studied the effects of a diabetic child on the marital integration of the parents. Using various measures of attitudes towards family life and child rearing, the authors studied the parents of 54 diabetic and 76 non-diabetic children, fathers and mothers being interviewed separately. There was a greater degree of marital integration, less marital conflict, and greater agreement on how to react to the child among parents of non-diabetic compared with parents of diabetic children. Davis et al. (1965) studied the attitudes of 58 diabetic boys and girls attending a summer camp. The mean age of the campers was 11.7 years and the average duration of the illness 5.1 years. The questions asked were designed to evaluate the campers' plans for the future in terms of occupational, educational and marital goals, their expected chance of achieving these goals and the influence they felt diabetes had upon these goals. The illness had no adverse effect on their future plans.

In conclusion, the literature on chronic illness in general and diabetes in particular contain very few, well designed and systematic studies. Only in the last ten years have methodologically more sophisticated studies been undertaken. None of the studies reviewed described the treatment regime of the diabetic clinics or of the practitioners who treated the children. The possibility exists that different treatment regimes of a disease that demands very/
very close co-operation between physician and the patient accounts for some of the conflicting rates of psychiatric disorders reported from different centres. This observation is in addition to the fact that different investigators have employed different research designs, studied children of a wide range of ages and socio-economic circumstances and made use of a wide range of tests and measures, many of which had no recorded validity or reliability. Only three of the studies reviewed used matched controls and even then these have important methodological short-comings.
The aim of the present study.

The above review of the literature indicates that there are wide differences in the estimated prevalence of psychiatric disorders in diabetic children. Moreover, there was no record of any British study. It was therefore decided to investigate the rate of psychiatric disorders among a group of British diabetic children and their parents and to compare this group with those reported on in other centres, namely, Stockholm (Sterky, 1965) and New Jersey, U.S.A. (Swift et al. 1967).
The Hypotheses.

1. It is hypothesised that diabetic children will show a higher rate of psychiatric disorders than controls because of factors already discussed above. The general view is that diabetes itself is not caused by emotional disturbance. Any differences found in the prevalence of psychiatric disorders between diabetic children and a well matched control group are therefore likely to be consequences of the illness.

2. It is also hypothesised that parents of diabetic children will show more psychiatric disturbances than the parents of controls. Again any differences found between the two groups of parents are likely to be due to the effects of rearing a diabetic child.

3. Thirdly, it is hypothesised that the marital relationship of the parents of the diabetic children will be more poorly integrated than that of the parents of children in the control group.
The Samples

A. The Diabetic Group.

i) The clinical services for diabetic children in Edinburgh:

There are four hospital settings in Edinburgh where diabetic children receive treatment. The majority of the children attend the diabetic clinic of the Royal Hospital for Sick Children where they are under the care of one consultant and his team. Of the 50 diabetic children who constitute this sample, 43 (86 per cent) attend the main clinic. Dr. Farquhar, the consultant in charge personally knows all his patients. The remaining seven children attend the other three hospitals in the city. The four hospitals provide a regional service in that they draw their patients not only from the city but also from surrounding rural areas. Of the 50 diabetic children in the present sample, 22 (44 per cent), live in the city, while the rest live in the suburbs and in the country.

ii) The composition and source of the diabetic group of children:

In October, 1969, the four consultant physicians supervising the management of diabetic children were approached for their co-operation. By going through the index cards of all children attending the diabetic clinics, all the children aged between 5 and 12 years were identified. A total of 58 such children was found. Four children were excluded from the study for the following reasons: one was severely brain-damaged, another had diabetes insipidus and bilateral congenital renal abnormalities in addition to diabetes mellitus and had repeated hospital admissions for renal surgery, a third was a child of parents whose mother did not speak English, a fourth had probably moved out of the district (the/
Of the 54 mothers invited to participate in the study, three were not interviewed for the following reasons: - one failed to reply to repeated invitations, a second mother, an alcoholic, was evicted by her husband from the house before the interview could be arranged because she was "not looking after the children properly". A brief interview with the child's father showed that the mother had a long-standing personality abnormality and it would appear that the diabetes in the child did not cause the alcoholism, a third mother lived in the country, her diabetic son was living in a fee-paying boarding-school and attended the clinic very infrequently. This mother could not fit in with the appointments offered her by the author. The refusal rate was thus 3 out of 54, i.e. 5.56 per cent. Although 51 mothers enthusiastically took part in the study, 50 diabetic children form the subjects of this study because no suitable control child could be found for the last diabetic child at the time the interviews were completed. In only one instance was it necessary to visit a mother twice before an interview could be arranged. The final sample of diabetic children was made up of 22 boys and 28 girls. Although there were more girls than boys, the difference was not statistically significant. The children's ages range from 5.17 years to 13.08 years, with a mean of 10.1 years.

The study was confined to children of Primary School age because the Royal Hospital for Sick Children rarely treats children older than 13 years and also because the present author planned to investigate the adjustment of the children at school. Primary School teachers/
/teachers are more likely to know the children longer and better than Secondary School teachers. In fact by the time all the mothers were interviewed a few of the children had moved up to their Secondary Schools.

iii) The therapeutic regime and policy of the diabetic clinic of the Royal Hospital for Sick Children:

As soon as the diagnosis of diabetes is confirmed in a new patient, the mother is co-opted as a member of the treatment team. The consultant physician explains the disease to the parents although usually it is the mother who will have the greater responsibility during the follow-up in the out-patient clinic. The physician usually spends some time in listening to and answering the parents' questions especially when the disease has been preceded by malaise and then followed by fits or coma. When mothers come from outside the city they are advised to move near the hospital for the period of the first hospital admission. The mother is advised to be in the ward as much as is possible. During this period the mother is taught how to test the urine and interpret the result. She is also taught how to sterilize needles and syringe, measure the dose of insulin and how to administer injections. The diet is liberal and easy to use. The mother is taught how to measure foods to match the results of the urine analysis. A dietician is available to advise the mother about achieving variety in the menu.

Before the child is discharged to be followed up in the out-patient diabetic clinic, the mother is shown the early signs and symptoms of hypoglycaemia. A typical mild hypoglycaemia attack is deliberately/
/deliberately induced in her child and she is shown how to terminate it herself. As soon as the child is well enough to understand his illness, if he is old enough, he too is tutored in the art of managing his own diabetes. He is shown how to test his urine, the diet is discussed with him and he is encouraged to give his own insulin injections right from the time of his first hospital admission. Towards the end of the child's stay in hospital, each mother is given a copy of a pamphlet designed to guide parents, their family doctors, school teachers and all headmasters in the management of the diabetic child (Notes for the Guidance of Parents of Diabetic Children, Farquhar, J.W. 1970). This pamphlet sets out in very simple detail the explanation of the symptoms and signs of the disease and the management with regard to urinalysis, diet and insulin injections. It is a policy of the physician in charge to discharge each child before he is in "perfect control" and in as short a time as possible. By this means, the adverse effect of hospitalisation is reduced. Moreover, diabetic control under ward conditions is not a guarantee of control once the child resumes his normal activities at home and at school. Very close supervision of the child and his illness is maintained through the diabetic clinic; failed appointments are immediately investigated usually by telephone or by a home visit from the hospital social worker.

iv) Cruachan - a half-way house:

In 1967, a Doctor Barnardo's Home, Cruachan, was opened in the out-skirts of the city of Edinburgh. Elliot (1967) described the purpose of the residential unit as follows: "At Cruachan, 11 boys and girls/
/girls whose home would be detrimental to their health and education are taught how to live with their diabetes and live as normal a life as possible. They attend the local school and join in the village community life". A diabetic child may be admitted to Cruachan for any of the following reasons:—

1) Illness or confinement for child-birth of the mother, if the care of the diabetic child is likely to slip.

2) Family crises such as eviction, parental separation, or other marital conflict that might otherwise have necessitated taking the child into care.

3) Emotional disturbance in the child.

4) Sometimes when the mother herself finds the diagnosis of diabetes in her child too upsetting, both the child and the mother are admitted.

The home is under the care of two house-parents, the house-mother being a trained nurse and her husband, the house-father, trained in child care. A child psychiatrist visits the home periodically.

Cruachan fulfils the functions of a half-way house and provides an alternative to hospital care. Children live under more normal conditions than in hospital, and more recently it has been found that for some mothers it is easier to grasp the essentials of the management of diabetes in Cruachan than in the sometimes very busy atmosphere of a general paediatric ward.

Since its opening in 1967, 10 of the children in the present sample of 50 have been admitted to Cruachan. Four were admitted/
admitted when their diabetes was first diagnosed because the mothers were thought to find it easier to accept and learn about the illness in Cruachan than in hospital. Two were admitted because of poor social factors, two because the mother was ill, and two because of a poor mother-child relationship causing unsatisfactory control.

B. The Control Group

i) The composition and source of the control group of children

This group consisted of children who were newly referred to the medical, surgical and ear, nose and throat (E.N.T.) out-patient departments of the Royal Hospital for Sick Children, starting from the date at which the interviews of the mothers of diabetic children began. The control children were chosen from hospital attenders because the diabetic children came from schools which covered a wide geographical area. If the controls had been selected from the diabetic children's class-rooms, the present author would have had to visit all the schools. This would have increased the volume of work and the time spent on the study. Moreover, in his study of the children of sick parents, Rutter (1966) chose his controls from dental and paediatric clinic attenders. It was thought that newly referred children were likely to provide reasonably good controls.

As the interviews of the mothers of the diabetic children had gone on for some weeks before the mothers of the control children were approached, the clinic registers of the various departments were examined/
/examined in the order in which the mothers reported with their children to the reception desk. All children referred because of enuresis, encopresis or asthma were excluded because these conditions are often expressions of, or associated with, psychiatric disorders. Also excluded were children whose fathers worked in the armed forces because these occupations did not feature in the diabetic group and are not classified in the Registrar General's manual (Registrar General 1966). The first child to match any of the diabetic group with regard to sex, age and socio-economic class by occupation of father (Registrar general 1966) was selected. The children were matched for age in such a way that no child was more than six months older or younger than his diabetic "partner" at the date of interview. Of the 50 mothers approached only two refused to participate as soon as they were approached in the clinics (a refusal rate of 4 per cent). The next attenders to the clinics meeting the matching requirements were substituted. The controls (22 boys and 28 girls) had an age range of 5.5 years to 13.17 years and a mean of 10.2 years. Forty-four per cent were referred for medical consultations, 22 per cent for surgical consultations and 34 per cent for E.N.T. consultations. Sixty-two per cent of the children came from the city and the rest came from the suburbs and the country. All the fifty mothers except one were successfully interviewed at the first visit arranged. The other was visited thrice before an interview was obtained.
ii) The control group compared with other childhood populations described elsewhere

The control group of children were chosen to match the diabetic group and not to be representative of the general population of children. It was therefore of interest to compare the prevalence of behaviour symptoms in this group with that established by other workers for childhood populations elsewhere. Fourteen per cent of the present author's control had been enuretic within the six months before interview compared with 17 per cent within the past year in Buffalo City (Lapouse and Monk 1958) and 19 per cent in a London General Practice (Ryle et al. 1965). Stammering of any degree of severity occurred in 4 per cent of the present author's control and in exactly 4 per cent of childhood population of similar age in Buffalo. Two per cent of the present control group had stolen within the six months prior to interview (rating of three or more) compared with 5 per cent found in Ryle's general practice where a similar rating was used. Using the teacher's rating of children's behaviour as described by Rutter (1967) it was found that the proportion of disturbed boys in the control group of the present study is three times, and the girls one-and-a-half times, as high as in the general population of 9-13 year old children investigated by Rutter in Aberdeen. This finding is likely to be partly due to the fact that the present author's control group is chosen from hospital attenders. This fact would operate against the present author's hypothesis.
7. **Method**

i) **Introduction of the study to the mothers of the diabetic children**

In December, 1969, the physician in charge of the diabetic clinic, Royal Hospital for Sick Children, wrote a letter to the mothers of the diabetic group (see Appendix A). The author then introduced himself to the mothers at their next clinic attendance, discussed the study briefly and made an appointment for a home visit.

ii) **Introduction of the study to the mothers of the control children**

Because the interviews of mothers of diabetic children started before those of the mothers of the controls, some of the mothers of the controls had already attended out-patient departments before the author could arrange to meet them there. These mothers were contacted by telephone or letter, (see Appendix B). The other mothers were seen in the three clinics in the order of arrival at the reception desk. The mothers of those children who satisfied the matching requirements were seen briefly before they saw the respective consultants. The study was then introduced as described above and appointments were made for the author to do a home visit.

iii) **Introduction of the study to the teachers**

In December 1969 the medical officers of health of the five local authorities from which all the children in the samples came were informed of the study. The present author sought their co-operation with respect to a short behaviour inventory which was to be completed by the teacher of each of the children. The medical officers of health all willingly got the co-operation of their respective directors of education for the author to approach the headmasters directly. The headmasters of the/
the private (fee-paying) schools were approached directly.

All the headmasters were informed by letter about the author's study (see Appendix C) and it was also stated that the mothers of the children had been interviewed and all had given their consent for the teachers to be approached. The co-operation of the teachers of diabetic children was 100 per cent. One of the forty-nine teachers of the control children approached failed to return the questionnaire. The last one was not contacted because the private school was on holiday and the data were already being processed by the time the school resumed. On the whole, it was necessary to telephone five of the teachers, as a reminder, before the ninety-eight completed forms were returned.

iv) The instruments used for collection of data

The five instruments used for the collection of data in this study are now described.

a) Behaviour Inventory:

The main research tool was an interview carried out by the author during a home visit. During the interview a precoded behaviour inventory was administered. For her study of the behavioural characteristics of Edinburgh primary school children, Wolff (1967) designed a behaviour inventory based on the rating scheme devised by MacFarlane et al. (1954). Wolff introduced modifications to improve the deficiencies that were in part met by other workers who had earlier used the MacFarlane rating scales. Thus to minimise the effect of interviewer bias, a method of focussed interviewing was used. Standard questions were asked in a uniform order, but the interviewer was free, after/
/after every set of questions, to explore each area of enquiry according to the individual mother's responses. Questions about "objective" types of behavioural acts elicited their frequency and severity. Questions about more "subjective" personality traits included specific examples of situations in which the child was likely to show the behaviour under consideration. Thus if a judgement was unavoidable, it was made by the mother and not by the interviewer.

Out of a total of 62 behaviour scales designed by Wolff (1967), 41 were selected for the present investigation. The scales selected were firstly, those which had been found to differentiate significantly between children referred to a psychiatric clinic and a matched control group of children attending the same school classes. These scales included the following:-

i) Those for all the conduct disorders (lying, stealing, truanting, sexual acting-out etc.)

ii) Symptoms indicative of unhappiness and anxiety (including over-activity and poor attention and concentration).

iii) Symptoms indicative of poor relationships with other people, namely, disobedience, temper tantrums, poor relationships with other children and with siblings.

iv) Enuresis and encopresis.

Secondly, scales which did not distinguish between children referred to a psychiatrist and controls, but which were thought by the author to be of special interest in relation to chronic illness and particularly diabetes, were included. Reference has already been/
been made in the review of the literature of the findings of Hewitt and Jenkins (1946) of statistical correlation of chronic physical illness in a child with over-inhibited behaviour. Items like timidity, over-compliance and shyness were therefore included. The other items were recklessness, over-concern with illness, over-eating and food-fads, physical complaints and obsessionality. The final behaviour inventory used is shown in Appendix D.

b) Hospital records:

A separate schedule was designed to record previous health history data abstracted from the hospital notes. Data collected in this way included the date the diabetes was diagnosed; consultation for any other chronic illness like epilepsy, asthma and eczema; family history of diabetes; weight and height recorded nearest the date of the author's interview with the mother; and hospital admissions for poor control of diabetes. The schedule also contained questions about hospitalisation, experiences of the child and surgical operations before and after the age of four years. Finally, questions about the child's and parents' participation in the management of the illness were also recorded in this schedule. This schedule is shown in Appendix E.

c) Psychiatric status and marital adjustment of parents:

A third schedule was designed to find out the current mental state and the previous history of psychiatric disorder of both parents. Other items on this schedule included questions about the marital adjustments of the parents, the presence or absence of alcoholism/
Alcoholism as a problem in the fathers, the childhood experiences of both parents, their family composition and so on. This schedule is shown as Appendix F.

d) The Symptom Sign Inventory:

In addition to the questions designed to find out the mental state of the parents, a shortened version of the symptom sign inventory (S.S.I.) designed by Foulds et al. (1967 and 1968) was administered. This inventory consists of a series of twenty-seven questions to which each mother is invited to answer "Yes" or "No". According to Foulds (1968) who designed the eighty items from which the shortened version was derived, "An item had to be simple enough to be comprehended by the bulk of the non-defective population. It had to relate to a symptom or sign of illness, rather than to a personality characteristic. It had to be precise enough to define a symptom or sign, but sufficiently general to cover many manifestations of that symptom or sign". After administering these items (questions) to samples of diagnosed female psychiatric patients, normals, and patients in medical and surgical wards of a General Hospital, Foulds derived an eight items questionnaire that distinguished character disorder from normality or other psychiatric disorders. Character disorder is otherwise described as personality disorder or psychopathy, but the latter term is not used in the sense of the McCords (1964) who described the aggressive and conscienceless type. By administering the items to further samples of male and female diagnosed psychiatric patients not suffering from character disorders, to normal males and to patients of medical and surgical wards Foulds/
Foulds derived another 20 items called the personal disturbance scale. The diagnostic categories of psychiatric clinic patients consisted of Anxiety State, Neurotic depression, Hysteria, Obsessional state, Non-paranoid schizophrenia, Paranoid schizophrenia, Mania and psychotic depression. Any item was included in the personal disturbance scale if it distinguished at least seven male diagnostic classes and seven female diagnostic classes from the sample of normal females. Foulds maintains that the difference between character disorder and personal illness is that the former results from traumatic early life experiences whereas the latter results from current life stresses and strains. Foulds stated, "A high score on the scale (personal disturbance) is not an indication that a person has broken down, and we do not know whether it indicates that he will break down".

In the present author's study, each of the mothers was informed that many of the questions might not apply to her but that for the completeness of the study the author would run through the questions. Furthermore, each mother was asked to confine herself to the previous two weeks prior to the date of interview and that before they gave their answers, they must consider whether the item was distressing to them. The score on each of the scales (character disorder and personal disturbance) is the sum of the items to which the response is positive. A total of 4 or above is an abnormal score on the character disorder scale. Three and less are within normal limits. On the personal disturbance scale a score of 2, 3 or 4 is borderline while a score of/
of 5 or more is abnormal. A score of nought or one is normal. This inventory is shown as Appendix G.

e) The Teacher Questionnaire:

It is well-known that children behave differently at school from the way they behave at home, and that in order to identify psychiatrically disturbed children, both mother and teachers must be questioned (Mitchell and Shepherd 1966, Rutter and Graham 1966). Rutter (1967) described a children's behaviour questionnaire for completion by teachers. The scale consists of twenty-six brief statements concerning the child's behaviour to which the teacher has to check whether the statement "certainly applies", "somewhat applies" or "doesn't apply" to the child in question. These statements are given a weight of "2", "1" or "0" respectively to produce a total score of 0-52 by simply adding up the scores on the twenty-six items. Rutter distinguished children with neurotic behaviour disorders from those with antisocial behaviour disorders by comparing the total scores obtained on such items as:-

1) often worried, worries about many things
2) often appears miserable, unhappy, tearful or distressed
3) tends to be fearful or afraid of new things or new situations
4) has had tears on arrival at school or has refused to come into the building this year (the neurotic sub-score) and another group of items which gives an anti-social subscore. This is made up of the following:-

1) often destroys own or others belongings
2) frequently fights with other children
3) is often disobedient
4) often tells lies
5) has stolen things on one or more occasions
6) bullies other children

The only group of children whose scores are submitted to this categorisation are those who obtained a total of 9 or more on the whole 26 items because 9 was found to be the best cut off point differentiating between children referred to a child psychiatric clinic and children in the general population. A child (Rutter 1967) is classified as having a neurotic behaviour disorder if his neurotic subscore is higher than his antisocial subscore, and a conduct behaviour disorder if the reverse is the case. This questionnaire is shown as Appendix H.

v) Processing of data:

The behaviour inventory was already pre-coded. Transcription sheets were prepared for the other schedules. The data were coded and from the transcription sheets they were punched into cards. The analysis of all the data was done by computer (E.R.C.C. 360/50) using a programme designed by Nie et al (1968) and called Statistical Package for the Social Sciences (S.P.S.S.). This programme was designed to use non-parametric statistical methods appropriate for processing the type of data collected in non-discrete measurements. For every behaviour scale and for other items relating to children and parents, the differences in distribution of scores between the diabetic and control groups were calculated using chi square and Kendall's tau tests.
8. Results

A. Co-operation of the two groups of mothers

The refusal rate of the diabetic mothers to participate was 5.56 per cent, 3 out of 54, or 3.7 per cent if the mother who was already evicted from her house before an interview could be arranged was discounted. The author was very impressed by the enthusiasm with which the mothers of the diabetic children talked about their children's illness. The refusal rate of mothers of control children was 4 per cent. It is pertinent to record that many of the control children who were referred for E.N.T. and surgical consultations were on waiting lists for subsequent operative procedures. It is possible that the excellent degree of co-operation from these mothers was in part due to their expectation that co-operation would hasten the admission of their children for the planned treatment. Moreover, it was unusual for attenders at the medical outpatient clinics to have a single hospital attendance. The first visit was often only the beginning of a series of investigations so that these mothers too might have felt under some obligation to co-operate in this study.

B. Comparison between diabetic and control groups of children.

1) How well-matched the two groups are

i) Age, sex and social class:

The diabetic children had a mean age of 10.1 years and the controls a mean age of 10.2 years. The sex and social class distributions were the same for the two groups (see Table 1).
Table I

Social Class Distribution

<table>
<thead>
<tr>
<th>Subjects</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic</td>
<td>1</td>
<td>9</td>
<td>32</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>9</td>
<td>32</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

ii) Sibship size of the children:

In an attempt to match for too many factors, Sterky (1963) ended up comparing two groups that were rather dissimilar. One of the factors he did control for was sibship size. It was therefore interesting to find that there was no statistically significant difference between the sibship sizes of the two groups of children in the present investigation (See Table II).

Table II

Sibship size of the children

<table>
<thead>
<tr>
<th>No: of children</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only child</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>One of two</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>One of three</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>One of four</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>One of more than four</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Chi square = 2.9 df 4 n. s.

The two groups are in fact very similar with respect to the sibship size of the children.
iii) **Age of parents at birth of child:**

It was decided to investigate whether the mothers of the two groups of children were young or elderly parents at the date of births of the two groups of children (See Table III).

**Table III**

<table>
<thead>
<tr>
<th>Age</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>25 and less than 30</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>30 and over</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

Chi square = 0.

There was no difference between the two groups. Similarly there was no difference in the ages of fathers of the two groups of children (See Table IV).

**Table IV**

<table>
<thead>
<tr>
<th>Age</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 30</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>30 and less than 35</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>35 and over</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Unknown</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Chi square = 4.1, df. 3, n.s.
The ages of three of the fathers of the diabetic children were not known because at the time of the interview the author did not ask either because the mother, sole informant, was widowed or separated from her husband.

In summary even though the two groups were selected as being matched for sex, age and social class, they were in addition, found to be comparable as regards sibship size of the children and the ages of their parents.

2. **Psychiatric disturbance in diabetic children compared with the control children**

The rate of psychiatric disorders found among the two groups of children was measured in four different ways. These are:

   i) **mother's general concern**
   
   ii) the behaviour inventory
   
   iii) total behaviour score
   
   iv) teacher's rating of behaviour

i) **mother's general concern**: Before the behaviour inventory was administered, each mother was asked whether she was in any way worried about her child's emotional state. The frequency distribution of the mothers' responses is shown in Table V.

<table>
<thead>
<tr>
<th>Response</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worried</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Not worried</td>
<td>35</td>
<td>37</td>
</tr>
</tbody>
</table>

---

*Table V*

**Mother's general concern**
There is no significant difference between the mothers' general concern about the emotional state of their children.

ii) Behaviour inventory: Differences in distribution of scores between the two groups for all the 41 behaviour scales were calculated using Chi Square and Kendall's tau tests. On only two items of behaviour, namely, sleep disturbance and stealing were there any significant differences (see Tables VII and VII), the control children being more disturbed than the diabetics.

**Table VI**

<table>
<thead>
<tr>
<th>Sleep disturbance</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nightmares or night terrors waking him up once a week or more</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nightmares or night terrors waking him up less than once a week etc†.</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Reports upsetting dreams in the morning etc†.</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Occasional bad dreams without waking up etc†.</td>
<td>6</td>
<td>22</td>
</tr>
<tr>
<td>No difficulties</td>
<td>38</td>
<td>26</td>
</tr>
</tbody>
</table>

†see appendix for full coding.  

Chi Square = 14.1, df. 4.  

p < .01

**Table VII**

<table>
<thead>
<tr>
<th>Stealing</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic petty pilfering whenever the opportunity present etc†.</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Table VII (contd.)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional mild pilfering outside the home etc.</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Only one episode of stealing (in the last six months) and then something minor etc.</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Never steals. Tries to return anything he finds to its rightful owner</td>
<td>45</td>
<td>35</td>
</tr>
</tbody>
</table>

*see appendix for full coding.*  
Chi Square = 9.4, df. 3  p < .025

Behaviour disorders like discontent, sad mood, poor concentration and attention, over-activity, withdrawal, over-dependence, over-concern about death and illness, disobedience or over-compliance, over-eating or food fads, over-imaginativeness, over-sensitivity and temper tantrums which might be expected to differentiate between diabetic and control children were generally common in the two groups. For example, 20 per cent. of the diabetic children compared with 16 per cent. of the controls were rated as generally discontented. Fourteen per cent. of the diabetics compared with ten per cent. of the controls were rated to have an appreciable degree of sad mood (a rating of three or more) within the past six months. Six per cent. of the diabetics compared with eight per cent. of the controls were rated as having periodic outbursts of disobedience while 16 per cent. of the diabetics compared with 10 per cent. of the controls were rated as having temper tantrums no less than several times a week." Moreover, behaviour disorders like timidity, over-submissiveness with other children, and specific fears which could be expected to differentiate between the two groups because diabetes/
Diabetes is a chronic illness (Hewitt and Jenkins 1946) were also found to be generally common in the two groups. For example, 14 per cent of the diabetics compared with 16 per cent of the controls showed a considerable degree of timidity (a rating of three or more) in the last six months. Twenty per cent of the diabetics compared with 12 per cent of the controls exhibited an appreciable degree of fear reaction towards specific objects or situations in the last six months.

iii) Total behaviour score: The two groups of children were also compared on total behaviour scores obtained by adding together the raw scores of the behaviour inventory. Mensh et al. (1959) found that the total number of symptoms reported by the mother for her child correlated well with general psychological adjustment. In adding up the various ratings, a child showing no disturbance on any particular item was given a score of zero. Any other rating was scored as less by one. The distributions of total behaviour scores in the two groups of children (see Figure 1) are very similar, although two of the diabetic children obtained the highest scores. The differences in scores between the two groups were insignificant (Chi Square = 9.8 df. 9, tau = -.12)

iv) Teacher's rating of behaviour: Figure 2 shows that the distributions of total teacher scores in the two groups of children are not very different. When classified according to the scheme designed by Rutter (1967) into antisocial and neurotic behaviour disorders, there is again no difference between the groups (see Table VIII).
Fig. 1

Total Behaviour Score

Number of Children

- Diabetic children
- Control children
TEACHER QUESTIONNAIRE

- Fig. 2 -

Diabetic children
Control children

NUMBER OF CHILDREN

TOTAL SCORE

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 and over
Table VIII
Teacher's rating of behaviour

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct behaviour disorder</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Neurotic behaviour disorder</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Normal adjustment</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Chi Square = 2.2. df. = 3 n.s.

Even mere inspection shows that there is no difference between the two groups.

Rutter (1967) compared the teacher scores of children in the general population with the scores of children attending psychiatric clinics for emotional or behavioural disorders and found that a score of 9 gave the best discrimination between these two groups of children. Table IX shows the proportion of children scoring above 9 on the teacher scales in the diabetic and control groups of the present study and in Rutters psychiatric clinic and normal childhood population. The figures for boys and girls are presented separately because the sex ratio in the four groups of children was not comparable.

Table IX
Children with a total score of 9 or more
Table IX

Children with a total score of 9 or more

<table>
<thead>
<tr>
<th>Rutter's samples</th>
<th>Present study</th>
</tr>
</thead>
<tbody>
<tr>
<td>General population:</td>
<td>Psychiatric clinic attenders:</td>
</tr>
<tr>
<td><strong>Boys</strong></td>
<td><strong>(N)</strong></td>
</tr>
<tr>
<td>(N) = 155</td>
<td>9.7%</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td><strong>(N)</strong></td>
</tr>
<tr>
<td>(N) = 131</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

The proportion of disturbed boys in the control group of the present study is three times as high as in the general population of 9-13 year old children investigated by Rutter in Aberdeen. The control girls of the present study have a rate slightly higher than the girls in the general population. The very high rate for the boys of the control group may be due to the very small number of subjects compared with Rutter's group (22:155). It may also be due to the fact that the population from which the controls were chosen, namely, a hospital outpatient department, consists of children with a higher rate of psychiatric disorders than in the general population. It is however very striking that the rate for the diabetic girls is more than three times the rate for girls in the general population (17.9%: 4.6%) while the rate for diabetic boys is just over twice the rate for the boys in the general population (22.7%: 9.7%). When the rates for the children referred for behaviour disorders (clinic children) are compared with either the/
the diabetic or control children, in no instance is the rate of the psychiatric clinic group less than three times the rates found in the present series of diabetic or control children. They are thus two very different populations.

In summary, the rates of behaviour disorders among the diabetic children have been compared with those of matched control children using four measures. No statistically significant differences were found on the measures used. The two out of 41 scales, namely sleep disturbance and stealing (see Tables VI and VII) which showed significant differences, could well have occurred by chance. At the 5 per cent level of significance, 5 scales out of a hundred would be expected by chance to differentiate between two groups. The first hypothesis that diabetic children have a higher rate of psychiatric disorders is therefore not proven.

3. **Comparison of the disturbed diabetic children with the disturbed control children**

   1) **Identification of disturbed children from the two groups**

   After inspection of the distribution curves of the total behaviour scores of diabetic and control children, an arbitrary cut off point was chosen to differentiate disturbed from non-disturbed children (see Figure 1). Eight diabetic children and 7 control children were identified as disturbed by this means. Using Rutter's index of disturbance (a score of 9 or more) on the teacher rating scales, 10 diabetic children and 8 controls were identified as disturbed (see Figure 2). Only two of the sixteen disturbed diabetic children/
children and three of the twelve disturbed controls were identified as disturbed on both measures. This finding is similar to that of Rutter's (1966) that psychiatrically disturbed children obtain high scores on teachers' or parents' behaviour rating scales but rarely on both. It was interesting to find that of the ten diabetic children identified as disturbed by the teacher questionnaire all the five girls had neurotic behaviour disorders while the boys had conduct disorders. The two girls identified as disturbed in the controls also had neurotic behaviour disorders. Four of the six boys had conduct disorders, the remaining two suffered from neurotic disorders. There was thus no difference in the type of symptoms displayed by the disturbed children of both groups. In addition the findings are in agreement with the well-known fact that disturbed boys more often show conduct disorders while in disturbed girls neurotic behaviour disorders predominate (Lapouse and Monk 1958, Rutter and Graham 1966).

It was then decided to compare the sixteen disturbed diabetic children with the twelve disturbed control children on a number of factors such as age, sex, social class, sibship size and psychiatric status of mother. It was thought that if any factors were found to be peculiar to diabetic children, they might help to identify those diabetic children especially prone to develop psychiatric disorders.

Table X /
Table X

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Less than 10</th>
<th>10 years and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Control</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>

Table X shows that there was no striking age difference between the disturbed diabetic and control children. The numbers however are very small.

Table XI

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Control</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Fisher exact test \( p = 0.09 \) n.s.

Table XI shows that there are more girls than boys among the disturbed diabetic children and more boys than girls among disturbed controls. The differences did not reach the 5 per cent level of significance because the numbers were very small. The disturbed control group resembles other childhood populations of this age which/
which always contain a preponderance of disturbed boys (Rutter and Graham 1966). There is a suggestion therefore that among diabetic children, girls are more at risk of developing behaviour disorders than boys.

Table XII

<table>
<thead>
<tr>
<th>Subjects</th>
<th>I &amp; II</th>
<th>III</th>
<th>IV &amp; V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic</td>
<td>2</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

Table XII shows that the two groups of disturbed children do not differ with respect to social class.

Table XIII

<table>
<thead>
<tr>
<th>Only child</th>
<th>One of 2 or 3</th>
<th>One of more than 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Control</td>
<td>-</td>
<td>7</td>
</tr>
</tbody>
</table>

Table XIII shows that three of the disturbed diabetic children were only children while none of the disturbed controls was an only child. In the two samples of diabetics and controls, there were 8 only diabetic children and 4 only control children. A study of the records did not suggest that diabetic mothers tended to have fewer children than mothers of control children. The finding of the three disturbed diabetic only children as against none in the disturbed/
/disturbed control could mean that being diabetic as well as being an only child leads to excessive over-protection and over-solicitous concern about the welfare of the child. This could presumably lead to neurotic behaviour disorder in the child on the one hand, or rebellion in the form of conduct disorder on the other. It was of interest to find that one of the three disturbed only children was a boy whose parents had divorced and the other two came from intact families. It will be recalled that all the five disturbed diabetic girls had neurotic behaviour disorders while the five boys showed conduct behaviour disorders. It must however be emphasised that the numbers are too small for any confident conclusion to be reached about the psychological adjustments of diabetic children who are only children.

Other factors on which the disturbed groups of diabetic and control children were compared are mother's self-reporting of "nerves", clinical assessment of the psychiatric status of the mothers at interview, the marriage of the parents and their scores on the personal disturbance scale of the symptom sign inventory. No valid conclusions could be reached because the numbers were too small.

In conclusion, of all the factors that might have a bearing on the psychiatric disorders found among diabetic children, only the sex of the child seemed important. Among disturbed diabetic children compared with disturbed controls there was a slight but non-significant preponderance of girls. In general, the figures were too small to yield useful information. It may well be that a combination of the various factors in the families and the children themselves probably accounts for the/
the behaviour disorders found in these groups of 16 diabetic and 12 control children.

C. Comparison of the psychiatric status of the parents of the two groups

The second hypothesis of this investigation is that the parents of diabetic children will show more psychiatric disturbances than the parents of controls. The psychiatric status of the mothers was assessed using four measures, namely, the mother's self-reporting of her state of "nerves," her previous use of psychiatric help either from her family doctor or psychiatrist, the author's clinical assessment of the mental state of the mother at interview and fourthly the symptom sign inventory.

1. Mother's self-reporting of nerves

Lemkau et al. (1942) have shown that the complaint of nervousness as used by the lay person, after gross disorders such as psychosis and mental deficiency and epilepsy have been excluded, corresponds very well with a clinical diagnosis of psychoneurosis or having neurotic traits. In their epidemiological survey of mental health on a new housing estate, Hare and Shaw (1965) also found that respondents' statement of symptoms to a question about their state of "nerves" was a reliable index of psychiatric morbidity.

In the present study, the mothers were asked the following question: "Would you describe yourself as suffering from your nerves"?
Table XIV

Mother's self-reporting of "nerves"

<table>
<thead>
<tr>
<th>Response</th>
<th>Diabetics</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td>Doubtful</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Definitely</td>
<td>24</td>
<td>12</td>
</tr>
</tbody>
</table>

Chi Square = 7.2, df. 2  p < .05
Kendall's tau = -.26

Table XIV shows that the mothers of diabetic children reported themselves to be suffering from their "nerves" more often than the mothers of the controls to a statistically significant degree. Twice as many mothers of diabetic children than of controls indicated that they definitely suffered from their "nerves". It was interesting to find that the proportion of mothers of diabetic children reporting definite "nerves" was not very different from that of a group of mothers whose children had been referred to a psychiatric clinic (58 per cent) while the proportion in the present control group (24 per cent) resembled that of the control group used in Wolff and Acton's study (25 per cent). (Wolff and Acton, 1968). In both investigations the Kendall's tau values were very similar, -.29 and -.26 respectively. Wolff and Acton (1968) also showed that the question about mother's state of "nerves" was a good question because the mothers' responses correlated with other objective measures of psychiatric morbidity and personality disorders of the mothers. The conclusion could be drawn that the/
/the similarity of the present findings to that of Wolff and Acton indicates real differences between the psychiatric status of the mothers of the diabetic children and the mothers of the controls.

ii) Mother's previous use of psychiatric help

Mothers were asked whether they had consulted their family doctor for 'nerves' or for any other emotional problems in the past. They were also asked whether they had ever consulted a psychiatrist.

Table XV

G.P. and Psychiatrist consultation for psychiatric complaints

<table>
<thead>
<tr>
<th>Previous psychiatric consultation</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>29</td>
<td>38</td>
</tr>
<tr>
<td>Family doctor consulted</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Out-patient psychiatric consultation</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>In-patient psychiatric treatment</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Chi Square = 8.9 df. 3 p < .05

Table XV shows that the mothers of diabetic children have consulted their family doctor for psychiatric complaints significantly more often than the mothers of the control children. It has been established that, although some errors of memory occur in the reporting of hospitalisation and G.P. consultations even within short periods of time, reports of major illnesses are in general remarkably accurate when compared with medical records (Cartwright 1957); and estimates of minor illnesses also give a reliable general indication of the respondent's health/
In the present study only one mother of a diabetic child had attempted suicide compared with an equivalent of three of the clinic mothers in the study of Wolff and Acton (2 per cent and 6 per cent, respectively). None of the mothers of the controls in the present study but 3 per cent of the controls of Wolff and Acton's study had attempted suicide.

iii) Clinical assessment of mother's mental state

The author made a clinical assessment of the mental state of the mothers as a result of various pieces of information obtained during the whole interview. The factors that were taken into consideration included mothers' reaction to enquiries about their marriage, their state of "nerves," their consultation with their family doctors, their husband's drinking habit, whether they had any worries with the other children, whether they had a job and if so whether they enjoyed it. Inquiries were also made about sleep patterns, mood and general volition. As a result of the information collected it was possible to assess the mental state of the mothers either as normal, anxious or depressed. One mother had a manic-depressive psychosis. The category of "depressed" included both reactive and endogenously depressed varieties (see Table XVI). The author's ratings were not submitted for independent rating because it was virtually impossible not to indicate which of the mothers had a diabetic child and which was a mother of a non-diabetic. The author may well have been biased in his assessment of the psychiatric status of some of the mothers of diabetic children who impressed/
impressed him as being very sensitive about discussing the fact of having a diabetic child.

Table XVI

Psychiatric assessment of mother at interview

<table>
<thead>
<tr>
<th>Clinical assessment</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>Anxious</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Depressed</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Manic illness</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

Chi Square = 9.8 df. 3.  p < .025
Kendall's tau = -.29.

The mothers of the diabetic children were assessed as being more anxious and depressed than the mothers of the control children to a significant degree.

iv) The Symptom Sign Inventory

Table XVII

Character disorder

<table>
<thead>
<tr>
<th></th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Score (0-3)</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>Abnormal Score (4+)</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

p = .09 n.s.
Table XVII shows that the mothers of control children have a slightly higher rate of character disorder as measured by the S.S.I. than the mothers of diabetic children although not to a statistically significant degree. Rearing a diabetic child is not really expected to contribute to character disorder since the term character disorder implies a personality disorder present from childhood or early adolescence. In order to bring out the comparison of the character disorder scores of the two groups of mothers more clearly, the raw scores are shown in a frequency histogram (see Figure 3). It was interesting to find that 98 per cent. of the mothers of the diabetic children obtained normal scores compared with 100 per cent. which constituted the normal female population on which Foulds (1967) standardised the scale.

Personal Disturbance Scale: This scale measures the individuals current susceptibility to psychological symptoms. As emphasized by Foulds (1968) a high score on this scale does not mean that the person is ill or will fall ill but it does indicate some personal disturbance. The term personal as opposed to "mental" is preferred because it avoids resuscitating the body-mind problem (Foulds 1968).

Table XVIII

Personal disturbance Scores.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal (0 or 1)</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>Borderline (2,3,4)</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Abnormal 5+</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Chi Square = .8 n.s. Kendall's tau = .06
SYMPOTM SIGN INVENTORY – CHARACTER DISORDER

Mothers of non-diabetic children
Mothers of diabetic children

Fig. 3.
There is very little difference between the mothers of diabetic and control children on this measure (see Table XVIII). The differences between the two groups of mothers are also shown in the frequency histograms obtained by plotting the total scores of the mothers against the number of mothers (see Figure 4). This graph shows that the mothers of diabetic children obtain higher total scores than the mothers of the control children although the differences are small. In Foulds' (1968) series, none of his normal females had an abnormal score, but of his female samples with a diagnosis of anxiety state, 65 per cent had abnormal scores, while of those with a diagnosis of neurotic depression 66 per cent had abnormal scores. These rates compare with 16 per cent of the mothers of diabetic and controls respectively who had abnormal scores. Assuming that most of the disturbed mothers in the present samples of children attending hospital were suffering from an anxiety state or neurotic depression, Foulds' rates are four times those found in the present series. The reason for this might possibly be the fact that Foulds' series consisted of diagnosed psychiatric patients who were tested in the acute phase of their illness. None of the present series of mothers of diabetic and control children could be said to be acutely ill. All that could be said about the present samples, compared with Foulds' samples, is that the former were not as personally disturbed as his hospital patients but definitely more personally disturbed than his normal female populations.

The finding that the personal disturbance scale does not differentiate/
Fig. 4.
Differentiate between the mothers of diabetic and control children is not consistent with the other three measures of mothers' psychiatric status already discussed above. Even if the present author's clinical assessment of the mental state of the mothers of diabetic children was biased, mother's self-reporting of nervousness and previous consultation with family doctor or psychiatrist for emotional complaints were unlikely to be biased. The result of the personal disturbance scale may be due to the fact that the scale is not sensitive enough in identifying psychiatric morbidity in subjects not acutely psychiatrically disturbed.

2. i) The father's state of "nerves"

Mothers were the main informants about the father's psychiatric status. All the mothers were asked whether they thought their husbands suffered with their "nerves."

<table>
<thead>
<tr>
<th>Father's &quot;nerves&quot;</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>37</td>
<td>42</td>
</tr>
<tr>
<td>Doubtful</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Definitely</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Widowed/divorced</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Chi Square = 6.4 df. 3. n.s Kendall's tau = -.12.
The differences between the two groups are insignificant (see Table XIX). It may well be that mothers are not sensitive enough to their husbands' psychological symptoms. Cartwright (1957) showed that wives tend to under-report their husbands' chronic and nervous ailments but to be accurate about acute illnesses and injuries. Mitchell (1965) also found that mothers of disturbed psychiatric clinic attenders tend to under-report nervousness in their husbands compared with mothers of non-referred disturbed children.

ii) Fathers' previous use of psychiatric help

Mothers were also asked about their husbands' previous consultation of the family doctor for psychiatric symptoms or of a psychiatrist.

Table XX

<table>
<thead>
<tr>
<th>Previous psychiatric consultation</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>Family doctor</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Out-patient treatment</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In-patient treatment</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Widowed or divorced</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Chi Square = 5.5, df. 4 n.s. Tau = -.08.

These differences between the groups are insignificant (Table XX).

iii) Drinking habit of fathers

Another index of psychiatric status of father used was whether the father had any drinking problems. None of the fathers/
fathers of the control children had a drinking problem while 6 per cent. of the fathers of the diabetic children were reported by the mothers to be excessive drinkers. Investigation showed that the excessive drinking of the three fathers preceded the discovery of diabetes in their children.

The second hypothesis of this investigation that the parents of diabetic children will show a higher rate of psychiatric disorders has been partially proved. The mothers of the diabetic children reported "nerves" more than the mothers of the controls. The mothers of the diabetic children were also clinically assessed as being more anxious and depressed than the mothers of the controls. The results were statistically significant on these two measures although it has been pointed out that the clinical assessment might have been influenced by the excessive emotionality of the mothers of the diabetic children when discussion is focussed on their feelings about their child's diabetes. Also significantly different was the previous consultation rates of family doctors or psychiatrists of the two groups of mothers. However, no statistically significant differences were found in their scores on the personal disturbance scale although the mothers of the diabetic children had a negligible excess of high scores.

The fathers of the two groups of children showed no statistically significant differences on the three measures used.
D. The marriage of the parents of the two groups

Ryle (1967) has suggested that because of the complexity of marriage, no single investigation can hope to take a full account of all that is involved. He suggested a division of any study designed to investigate marriage into two, namely, marriage as the fundamental relationship of the family, with its task as the socialisation of children, and secondly as a relationship between two adults, having both economic and emotional functions. Krietman (1969) has also indicated that there is as yet no valid overall measure for assessing the marital relationship. There have been very few studies into the effects of having a diabetic child on the marital integration of parents. Crain et al. (1966) carried out such an investigation which focussed on, 1) the consensus of goals of family life and, 2) the agreement on roles played by the marital partners. In addition, two other scales designed to measure parental attitudes (administered to mothers only) and the extent of agreement between the parents on the management of the child's behaviour were administered. None of these scales was designed to investigate the emotional aspects of marriage; however, as Ryle (1967) has pointed out, the emotional aspect of marriage is closely related to the attitudes and role sharing of marital partners. In Crain's study there was a greater degree of marital integration, less marital conflict and greater agreement on how to react to the child, among parents of the non-diabetic child compared with parents of the diabetic child. In another comparative study on the adjustment problems of juvenile diabetics Swift et al. (1967)/
The parental attitude scale was administered to the parents. This was complemented by interviewing the mothers (details were not given). The authors found that marital conflict was more strongly present among the parents of the diabetic children than the parents of the controls.

In the present study, mothers were simply asked to rate their marriage by answering the following question: "Would you say you are happily married"? Although mothers would have different criteria for deciding whether their marriage is happy, such differences would be expected to even out between the two groups.

| Table XXI |
|----------------------------------|-----------------|-----------------|
| State of marriage                | Diabetes        | Control         |
| Happily married                  | 40              | 38              |
| Doubtful                         | 4               | 8               |
| Not happily married              | 2               | 2               |
| Widowed, divorced or separated   | 4               | 2               |

Chi Square = 2. df. 3 n.s. Kendall's tau = .03

Table XXI shows no difference between the two groups in the mother's assessment of the happiness of her marriage.

Two of the mothers of diabetic children were widowed and two were divorced. Two of the mothers of the control children were separated from their husbands. The divorces of the parents of the diabetic children were unrelated to the discovery of the children's diabetes by which time the parents had at least separated. In/
In the present study therefore, the problems of rearing a diabetic child have not resulted in poorer marital relationship of the mothers compared with that of the mothers of the control children. The third hypothesis of this study is thus not proven.
9. Factors associated with psychiatric disorders in diabetic children

1. Factors that may be causally related

   i) Age at interview: Because Sterky (1963) in his study suggested that the older diabetics might be more disturbed than the younger ones it was decided to investigate the relationship between age and the two main measures of disturbance used in this study namely the total behaviour score and teacher's rating score. The results showed no significant association (tau = -.007 and -.05 on the two measures respectively).

   ii) Age at diagnosis: Some authors have suggested that the earlier the age at which juvenile diabetes is diagnosed the greater the chances of the child becoming maladjusted (Loughlin and Mosenthal 1944, Bennet and Johannsen 1954). Other authors have claimed that the earlier the onset, the more readily the child accepts it emotionally as part of the growing up process (McGavin et al. 1940). Yet others have suggested that there is no consistent difference in the degree of personality change between those in whom diabetes developed in early childhood and those in whom it developed after the age of 5 years (Fischer and Dolger 1946, Kubany et al. 1956). Thus the evidence relating age of onset of diabetes to subsequent maladjustment is conflicting. In the present investigation the relationship between the age of onset and the two measures of disturbance already discussed was investigated. Tau values were -.2 and .05 respectively. Although the tau value of -.2 does not reach the 5 per cent level of significance it does show a trend towards the older diabetic children obtaining/
obtaining higher scores on the behaviour inventory. This finding is in agreement with that of McGavin et al. (1940) that the younger the age of onset of diabetes the less the likelihood of the child becoming maladjusted.

iii) **Duration of illness**: The duration of illness is of course associated with the age of the child, that is, the older children are likely to have had the illness longest. The correlation between duration of illness and the two measures of disturbance was investigated. Kendall's tau values were .2 and .12 respectively. Although the tau value of .2 is not significant, there is a suggestion that the children who have had the illness for a longer time are more prone to behaviour disorders than those having it for a shorter time. It may mean that the more the children understand the implications of their illness the more the likelihood of their developing psychiatric disorders.

iv) **Social class**: Earlier workers, notably from North America, have shown that low socio-economic status correlates very highly with poor control of diabetes and also with a high rate of behaviour disorders among diabetic children (Fischer and Dolger 1940, Shirley and Greer 1940, Bennett and Johannsen 1954, Swift et al. 1967). This finding is perhaps not surprising in view of the cost of the treatment of diabetes and the fact that its management demands a high standard of organisation. In the present study the relationship between socio-economic class and behaviour disorders was investigated as with other factors already discussed. Tau values were .2 and .1 for the total behaviour score/
The tau value of -.2 similarly shows a trend towards a higher prevalence of psychiatric disorders among diabetic children from the lower socio-economic classes than those from upper social classes.

v) **Sex of child:** Sterky (1963) in his comparative study found no sex differences in the rate of psychiatric disorders in diabetic compared with control children. When the disturbed diabetics are separately considered, however, 21 (65.6 per cent.) of his 32 disturbed diabetics were girls. There is thus a suggestion that diabetic girls might be more disturbed than the boys. This is in line with the finding described above, that among the disturbed children in the diabetic group there was a preponderance of girls as compared with the disturbed children among the controls. The difference was just short of the 5 per cent. level of significance. It was therefore decided to investigate the relationship between the sex of the diabetic child and the total behaviour score and the teacher's rating. The tau values were -.25 and -.1 respectively and on the teacher rating scale Chi Square was 6.9, p < .05. Both the tau values for the total behaviour score and the Chi Square test indicate that the female diabetic child has a greater tendency to show psychiatric disorder.

It was then decided to investigate whether there were any differences between the diabetic girls and the control girls on three measures namely, mothers' general concern about their children's emotional/
/emotional state, the teachers' rating of behaviour and the total behaviour score using Chi Square tests. The same was done for the two groups of boys. No significant differences were found on any of the measures. Thus the evidence for sex differences in the prevalence of psychiatric disorder within the diabetic group is inconclusive.

vi) Hospitalisation experiences of child: The adverse effect of hospitalisation experiences on the psychological adjustment of children has been discussed in the review of the literature. In this study, the time spent in hospital before and after the age of four years and also the total time ever spent in the hospital was compared for the two groups of diabetic and control children. The frequency distributions of the time spent by the two groups are shown in Tables XXII, XXIII and XXXIV.

Table XXII

<table>
<thead>
<tr>
<th>Total time</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>1 &lt; 7 days</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>7 days &lt; one month</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>One month &lt; 3 months</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>3 months +</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Chi Square = 5.6 df. 4. n.s.
### Table XXIII
Total time spent in hospitals after age of 4 years

<table>
<thead>
<tr>
<th>Total time</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>1 &lt; 7 days</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>7 days &lt; one month</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>One month &lt; 3 months</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>3 months +</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Chi Square = 35.1 df. 4.  p \(<\ 0.001.

### Table XXIV
Total time spent in hospitals

<table>
<thead>
<tr>
<th>Total time</th>
<th>Diabetic</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>1 &lt; 7 days</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>One week &lt; one month</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>One month &lt; three months</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Three months &lt; six months</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Six months &lt; 1 year</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>1 year &lt; 2 years</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 years+</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

Chi Square = 34.96 df. 6  p \(<\ 0.001.
Table XXII shows that before the age of four years the control group of children and the diabetic children do not differ on the total length of time they spent in hospitals. After the age of four years, however, the diabetic children spent a significantly longer time in hospitals than the control children. This was probably due to the fact that the diabetes was discovered in most of the children after the age of four years. The total length of time ever spent in hospitals was also significantly longer among the diabetic children compared with the controls.

It was then decided to investigate whether within the diabetic group, time spent in hospitals correlated with high total behaviour scores on the behaviour inventory and on teachers ratings. Tau values were .01 and .2 respectively. As in previous findings a tau value of .2 indicates a trend in the direction of a correlation between hospitalisation and psychiatric disorders in diabetic children. This finding can be explained on the grounds that hospitalisation is known to be particularly damaging from an emotional point of view when it occurs under the age of four years (Prugh et al. 1953), while in the present study the excess of hospitalisation occurred after the age of four years.

vii) Mother's psychiatric status: It has been established that parents of psychiatrically disturbed children have a significantly higher rate of psychiatric disorders than the parents of non-disturbed control children (Rutter 1966, Wolff and Acton 1968). It has also been suggested that mothers of psychiatrically disturbed diabetic/
Diabetic children are more likely to show a greater rate of psychiatric disorders than mothers of controls (Swift et al. 1967, Bruch, H. 1949, Fischer and Dolger 1946). Only Swift et al. actually studied mothers of a control group of children. In this study it was decided to investigate the relationships between high total behaviour scores and high scores on the teacher's ratings and the various measures of mother's psychiatric status. The measures investigated were: mother's self-reporting of nervousness, clinical psychiatric assessment of mother at interview, previous family doctor and psychiatrist consultation by mother and the personal disturbance scale. Although none of the factors showed a significant correlation with high scores on the behaviour inventory (total behaviour scores) and on the teacher's ratings, there was a trend towards an association between high scores on the behaviour inventory and increased self-reporting of "nerves". There was also a trend towards an association between high scores on teacher's ratings and increased psychiatric morbidity of mothers as assessed clinically and high scores on the personal disturbance scale.

2. Relationship between psychiatric disorders and diabetic control

There are probably three firmly reliable measures of good diabetic control. These are the physical development of the child measured in terms of his weight and height and, perhaps less reliably, the frequency of admissions to hospital for stabilisation of the diabetes. Swift et al. (1967) relied heavily on the degree of chemical control namely glycosuria, ketonuria and blood sugar levels in rating.
These measures vary a great deal with such factors as time of last meal or injection, time of collecting urine, the amount of physical exercise and so on. The authors' significant correlation between rate of psychiatric disorders and measures of poor control must be accepted with reservations. Sterky (1963) did not directly relate his own measures of control, which included chemical control as well as "the way of living", to psychological adjustment. Sterky found however that diabetic girls were more poorly controlled than the boys. It will be recalled that of his disturbed diabetic children 66 per cent were girls.

In the present investigation, weights and heights of diabetic children were compared with those of the general population of 5-16 year old Edinburgh children (see Figures 5 and 6).

Figures 5 and 6 show that the diabetic children were very comparable with the general population of Edinburgh children, although the diabetic children tend to be somewhat heavier, the girls more so than the boys. Children in the control group had not been routinely weighed and measured so that no direct comparisons were possible.

The possibility of an association between poor physical development with high scores on the behaviour inventory (total behaviour scores) and teacher's ratings was investigated. No significant associations were found. The association between the number of hospital admissions because of poor stabilisation and high scores on the two measures already referred to was also investigated. Only weight, as a/
HEIGHT (cm.)

WEIGHT (lbs. kg.)

YEARS

Height and weight of Edinburgh children with mean and standard deviation.

Fig. 5.
GIRLS 1-16+ YEARS
DEPARTMENT OF CHILD LIFE AND HEALTH
UNIVERSITY OF EDINBURGH

Height and weight of Edinburgh children with mean and standard deviation

Fig. 6.
A measure of good control of the diabetes showed a trend towards a positive correlation with high total behaviour scores (\( \tau = .2 \)).

In conclusion, there was a suggestion, that diabetic girls might be more prone to psychiatric disturbance than diabetic boys. There was also a trend towards a positive correlation between psychiatric disorder in diabetic children and lower socio-economic status, prolonged hospitalisations, older age of onset, unstable control of the diabetes and increased psychiatric morbidity in mothers. The trends found probably did not reach statistical significance because of the small size of the sample studied.
Comparisons of the diabetic children and their parents with others reported in the literature

i) The reaction of the children to the illness

It has been suggested that the way a child accepts his diabetes, i.e., his attitude towards the illness, quite apart from the attitude of people around him namely his parents, siblings, friends and teachers, is related to his psychological adjustment (McGavin et al. 1940, Loughlin and Mosenthal 1944, Fischer and Dolger 1946, Kennedy 1955). In this study, the children were not personally interviewed but their mothers were asked how they thought their children reacted to the illness (Table XXV).

**Table XXV**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too young to worry</td>
<td>8</td>
<td>(16)</td>
</tr>
<tr>
<td>Was not upset</td>
<td>29</td>
<td>(58)</td>
</tr>
<tr>
<td>Was moderately upset</td>
<td>8</td>
<td>(16)</td>
</tr>
<tr>
<td>Was very upset</td>
<td>5</td>
<td>(10)</td>
</tr>
</tbody>
</table>

The mothers were further asked what they thought the current reaction of the children to the illness was.

**Table XXVI**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not resentful</td>
<td>33</td>
<td>(66)</td>
</tr>
<tr>
<td>Moderately resentful</td>
<td>13</td>
<td>(26)</td>
</tr>
<tr>
<td>Very resentful</td>
<td>4</td>
<td>(8)</td>
</tr>
</tbody>
</table>
Eight mothers said that their children were initially too young (4 years and less) to realise that they had a chronic illness. By the time of the interview, when the children were older and their mothers felt they understood that the illness was life-long, 34 per cent were still moderately or very worried by their illness. These anxieties were not however, as was shown above, reflected in an excess of psychiatric disorder. This finding is in agreement with the conclusions of Davis et al. (1965) who investigated the attitudes of 58 diabetic boys and girls of mean age 11.7 years towards their illness. Even though 33 per cent of the children indicated that it interfered with their eating, 23 per cent with their schooling, 12 per cent with their play and 12 per cent with their community activities, as a group they did not appear to be maladjusted.

ii) The children's participation in the management of the illness

Urine testing: The mothers were asked which member of the family tested the urines. The frequency distributions are compared with those of Etzwiler and Sines (1962) who investigated the family and social implications of juvenile diabetes and its management (Table XXVII).

<table>
<thead>
<tr>
<th>Urine testing</th>
<th>Present series</th>
<th>Etzwiler and Sines series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>23 (46 per cent)</td>
<td>89 per cent</td>
</tr>
<tr>
<td>Mother</td>
<td>27 (54 per cent)</td>
<td>50 per cent</td>
</tr>
<tr>
<td>Father</td>
<td>-</td>
<td>20 per cent</td>
</tr>
</tbody>
</table>
The present author's series had an age range of 5 to 15 years while Etzwiler and Sines' series had an age range of 6 to 15 years. Eight per cent of the present author's families compared with ten per cent of Etzwiler and Sines' families had no father figure. The two groups are thus broadly comparable. The mothers of the present series indicated that many more of the children would have liked to test their own urine but mothers wanted to make sure the testing was accurate. The figures of Etzwiler and Sines indicated which member took primary responsibility or assisted in the testing. The interesting finding from these two groups is that none of the fathers of the present author's tested the urine. The finding that 20 per cent of the fathers of the diabetic children studied by Etzwiler and Sines (from U.S.A.) assumed primary responsibility probably indicates cultural differences.

**Insulin injection:** This aspect of the management of juvenile diabetes would appear to be the most difficult to accept by children. It was also a sore point with many mothers, particularly when the child was very young, and seemed to contribute to the mothers' basic anxiety. Table XXVIII shows who gave the injection and how they were accepted by the child.

<table>
<thead>
<tr>
<th>Table XXVIII</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insulin injection</strong></td>
</tr>
<tr>
<td>Gives own injection</td>
</tr>
<tr>
<td>Injection readily accepted from mother</td>
</tr>
<tr>
<td>Injection readily accepted from father</td>
</tr>
</tbody>
</table>
Would plead to have the injection postponed 6 per cent
Injection given after some persuasion -
Injection given by force -

It must be stated at once that these figures, like the numbers of children who tested their own urine, are somewhat unreliable because many more of the children could give their own insulin injection but the mothers were anxious to "get things right". The recurring comment was "he can do it himself, but I like to make sure". This attitude not only underlines the mothers' basic anxiety about the illness but also the importance they probably attached to the insulin in maintaining "good control". For what these figures in the present series are worth, the 8 per cent of fathers who gave the insulin injections is less than the 25 per cent of fathers in Etzwiler and Sines' group from North America who assumed primary responsibility in giving the injections.

At a conference on the role of environmental and personality factors in the management of the difficult patient with diabetes mellitus, (Himle et al. 1959) Fischer suggested that "self-injection of insulin must be learned by the tenth year of age if possible". It was therefore decided to investigate at what age the present group of diabetic children were able to give their own injections. This is shown in Table XXIX.
Table XXIX

Age of giving own Insulin Injections

<table>
<thead>
<tr>
<th>Age in years</th>
<th>per cent of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 &lt; 7</td>
<td>6</td>
</tr>
<tr>
<td>7 &lt; 8</td>
<td>2</td>
</tr>
<tr>
<td>8 &lt; 9</td>
<td>30</td>
</tr>
<tr>
<td>9 &lt; 10</td>
<td>10</td>
</tr>
<tr>
<td>10 &lt; 11</td>
<td>12</td>
</tr>
<tr>
<td>11 &lt; 12</td>
<td>-</td>
</tr>
<tr>
<td>12 &lt; 13</td>
<td>2</td>
</tr>
<tr>
<td>Never (10)</td>
<td>26</td>
</tr>
<tr>
<td>Never (10+)</td>
<td>12</td>
</tr>
</tbody>
</table>

Forty-eight per cent of children were able to give their own injection before the age of 10 years and 60 per cent before the age of eleven years. This figure would probably have been higher had the mothers been less anxious about getting the injections "just right". Twelve per cent of the group have not managed to give the injection even though they were older than 10 years. This twelve per cent are not the same as those in whom the illness was discovered after the age of 10 years. The largest number of children in this group learnt to give their own injection at the age of eight years.

Dietary regime:

In the diabetic clinic, where most of the children in the present sample are followed up, the diet is so liberal that 96 per cent of the/
/the mothers indicated that there was no dietary restriction as such. The mothers were asked whether their children showed any discontent with regard to the foods and sweets allowed. The responses are shown in Table XXX.

**Table XXX**

<table>
<thead>
<tr>
<th>Dietary Regime</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No problem about keeping to diet</td>
<td>68 percent.</td>
</tr>
<tr>
<td>Very mildly discontented</td>
<td>16 &quot;</td>
</tr>
<tr>
<td>moderately discontented</td>
<td>14 &quot;</td>
</tr>
<tr>
<td>Severely discontented</td>
<td>2 &quot;</td>
</tr>
</tbody>
</table>

These frequencies largely support the claim of mothers that the diet is not restricted.

The degree of participation of the children in the management of the disease in this group of diabetics as measured by the numbers who tested their own urine, gave their own injection and who were contented with their diet could not be related to the presence or absence of psychiatric disturbance because the measures of participation in the management of the illness were not thought to be very reliable.

iii) **Mothers' initial reaction to the illness**

Isenberg and Barnett (1965) observed that all parents are acutely disturbed by the diagnosis of diabetes in their child, responding with grief, nightmares, insomnia, psychosomatic symptoms and alwayd with theories about why this has happened to them and their child. In the present study the mothers were asked how they felt when they learnt/
learnt of the diagnosis. The mothers were all shattered, 16 per cent of them inclined to keep it as a family secret. The fathers were all similarly shattered.

iv) The effect of the illness on the psychiatric status of the parents

The mothers were asked how worried they were about the illness at the time of the interview.

Table XXXI

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother's still worried by their child's illness</td>
<td></td>
</tr>
<tr>
<td>Not really worried</td>
<td>22 per cent</td>
</tr>
<tr>
<td>Moderately worried</td>
<td>68 per cent</td>
</tr>
<tr>
<td>Very worried</td>
<td>10 per cent</td>
</tr>
</tbody>
</table>

Table XXXI shows that only 22 per cent confidently indicated that they were not really worried. Because the present author wanted to avoid suggesting complications and thus creating worries about the future outlook for their child, all the mothers were asked an open-ended question: "What sort of things have been particularly worrying?"

Only 12 per cent indicated that nothing about the illness worried them. The others indicated they were worried in varying combinations about the job or marriage prospects of their child, the possibility of complications like blindness or gangrene necessitating amputation. The greatest source of worry was whether the child was safe when away from mother. Table XXXII illustrates the sources of maternal anxiety in relation to the diabetes. The frequencies in brackets represent the numbers of mothers who mentioned only that particular source/
/source of worry to the exclusion of others.

Table XXXII

<table>
<thead>
<tr>
<th>Source of anxiety</th>
<th>Percent, mothers mentioning this</th>
<th>Percent, mentioning this as the only source of anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Anxious when out of sight</td>
<td>64</td>
<td>(46)</td>
</tr>
<tr>
<td>Job prospects</td>
<td>24</td>
<td>(6)</td>
</tr>
<tr>
<td>Marriage prospects</td>
<td>20</td>
<td>(4)</td>
</tr>
<tr>
<td>Complications of diabetes</td>
<td>18</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Forty-six per cent of mothers indicated that their only worry was when the child was out of sight. They were anxious about the possibility of the child having a hypoglycaemic attack or that the child might be doing something that might result in poor control of the diabetes. Six per cent of the mothers mentioned job prospects and 4 per cent each mentioned marriage and complications like blindness, kidney disease or gangrene. Some of the mothers qualified their anxieties about complications by referring to them as "niggling worries always at the back of your mind".

It will be recalled that when mothers were asked whether they suffered from their "nerves" 48 per cent of the mothers of diabetic children indicated that they definitely suffered from their nerves and another 10 per cent indicated that they were doubtful (see Table XIV). Because of the anxieties expressed by the mothers about their child's/
child's diabetes (see Table XXXII) they were asked what they thought the effect of the children's diabetes had been on their own state of "nerves" (see Table XXXIII).

Table XXXIII

Effect of illness on "nerves" of mothers

<table>
<thead>
<tr>
<th>Effect of illness</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>16 (32 per cent)</td>
</tr>
<tr>
<td>Doubtful if nerves affected by child's diabetes</td>
<td>19 (38 per cent)</td>
</tr>
<tr>
<td>Nerves definitely affected by the illness</td>
<td>15 (30 per cent)</td>
</tr>
</tbody>
</table>

Of the 48 per cent of the mothers who said that they suffered from nerves, 30 per cent attributed it to their child's diabetes.

Mothers were asked what they thought the effect of the illness had been on the state of "nerves" of their husbands (see Table XXXIV). At the time of interview four of the fifty families had no father figures through death or divorce.

Table XXXIV

Effect of illness in child on father

<table>
<thead>
<tr>
<th>Effect on father</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>36 per cent</td>
</tr>
<tr>
<td>Doubtful whether nerves affected</td>
<td>48 per cent</td>
</tr>
<tr>
<td>Nerves definitely affected</td>
<td>8 per cent</td>
</tr>
<tr>
<td>Does not apply</td>
<td>8 per cent</td>
</tr>
</tbody>
</table>
| Many mothers frankly said they could not say definitely whether/
whether their husband's "nerves" was affected, "I don't know, he doesn't say much". In only 8 per cent of cases did the fathers appear to be affected by the illness in their children. This finding may be due to the fact that wives were not sensitive enough to states of nervousness in their husbands (Cartwright 1957).

v) Effect of child's illness on the relationship between parents

Quite apart from the fact that psychiatric disorders could result from rearing a child with a chronic handicap, the chores inherent in the management of diabetes could actually reduce the amount of contact between husband and wife. Such comments like "my life now revolves round the diabetes" were quite common, when the mothers described how the illness has affected their lives. To find out how the diabetes had affected parents' relationship, it was put to each mother as follows: "It is well-known that illness or some other stress sometimes brings people closer together and sometimes it has the opposite effect. What would you say happened in your own case?".

The frequency distributions of the responses of the mothers are shown in Table XXXVI.

Table XXXVI

Effect of child diabetes on parents' relationship

<table>
<thead>
<tr>
<th>Made no difference</th>
<th>62 per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closer together</td>
<td>24 per cent</td>
</tr>
<tr>
<td>No longer as close as before</td>
<td>6 per cent</td>
</tr>
<tr>
<td>Not applicable (widowed or divorce)</td>
<td>8 per cent</td>
</tr>
</tbody>
</table>
Thus only 6 per cent. of the mothers thought that the illness in the child had created a rift between them and their husbands. Twenty-four per cent. indicated that they were closer together and the majority, 62 per cent, said that it made no difference to their relationship. There is no investigation in the literature with which the effects of the illness on the relationship between parents could be directly compared.

In summary therefore mothers reported that they were more worried about the diabetes than their husbands. A different conclusion might have been reached if the fathers had been interviewed. Forty-six per cent. of mothers said that their only anxiety was when the child was out of sight, 30 per cent. indicated that their child's illness had caused their own nervousness but 24 per cent. thought that the illness had brought them and their husbands closer together as against 6 per cent. in which a rift had occurred.
Discussion

There have been relatively few previous controlled studies of the rate of psychiatric disorders among diabetic children and their parents and very few have used measures that are reliable and valid. In the present study, the group of 5-13 year old diabetic children investigated are representative of the diabetic children in the region. There was very good co-operation from the mothers, the refusal rate was 5.56 per cent. The disadvantage of choosing the controls from a hospital population is realised. Although an attempt was made to exclude psychiatrically disturbed children from the controls (by excluding asthmatics, enuretics, encopretics and chronic hospital attenders) it seems that the controls included a slight excess of disturbed children. The teachers rating of behaviour showed that the proportion of disturbed boys in the control group of the present study is three times as high as in the general population of 9-13 year old boys investigated by Rutter in Aberdeen. The proportion of disturbed girls is also one-and-a-half times as high as in the general population of girls investigated in the same survey (Rutter 1967). The excess of disturbed children found in the controls of the present study is likely to be due to the fact that they were selected from a hospital population. It was also striking that sixteen per cent. of the mothers of the control children compared with none of the normal females investigated by Foulds (Foulds 1968) obtained abnormal scores on the personal disturbance scale of the symptom sign inventory. This excess is likely to be due to the fact that they are mothers/
mothers of hospital attenders. The rate of psychiatric disorders among the two groups of children was assessed on four measures, namely, the general overall statement by the mother about her concern about the emotional state of her child, the behaviour inventory in which the children were compared on each of a number of items of behaviour, the total behaviour score obtained by summation of the ratings on all the items and the teacher's rating of behaviour. High ratings on the behaviour inventory (Wolff 1967) are known to correlate with psychiatric referral, and the teacher questionnaire was designed to differentiate between children attending a psychiatric department and children in the community (Rutter 1967).

Analysis of the results showed that the diabetic children did not have a higher rate of psychiatric disorders than the controls on any of the four measures used. On the behaviour inventory, the two groups were differentiated to a significant degree on only two scales, namely sleep disturbance and stealing. Two scales out of 41 would be expected to differentiate significantly any two groups by chance.

The proportion of disturbed boys and girls found in the present control group using the teacher's questionnaire was considerably higher than that of Rutter's Aberdeen general childhood population. This may be because they are somewhat younger (5-13 years) than the general population of Aberdeen children (9-13 years) investigated by Rutter. The fact that the controls were hospital attenders and the finding that mothers of controls obtained higher scores on the personal disturbance scale compared with Fould's normal female population/
/population all suggest the possibility that the present control children were more disturbed than a normal population of children. Therefore, there is a suggestion that the group of diabetic children might include a higher proportion of disturbed children when compared with a general rather than a hospital population. But the evidence is inconclusive and so the first hypothesis is not proven.

The present finding that diabetic children are not significantly more disturbed than controls is in agreement with the findings of Sterky (1963) but contrary to those of Swift et al. (1967). Sterky found that his 7-14 year old diabetics were slightly less disturbed than his 15-20 year olds. The reasons for the different findings of Swift et al. may be due to his wide age range of 7-17 years which included diabetic adolescents who are known to be more disturbed (Sterky, 1963), or to the non-reliability of his measures of disturbance both of which have been discussed when the literature was reviewed. Another possible reason for the conflicting results of Swift et al. may be found in differences in the management policy of the treatment centres. It is clear from the study of Swift et al. that their group of diabetic children were collected from many different sources. Some of the older diabetics may have graduated from paediatric clinics to adult clinics where they might be exposed to the anxiety provoking effects of seeing late complications of diabetes, such as blindness and limb amputations, in adult diabetic patients. From the details of the management of diabetic children given in Sterky's study, it would appear that the differences in the therapeutic/
/therapeutic regime for diabetic clinics for children in Edinburgh and Stockholm are not likely to be very great. The slight excess of psychiatric disturbance reported by Sterky for the 15-20 year old diabetics might be a reflection of poorer diabetic care provided in clinics for adult patients or of poorer diabetic care in former years when these older patients were children.

Certain factors have been thought to be associated with psychiatric disorders in diabetic children. The factors include age and social class of the children, hospitalisations, the adequacy of control of the diabetes and psychiatric disorders in the parents particularly the mothers (Hinkle et al. 1959, Loughlin and Mosenthal 1944, Swift et al. 1967). In the present study, the association between these factors and psychiatric disorders in diabetic children were investigated in two different ways. Firstly, a group of disturbed diabetic and disturbed control children selected arbitrarily on the basis of the frequency distribution curves of the scores obtained on the behaviour inventory and the teacher rating scale were compared with respect to the factors referred to above. Secondly the relationship between the factors and scores obtained on the two measures of disturbance at home and at school was analysed for the whole group of diabetic children. Because the teacher's rating of behaviour showed the diabetic girls to be more disturbed than boys, whereas the reverse is usually the case, the relationship between sex and the two measures of psychiatric disturbance was also investigated. Of all the factors investigated only the sex of the child was statistically significantly associated/
/associated with psychiatric disturbance in this group of diabetic children \( p < .05 \). Other factors which were not significantly associated with psychiatric disturbance in diabetic children but which showed a trend towards a positive correlation were lower socio-economic status, diagnosis of the diabetes at an older age rather than in infancy, prolonged hospitalisations, poor diabetic control as assessed by weight of child, and increased psychiatric morbidity in mothers. Stronger associations would probably have been found had the present sample of diabetic children been larger.

The comparison between the parents' psychiatric status in the diabetic and control groups showed that the second hypothesis of this study is partially proven in that only the mothers and not the fathers of diabetic children were found to show more psychiatric disturbance than the controls. On the first, second and third measures of psychiatric disturbance in mothers (mothers' self-reporting of nervousness, previous consultation with family doctor or psychiatrist, and the author's clinical assessment of mother's mental state) mothers of diabetic children showed a significantly higher prevalence of psychiatric morbidity. On the fourth measure (the personal disturbance scale), mothers of the diabetic children showed a slight but insignificant excess of abnormal scores when compared with mothers of the controls. The discrepancy between the comparisons on the first three measures and on the personal disturbance scale may be due to the fact that the personal disturbance scale is not sensitive enough in identifying psychiatric morbidity among subjects not/
Although the possibility existed that the present author was biased towards finding more psychiatric disturbance among mothers of diabetic children, the question about "nerves" was asked near the beginning of the interview so that the responses were unlikely to have been biased by mothers' distress on discussing their children's diabetes. Moreover the excess of family doctor or psychiatric consultation rates for nervous or emotional problems among mothers of diabetics were also unlikely to be biased. It would appear therefore that mother's self-reporting of nervousness and mother's previous use of psychiatric help are valid measures of the mother's psychiatric morbidity, and that together with the author's clinical assessment they were more sensitive indices of psychiatric morbidity in this group of mothers than the personal disturbance scale. There was no difference in the rates of psychiatric disturbance reported for the two groups of fathers.

This finding of a higher rate of psychiatric disturbance among mothers of diabetic children compared with mothers of non-diabetics is in agreement with those of Sterky (1963) and Swift et al. (1967). In fact the evidence for a higher rate of psychiatric disturbance among mothers of diabetic children is unanimous in the literature. Although no study has actually focussed on interviewing the fathers themselves and mothers may minimise their husband's complaints, the finding that mothers of diabetic children are more disturbed than fathers is likely to be valid and to be due to the fact that mothers/
mothers have a greater responsibility in rearing the diabetic children than their husbands. It is the mother, for instance, who is always confronted with threats of imminent disaster if the urine test results indicate inadequate control. Fathers, in this study, appear to take very little part in the management of the diabetes.

There have been few reported studies which have focussed on the effects of having a diabetic child on the marriage of the parents. Crain et al. (1966) focussed only on the attitudes of parents to child rearing and on sharing of roles between parents. The authors did not directly investigate the other important area of the emotional relationship between the parents, although it could be argued that the one is intimately related to the other. In this study, all value judgements were avoided and the mothers were invited to indicate whether they thought their marriage was happy. The results show that there was no statistically significant difference between the states of the marriage of the two groups. This finding is in conflict with that of Crain et al. (1966) and Swift et al. (1967) probably because different aspects of marriage were investigated in the different studies. The third hypothesis that the marriage of the parents of the diabetic children will be more poorly integrated is also not proven.

One possible explanation for the finding that diabetic children as a group are no more disturbed psychiatrically than other hospital attenders may be the therapeutic regime of the diabetic clinic which the children attended. It was remarkable that although the diabetic children did have longer hospitalisation experiences than the controls, they were not more psychiatrically disturbed. This could be/
be explained on the grounds that most of the hospitalisations occurred after the age of four years, since below this age, long hospitalisation is known to be particularly associated with subsequent psychiatric disorder. Moreover, Cruachan, a half-way house, serves as a hospital substitute which is less restrictive and upsetting for the children.

Although in this group of diabetic children, there was a greater preponderance of disturbed girls than disturbed boys, the diabetic girls were as a group not more disturbed psychiatrically than control girls, neither were the diabetic boys more disturbed than the control boys using three of the measures of disturbance (mother's general concern; total behaviour score; and teacher's rating). Clearly much larger samples would be needed to tease out the sex differences in the relationships within the diabetic group between the factors already discussed and psychiatric disturbance.

It is difficult to say how well adjusted this group of diabetic children will remain in later life when they move on to the adult diabetic clinics with different therapeutic regimes and when they have to face the added stresses of adolescence. Only a study of older children will clarify this issue.

Recommendations arising from the present study

The main recommendation arising from this study is that greater emphasis should be laid, in a service for diabetic children, on providing emotional support for the mothers. Mothers need the opportunity to discuss their anxieties and their feelings about their children's/
children's illness. The mothers in the present study welcomed the opportunity to talk to the investigator and many of them made use of the research interview to unburden themselves and appeared to get some relief from this. No less than four mothers wept during the interview and many more tried very hard to contain their emotional distress as they discussed their feelings and anxieties about the illness in their children. Because the greatest source of anxiety for the mothers was the future outlook for the child, and in particular the possible complications of diabetes, it is the attending physicians who would be the most appropriate experts to undertake this supportive task. Following the interview, a number of mothers asked the investigator for explanations of the genesis of the illness. One mother asked whether it could be due to an accident the child had sustained while she was in another part of the house; another mother, similarly feeling guilty, asked whether it could be due to her decision to take up a job. It is felt that the cathartic reactions the present author elicited from the mothers could be of great therapeutic importance for them.

The traditional functions of the social worker who visits families at home may be inadequate for the needs of the families of diabetics. To be of maximum help, whoever undertakes the task of providing emotional support for the family needs to understand fully the disease and its management and to be able to speak with some authority. This would prevent embarrassing situations like that of a medical social worker who on visiting a family found the mother uncertain about what to do about her child's unusual urine result. The mother, thinking/
thinking that a member of the treatment team had arrived, heaved a sigh of relief and asked what to do next. The social worker of course did not know.

Only one of the 50 mothers of this diabetic group of children was an active member of the British Diabetic Association. There are group ventures for parents of other types of handicapped children namely, autistic children, mentally handicapped children etc; such organisations provide both information and emotional support for parents. The British Diabetic Association is largely composed of adult members who are themselves diabetic. It is suggested that this organisation could be more helpful, in the case of diabetic children, by starting special groups for their parents.
References


Dear Mrs.

Although we know a great deal about the treatment of diabetic children nowadays, we are only just beginning to understand the emotional stress which diabetes and its treatment can cause to children. Dr. Sula Wolff of the Department of Psychological Medicine and I have wanted for some time to make a special study of this. We are fortunate to have acquired the help of Dr. Olatawura, a Nigerian doctor, who is particularly interested in this problem and is making a special study of it.

Dr. Olatawura would like very much to talk with you for about 30 minutes before or after you see Dr. Craig or me at your Diabetic Clinic visit and I hope this will be convenient for you. Your help with this study will be greatly appreciated.

Finally, you may have seen from the newspapers that my "Notes for the Guidance of Parents of Diabetic Children" have been published by E. & S. Livingstone's as a little red booklet (like the thoughts of Chairman Mao!) to sell at 5/-.

Our hospital board, however, has sanctioned the expense of my sending a copy to each affected family and their general practitioner. We shall send out the books as soon as possible.

With best wishes,

Yours sincerely,

James W. Farquhar
Consultant Paediatrician
APPENDIX B

Dear Mrs.

I am doing a study of children's health and development in relation to the family by interviewing mothers of children who come with their children to the Sick Children's Hospital. I could visit you in ........ on .............. in the afternoon or evening if you would like to take part in the study. I do not need to see ........ during this interview.

Your help with this study will be greatly appreciated.

Yours sincerely,

Dr. O. Olatawura
Dear

Re:

I am doing a study of the emotional reaction of diabetic children and their mothers. As you know, some children show patterns of behaviour at home different from those they show at school. I would be very grateful for your co-operation with regard to the enclosed short behaviour questionnaire which is being completed by the class/registered teacher of each of the children in my sample.

I have interviewed .......... mother and she has given her consent to my sending this questionnaire to his/her teacher who, at the time of the interview, was .... ........ I would be very grateful if you would help me pass the questionnaire to her/him or her successor. A stamped addressed envelope is enclosed for the return of the form after completion.

I have obtained the permission of the Director of Education to approach you directly about this study.

Many thanks for your co-operation.

Yours sincerely,

Dr. O. Olatawura
Clinical Assistant
APPENDIX D

STUDY OF DIABETIC CHILDREN

Case number ............
Sex .....................
Age ......................
Date of Birth .................

INTRODUCING THE STUDY TO THE PARENTS OF THE DIABETIC CHILDREN

It is often thought that a long term illness like diabetes is quite worrying for children and their parents. I am doing a study into how diabetic children and their parents cope with the illness. I am also interviewing a group of mothers who bring their children to the hospital for other reasons. I would like first of all to ask you about the family. I know ............... is ............... years old, who else is in the family? Where does ............... come in the family?

Is there any worry with any of them?
How old are you now?

Apart from being a mother, do you have a job?

Specify:

Do you enjoy it?

How old is your husband?
What work does he do?
Does he enjoy it?

How long has he been in his present job?

Is this his normal type of work?
If not, what is it?
I would like to ask you whether you are in any way worried about 

's emotional state.

BEHAVIOUR INVENTORY

Now I would like to ask you some questions about ............ 's 

behaviour within the past six months.

1. SLEEP

First of all, HOW DOES HE SLEEP?

ARE THERE ANY DIFFICULTIES? HOW OFTEN DOES 

HE FIND IT DIFFICULT TO SLEEP AT NIGHT?

HOW OFTEN DOES HE WAKE UP DURING THE NIGHT 

AND IS UNABLE TO GO BACK TO SLEEP?

HOW OFTEN DOES HE REPORT DREAMS OR 

NIGHTMARES AND DO THEY WAKE HIM UP?

WOULD YOU SAY HE IS A RESTLESS SLEEPER?

Score:

Nightmares or night terrors waking him 

up once a week or more ... 5

Nightmares or night terrors waking him 

up less than once a week OR awake for 

more than one hour at night several 

times a week ... 4
Reports upsetting dreams in the morning but does not wake up once a week or less ... 3
Occasional bad dreams without waking up or restless sleeper ... 2
No difficulties ... 1

2. WHAT ABOUT EATING

Would you say HE HAS A POOR APPETITE OR A GOOD APPETITE, DOES HE EAT MORE OR LESS THAN AVERAGE?
IS THIS GENERAL OR DOES IT VARY?
HOW OFTEN DOES HE LEAVE FOOD ON HIS PLATE
DOES HE EAT MUCH BETWEEN MEALS?
E.g. biscuits, sweets, fruit, icecream?
HOW OFTEN DOES HE ASK FOR SECOND HELPINGS?
HOW INTERESTED IS HE IN HIS FOOD? DOES HE ENJOY EATING OR IS EATING JUST ONE OF THOSE THINGS HE'S GOT TO DO LIKE GETTING UP AND GETTING DRESSED?

Score:

Appetite very poor. Never hungry, resists eating. Uses dodges, "hates" to eat, always leaves food on plate ... 5
Lacks interest in food and uses delaying tactics. Takes fair amount with spells of very poor intake. Usually leaves some food on plate. No sweets between meals ... 4

Variable intake, generally below average. Not interested. Never asks for food between meals. Alternatively, is a sweet and biscuit eater but not hungry at meal time ... 3

Some variable difficulties in amount taken and interest shown ... 2

No difficulty in taking his food ... 1

3. **WOULD YOU SAY HE EATS MORE THAN AVERAGE?**

**IS HE GREEDY OVER FOOD?**

Score:

Eats much more than average always, never satisfied. Always eating between meals. Greedy past the point of hunger ... 5
Much above average but variable. Often asks for food between meals and also has double helpings at meal times ... 4

Above average. Enthusiastic eater. Hungry and asking for food between meals daily or has second helpings regularly but then eats less between meals ... 3

Some eating between meals. Variable but above average intake ... 2

Average intake. Takes eating for granted. Normally hungry at meal times. Can eat between meals without losing appetite. ... 1

4. **IS HE AT ALL FINICKY ABOUT FOOD?**

WHAT FOODS WON'T HE EAT?

WILL HE EAT IT IF YOU PERSUADE (COAX) HIM?

DOES HE LIKE HIS FOOD ALWAYS TO BE THE SAME

OR IS HE QUITE INTERESTED IN NEW FOODS — IF YOU TRY OUT SOMETHING NEW OR IF HE EATS A MEAL OUT.

HOW MUCH DOES HE TALK ABOUT FOOD?

HOW OFTEN DO YOU GET FUSSING AT MEAL TIMES?
Score:

Extremely finicky, many aversions, resists all new foods. Habitually resists eating. Refuses one or two major items of diet, e.g. milk or meat or almost all vegetables ... 5

Several aversions including major ones (as above) but not long lasting. Food must be "just so". Periodic fussing 2 - 3 times a week. Resistive to many new foods ... 4

Eats most things. Some unimportant dislikes (i.e. not whole categories). Takes eating for granted. Has likes and dislikes but eats almost anything. ... 3

Actively interested in eating and willing to try new things. May dislike onions, garlic, strong cheeses and so on. ... 2
Never fusses. Actively interested in all new foods. Excited when trying out new flavours. Enthusiastic when talking about food...

5. Are there any difficulties with his bladder or bowel?
   How many accidents does he have with his bladder these days?
   How often is he wet at night?
   Does he tend to be very wet or just damp?

Score:

Very wet almost every night ... 5
Very wet several times a week or damp every night ... 4
Very wet once a month to once a week or damp several times a week ... 3
Very wet once or twice in past six months or damp about once a week ... 2
Completely dry ... 1

6. How often does he wet his pants during the day?
   Is he very wet or just damp?
IS SOILING A PROBLEM?

HOW OFTEN WILL HE HAVE AN ACCIDENT?

DOES HE TELL YOU WHEN HE'S SOILED HIMSELF?

DO YOU SOMETIMES FIND HIS PANTS STAINED DUE TO CARELESS WIPING?

Score:

Soiling (whole motions) daily and hiding faeces or soiled clothes ... 5

Soiling daily but no hiding of faeces or clothes ... 4

Soiling once or more times a week for at least past six months ... 3

Occasional soiling for 2 - 3 days but with long clean periods in
between OR regular staining of underclothes due to lack of care

... 2

No soiling in past six months ... 1

WOULD YOU LIKE TO TELL ME SOMETHING ABOUT HIS GENERAL PERSONALITY, THE KIND OF CHILD HE IS. FIRST OF ALL

8. HOW ACTIVE WOULD YOU SAY HE IS?


CAN HE SETTLE TO A QUIET GAME? OR READING? OR TELEVISION?

HOW LONG CAN HE SETTLE TO THAT? DOES HE FIDGET WHILST DOING THAT?

DO YOU FIND HIS RESTLESSNESS - IRRITATING? DO OTHER PEOPLE COMMENT ON IT?

Score:

Extremely overactive and restless. Never still when awake. Always on the move or fidgety. This is an extreme nuisance and his overactivity upsets the order and routine in the home

... 5

Overactive and restless. Seldom able to sit quietly over a book or game. Even when interested, e.g. in T.V. programme, fidgets and moves all the time, enough to be remarked on by anyone

... 4
Above average activity. Can sit still for short spells only. Overactivity is not very obtrusive ... 3

Spells of transitory overactivity due to disturbing or exciting situation - otherwise normal ... 2

Can settle quietly for considerable periods, especially if interested. Plays quiet games happily. May be active and alert but has no pressure of activity ... 1

9. WHAT ABOUT HIS POWERS OF CONCENTRATION AND ATTENTION AND HIS PERSONALITY? HOW LONG CAN HE CONCENTRATE ON SOMETHING THAT REALLY INTERESTS HIM? e.g. Leggo or a puzzle or drawing.

WHAT HAPPENS IF IT IS A BIT DIFFICULT FOR HIM? WHAT ABOUT HIS HOMEWORK? IF HE FINDS IT EASY CAN HE CONCENTRATE ON IT? HOW LONG WILL HE GO ON TRYING IF HE CAN'T DO IT?

Score:

Can't concentrate at all, even on something he is interested in. His mind is always elsewhere. Jumps from one thing to another. Can't sit at any one task, work or play, easy or difficult, for any length of time without interruption ... 5

Poor concentration and attention, but if really interested e.g. in a game, he can pursue an occupation uninterruptedly for up to half an hour ... 4
Scatter-brained, lacks concentration and attention if not really interested, but when interested can attend for half an hour or more. Persists when playing and doing homework that is easy for him, but gives up easily when it is difficult.

Sometimes inattentive and concentrating poorly but usually manages to give all his attention to whatever he is doing even if it is a task that does not especially interest him.

Variable persistence in the face of difficulty

Has good powers of concentration and attention and tends to persist in the face of difficulty

10. **TIMIDITY**

Would you describe him as a **TIMID** child or would you say he is rather too **ADVENTUOUS** (reckless)?

How is he about outdoor play?

(e.g. climbing, using a bike, swimming, playing on swings),

Will he try out things readily or is he rather cautious?

If you are with him does it make a difference?

Does he tend to be the first to try out a new activity or will he hang back and watch the others first?

Does he worry about getting hurt? (e.g. when climbing)

Or does he like to take chances? More than average?

Are there some things that make him specially cautious (e.g. after a fall off a swing will he go on again)?

How careful is he about crossing roads?
DOES HE COMPLETELY IGNORE DANGER? IS HE FOOLHARDY?

Score:
Extremely fearful and apprehensive in new situations where there is no physical danger. Refuses to try out new activities even if parents are there to reassure him ... 5
Will try out new activities only when parents are present, and needs persuasion even if he sees other children doing it ... 4
More cautious than average. Hangs back watching others before he will join in ... 3
Over cautious only in some situations, e.g. afraid of swings after a fall ... 2
No abnormal timidity ... 1

11. RECKLESSNESS

Score:
No evidence of recklessness ... 1
Adventurous and rather rash at times and takes risks but not generally. Cautious in most areas ... 2
Enjoys taking more chances than the average child.
Very adventurous. Among the first to try out any new thing. Adventurous but not foolhardy ... 3
Knows there are certain things he must not do, e.g. cross roads carelessly in traffic, but otherwise is always taking chances. First to try out any new thing ... 4
Completely ignores danger. Daredevil, foolhardy, may show off audaciously. Knowingly takes all sorts of chances for the thrill of it.

12. **Would you describe him as a very sensitive child?**
   **Do his feelings get hurt easily?** **Is he at all self-conscious?** How does he feel about his (mention handicap)?
   **What does he say about it?** **How does he react to being teased or laughed at?** **To criticism?** **When someone else gets hurt?** **When he hears a sad story or looks at a sad T.V. programme?** Would you say he cries easily?

**Score:**

Supersensitive and self-conscious in any of above circumstances. Feelings are extremely easily hurt.

Constantly feels he is being criticised. Cries very easily in above circumstances... 5

Sensitive in all areas and easily hurt. If he has any deformities or disadvantages he is painfully aware of them. May cry when hurt in this way. 4

More sensitive than average. Thin skinned. May sometimes cry. If he has any deformities or handicaps these interfere with social adjustment (e.g. child with stammer who avoids reciting and going to parties) social relationships are below his potential, e.g. friends are younger or less intelligent than he... 3
More easily hurt than average but only in some areas.
Does not cry. If he has a handicap this is a sensitive point
Reacts normally to approval or disapproval. May be sensitive in one of two areas

13. **WHAT DOES HE DO WHEN HE GETS A TEMPER TANTRUM? (S)**


**Score:**

Severe explosions; biting, kicking, hitting, throwing things, destroying things, head banging with or without verbal outbursts. Complete loss of emotional control ... 5
Control is not lost completely, i.e. some direction of activity is possible, e.g. severe overt behaviour with little emotional involvement as a technique to gain own ends, or verbal outburst only ... 4
Mild activity or less intense verbal expression of anger or as severe as 4 but over in a minute ... 3
Fretting or mild anger or more severe anger justified by frustrating situation ... 2
Anger reactions very mild indeed ... 1

14. **HOW OFTEN DOES HE GET INTO A TANTRUM? (F)**

**Score:**

Twice a day or more ... 5
Once a day

Several times a week

Once a week or once a fortnight

Once a month or less

Combined codings

S 5 5 5 4 4 )
F 5 4 3 5 4 )
S 5 4 4 3 3 )
F 2 3 2 5 4 )
S 5 4 3 3 )
F 1 1 3 2 )
S 3 2 2 2 2 )
F 1 5 4 3 2 )
S 2 1 1 1 1 1 )
F 1 5 4 3 2 1 )

15. Would you say he very dependent on you or your husband or is he quite dependent?

Would you describe him as insecure? Does he tend to cling to you? Does this stop him going out with his friends? Does he want you to help him with things he can really do on his own just to get that bit of extra attention?
IF HE WERE WITH US NOW WOULD HE LET YOU TALK TO ME OR WOULD HE WANT YOUR ATTENTION ALL THE TIME?

DOES HE GO OUT ON HIS OWN? WILL HE LET YOU GO OUT AND STAY WITH SOMEONE ELSE? DOES HE USUALLY ASK FOR YOUR APPROVAL OF WHAT HE'S DOING?

**Score:**

Extreme over-dependence on parents interfering markedly with peer relationships. Insecure, clinging, babyish. And/or insists on getting help with tasks he can cope well with himself. Anxious, unhappy, discontented if not given constant attention ... 5

Insecure and clinging in some situations, not in others. Some interference with peer relationships. Or will do things alone only after a long time if not helped and asks for attention much of the time ... 4

More dependent and emotionally tied than average. Seeks parental shelter and attention under stress. Asks for help somewhat excessively. ... 3

Somewhat excessive dependency and need for encouragement and approval, not interfering with peer relationships ... 2

Normally independent for his age ... 1

16. WOULD YOU DESCRIBE HIM AS A SHUT-IN WITHDRAWN KIND OF CHILD OR IS HE QUITE OUTGOING?
DO YOU SOMETIMES FIND HIM SO WITHDRAWN THAT YOU CAN'T GET THROUGH TO HIM? DO YOU USUALLY KNOW WHAT'S GOING ON IN HIS MIND? WHAT HE'S THINKING? DOES HE TELL YOU WHAT'S BEEN HAPPENING AT SCHOOL?

WHEN HE'S UPSET OR WORRIED DOES HE PREFER TO BE ON HIS OWN OR DOES HE COME AND TELL YOU WHAT'S BOTHERING HIM?

DOES HE USUALLY LIKE TO BE ON HIS OWN OR DOES HE PREFER COMPANY?

Score:

Habitually withdrawn. In a world of his own. Parents can't get through to him. Solitary. Mother doesn't know what he's thinking about … 3

Withdrawn and solitary at times, e.g. when worried about something he prefers to be on his own … 2

Usually approachable and eager for contact, attention and company … 1

17. WOULD YOU SAY HE IS A WORRIER?

DOES HE EVER GET REALLY PANICKY?

IS HE MORE ANXIOUS? WORRIED? NERVOUS THAN AVERAGE?

IF SOMETHING UPSETTING HAPPENS TO HIM OR HE'S SEEN AN UPSETTING T.V. PROGRAMME HOW LONG WILL HE WORRY ABOUT IT?

DOES HE WORRY IN CASE SOMETHING UPSETTING MAY HAPPEN IN THE FUTURE OR IN CASE HE MIGHT DO THE WRONG THING?
Score:

Fearful and anxious almost all the time. A bundle of nerves. Always worried or else about one thing and then another. Alternatively has frequent panic reactions (include reactions to specific fears here too) ... 5

Generally anxious but less severe than 5 or else has occasional panic reactions ... 4

Definitely more anxious than average. Constant mild worry or else episodic more severe worries. No panic attacks. Disturbing experiences, e.g. frightening T.V. programmes have long-lasting effects ... 3

Slightly more anxious than average. Over reacts to anxiety inducing situations, e.g. illness of self or family or upsetting stories on T.V. programmes ... 2

Only occasional and brief periods of anxiety appropriate to the situation. Not more than average ... 1

18. IS HE ALWAYS HAPPY OR DOES HE SOMETIMES GET MISERABLE?

WHAT MAKES HIM UNHAPPY? IS HE OFTEN WEEPY? DO YOU USUALLY KNOW WHY HE IS UNHAPPY. WOULD YOU SAY HE IS A SERIOUS, SOLEMN CHILD?

Score:

Usually very unhappy, often weepy, mother doesn't know why. May even have talked of suicide or made suicidal gesture. ... 5

Sometimes very unhappy or usually mildly unhappy (sad). Mother can understand reason for this sad mood ... 4
Occasionally very unhappy or characteristically solemn and serious ... 3

Usually rather serious or else mild alternating moods appropriate to the situation ... 2

Usually very cheerful and happy. But can be serious. Unhappiness may occur but is always precipitated by a definite upsetting event and is short lived ... 1

19. ON THE WHOLE IS HE CONTENTED OR DISCONTENTED?

HOW OFTEN DOES HE GET CROSS AND ANGRY DOES HE EVER SAY HE HATES EVERYTHING? DOES HE SULK MUCH? IS THERE USUALLY A REASON FOR THIS?

Score:

Generally aggressive, sulky, moody, hates everything.

Crossness is prevailing mood ... 3

Mildly aggressive, sulky, cross most of the time or has episodes of more severe anger ... 2

Usually friendly, happy-go-lucky and easy but can be cross and sulky briefly if provoked ... 1

20. WOULD YOU DESCRIBE HIM AS HIGHLY STRUNG OR IS HE A PLACID CHILD? Supposing it is Christmas tomorrow or his birthday, how would he react? DOES HE FLY OFF THE HANDLE EASILY OR IS HE USUALLY CONTROLLED? DOES HE TEND TO GET EXCITED EASILY? HOW IRRITABLE IS HE? WHAT STARTS THIS OFF - SOMETHING MINOR THAT WOULDN'T UPSET MOST CHILDREN OR IS IT USUALLY SOMETHING THAT WOULD
UPSET ANYBODY? HOW OFTEN DOES HE GET UPSET IN THIS WAY?

Score:

Usually very highly strung, excitable, irritable, uncontrolled in response to minor events ... 5

Usually shows mild above reactions or occasionally severe reactions in response to events that would not upset most children ... 4

More irritable, highly strung, etc., than average.

Easily roused in annoying situations ... 3

Occasional flare-ups in response to particular situations.

Normally reactive and not over-reactive or irritable ... 1


Does he have an imaginary companion?

Score:

Often he talks to himself, enacting stories or imaginative situations or imitating situations he has witnessed. OR has imaginary companion OR tells made-up stories without making it clear whether they are fact or fiction ... 5
Occasionally shows above behaviour ... 4
Much imaginative play when on his own, seems not to need anyone to share in this. OR frequent day-dreaming ... 3
Occasional day-dreaming ... 2
Average amount of imaginative play ... 1


Score:
Solitary, no friends, can't keep a friend. Children refuse to play with him. No club activities ... 5
A few playmates but no best friend. OR only one best friend and no-one else; OR tends to play with younger children or, if a boy, with girls ... 4
Has friends only at home or only at school? Or quite popular at home and school but no best friend; OR only two friends and no-one else OR not sociable with children outside the family. OR often plays with younger children or, if a boy with girls, OR gets on better with adults. No club activities ... 3
One best friend and popular at school and in neighborhood on the whole. Maybe club member but not very active...

Very popular, children always coming into the house, always in the midst of things. Active club member (if available)

HOW DOES HE MANAGE IN A GROUP OF CHILDREN, WOULD YOU DESCRIBE HIM AS A LEADER OR A FOLLOWER CAN HE HOLD HIS OWN WITH OTHER CHILDREN? DOES HE GET UPSET IF HE CAN'T?

23. SUBMISSIVE WITH OTHER CHILDREN:

Score:

Can't hold his own with other children. Won't defend himself if others hit him. Very submissive always a follower unless he retreats altogether...

Makes attempts to assert himself but hardly ever succeeds. May be upset by this. OR generally submissive but accepts this and is accepted by others on this basis...

No more submissive than normal, sometimes a leader sometimes a follower. Can usually hold his own and if not does not become upset.

24. DOMINATING WITH OTHER CHILDREN
Score:

Not unduly dominating but can hold his own. Sometimes a leader, sometimes a follower ... 1

Likes to be in position of leader and usually achieves this with slight or no loss of popularity OR tends to be bossy and provoking to other children ... 2

Insists on being leader. Bullies other children and uses physical force to gain his end. Definite loss of popularity ... 3


Score:

Constantly quarrelling and fighting. Much more than average. Always in trouble. Starts a fight with little provocation. OR on at least one occasion has really hurt another child. OR he himself has often come home hurt ... 5
Continually quarrelling. Often starts quarrels with little provocation. Fights more than average. Or starts more fights than other children. Reacts with fighting to minor provocations. 

Quarrels more than average. Starts more quarrels. Reacts with quarrelling to minor provocations. 

OR frequently in fights 

Quarrels more than average with some people or is easily provoked. Fights readily against some people, or in special situations 

Average amount of quarreling and fighting if provoked but on the whole is friendly to other children 

26. DOES HE SEEM TO AVOID FIGHTING UNDULY? 
DOES IT BOTHER HIM TO SEE OTHER CHILDREN FIGHTING? 
WHAT DOES HE DO WHEN OTHER CHILDREN ARE FIGHTING? 

Score: 

Does not go out of his way to avoid fighting. ... 1
Dislikes fighting. Avoids it if he can. Never starts a fight. Fights only if forced, or other child is very persistent. Stands apart when others fight.

Never fights under any circumstances. Runs away.

Is upset if he sees others fight and gets out of the way

---

27. WHAT ABOUT DISCIPLINE? IS HE AT ALL DIFFICULT TO MANAGE OR IS HE GENERALLY OBEIDENT. WOULD YOU SAY HE IS OUT OF CONTROL? HAVE YOU EVER HAD TO THREATEN HIM WITH THE POLICE? HAVE YOU EVER TAKEN HIM TO THE POLICE? HAVE OTHER PEOPLE SENT THE POLICE ROUND?

WOULD YOU DESCRIBE HIM AS DEFIANT OR JUST NAUGHTY SOMETIMES?

DO YOU EVER HAVE TO GO ON AT HIM BEFORE HE'LL DO WHAT YOU TELL HIM?

DO YOU KEEP HAVING TO REMIND HIM OF RULES? DOES HE GENERALLY DO WHAT YOU SAY? OR DOES HE TEND TO DO THE OPPOSITE?

DOES HE TEND TO MAKE A JOKE OF DISCIPLINE? IS HE MISCHIEVOUS? WHAT ABOUT IMPORTANT THINGS? CAN YOU RELY ON HIM THERE?

Score:

Completely out of hand, unmanageable, uncontrollable
Parents constantly threatening police or have actually called in external agencies to act as auxiliary disciplinary figures OR other people have sent police round ... 5

Generally very disobedient, oppositional, negativistic and defiant but not beyond control ... 4

Periodic outbursts or habitual milder form of above behaviour, e.g. will comply with parent's wishes but needs constant reminders ... 3

Naughty and defiant at times or else playful about discipline. But obeys parents in important areas or after some pressuring or with several reminders ... 2

Parents not worried about discipline. Child generally conforms but may be mildly naughty at times. Parents can rely on him ... 1

28. DOES HE HAVE ANY OF THE COMMON NERVOUS HABITS LIKE BLINKING HIS EYES? SHRUGGING HIS SHOULDERS? FLICKING BACK HIS HAIR OR COUGHING?

HOW OFTEN DOES THIS HAPPEN? HOW NOTICEABLE IS THIS TO OTHER PEOPLE? HAS ANYONE COMMENTED ON IT?

29. HOW OFTEN DOES HE PLAY WITH HIMSELF DOWN BELOW? WILL HE DO THIS IN THE PRESENCE OF OTHER PEOPLE? OUTSIDE THE FAMILY?
### Table: Visible Effects and Frequency by Day

<table>
<thead>
<tr>
<th>BEHAVIOUR</th>
<th>VISIBLE EFFECTS</th>
<th>FREQUENCY BY DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. Nervous movements or mannerisms (tics)</td>
<td>Noticeable to anyone</td>
<td></td>
</tr>
<tr>
<td>29. Masturbation</td>
<td>Noticeable to people outside the family</td>
<td></td>
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<tr>
<td>Coding</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
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30. **IS THERE ANY DIFFICULTY WITH HIS TALKING? DOES HE EVER STAMMER OR STUTTER?** HOW FREQUENT IS THIS? WHEN DOES IT HAPPEN?

**DOES HE REPEAT HIMSELF OR BLOCK?** IS HIS BREATHING DISTURBED?

**DOES HE HAVE ANY MOVEMENTS WHILE TRYING TO GET HIS WORDS OUT?** HOW NOTICEABLE IS HIS STAMMER TO OTHER PEOPLE? DOES IT MAKE THEM UNCOMFORTABLE TO TALK TO HIM?

**Score:**

Severe and more or less persistent. Sometimes can't get a sentence out at all, i.e. severe blocking or
repetition of syllables. Acute discomfort is felt by anyone listening

As severe as above but only at times OR also mild persistent stammering. Noticeable by anyone

Occasional episodes of mild or moderate stammering when under tension

Occasional mild blocking under very embarrassing situation, but not obvious to anyone

None

31. **HAS HE USUALLY GOT A LOT TO SAY? IS HE FOREVER ASKING QUESTIONS? IS HE SATISFIED WITH THE ANSWERS HE GETS OR DOES HE KEEP ASKING THE SAME QUESTIONS? IS THIS AT ALL IRRITATING? DOES HE TEND TO SHOUT RATHER THAN SPEAK?**

**Score:**

Endless chatter, often can't make out the meaning of what he says. Questions all the time. Seems driven to talk. Never satisfied with the responses he gets

Can't talk selectively and tends to shout. But this is either episodic or less severe than 3

Normal amount of talk and questioning. Satisfied with responses he gets

HOW FRIGHTENED DOES HE GET? IS HE PANICKY? DOES HE AVOID THE SITUATION OR OBJECT? HOW DOES HE REACT WHEN SOMEONE'S WITH HIM?

IF YOU JUST TALK ABOUT IT? IF HE SEE'S IT ON T.V.?

**Score:**

- Extreme, acute fear, incapacitating, paralysing and dominating behaviour. Occurs every time child is in presence of frightening object or when he hears it mentioned. Intense reactions to specific situations; phobias
  - ... 5

- Intense reactions but less severe than 5. Includes flight from situation rather than paralysing effect
  - ... 4

- No real panic but acute discomfort, e.g. always gets someone to go with him or wants lights left on, crosses street to avoid dog. May show tension when frightening object is mentioned
  - ... 3

- Slight apprehension but no withdrawal from situation if someone else is around. Includes mild excitement in the form of apprehension e.g. when watching T.V. Thriller
  - ... 2

- None
  - ... 1
33. Does he worry about health or injuries? If he's hurt himself and there is a bit of bleeding does he get very upset?

Does this interfere with his activities? How does he accept being ill?

Does he ask many questions about health or death?

What has he said?

Score:

Great worry and preoccupation over health.
Frequently discusses illness, injuries, death.
Constant talk of symptoms even when only mildly ill or not ill at all. This preoccupation interferes with other activities. ... 5

Over reacts to minor ailments or injuries. Often asks questions about health and death but not so much as to interfere with other interests or activities ... 4

Usually worried about health when ill and sometimes when well. Over reacts to injuries ... 3

Sometimes worried when ill, slight over reaction to injuries ... 2

Never mentions health or death. Accepts illness as a matter of course. Minimises complaint if ill, in a matter-of-fact way ... 1
34. **WHAT ABOUT HIS SEXUAL INTERESTS AND ACTIVITIES? HAS HE ASKED QUESTIONS ABOUT WHERE BABIES COME FROM? ABOUT THE DIFFERENCES BETWEEN BOYS AND GIRLS?**
WHAT ABOUT SEX PLAY WITH SIBLINGS OR OTHER CHILDREN? e.g. looking at each other, comparing sizes, **PLAYING DOCTORS? HAVE THERE BEEN ANY OTHER INCIDENTS? ARE YOU AT ALL WORRIED ABOUT HIS SEXUAL DEVELOPMENT?**

**Score:**

Acts of sexual intercourse or homosexual activity either as a result of voluntary act or assault ... 5

Exploratory activity not amounting to intercourse with same or opposite sex with partner outside the family, e.g. exposure or exhibitionistic activities or where doubt exists that 5 has occurred ... 4

Mild exploratory activity, e.g. mutual inspection within family circle, lifting little girl's skirts talking frequently to strange men ... 3

Only one incident of the kind described in 3 ... 2

None ... 1

35. **IS UNTRUTHFULNESS A PROBLEM? If no, ask "not even to get out of trouble?" WHAT DOES HE TELL FIBS ABOUT? IF HE IS IN TROUBLE MIGHT HE TELL A FIB TO AVOID PUNISHMENT? ON THE WHOLE CAN YOU TRUST HIM?**

(IF HE TELLS LIES) HOW OFTEN DOES THIS OCCUR?
Score:

Habitual lying, often when no purpose seems to be served. First reaction is to deny or distort the facts. Lying is so characteristic that he is mistrusted by all who know him ... 5

4 Habitually lies to get out of trouble. This includes easily detected impulsive lies as well as elaborate distortions ... 4

Occasionally lies to avoid scolding or punishment or to create a good impression. Often enough to be a problem ... 3

Lies only under stress and even then admits the truth after a little pressure (from himself or others). Mild, occasional lies or distortions.

Lies to protect family or friends in accordance with social mores. Mild lies of successful social technique ... 2

Always tells the truth regardless of consequences ... 1

36. HOW OFTEN IN THE PAST SIX MONTHS HAS HE HELPED HIMSELF TO THINGS THAT DON'T BELONG TO HIM? IS PILFERING A PROBLEM? WHAT HAS HE TAKEN?

IF HE FINDS SOMETHING THAT DOESN'T BELONG TO HIM, e.g. a sixpence or a penny or a toy that someone's lost, what will he do?

Score:

Persistent stealing, OR episodic stealing of valuable things more than twice in six months. An acute problem due to either frequency or value of things taken.
Stealing from inside or outside the home ... 5
Chronic petty pilfering whenever the opportunity presents (e.g. from mother's purse or cheap stores)
or more valuable things once or twice in six months ... 4
Occasional mild pilfering outside the home (fruit, sweets, small objects) OR 1-2 episodes in six months of taking trifling amounts of money from parents' purse ... 3
Only one episode of stealing and then something of minor value OR likes to keep things he finds which others have lost ... 2
Never steals. Try to return anything he finds to its rightful owner ... 1

37. **HOW OFTEN IN THE PAST SIX MONTHS HAS HE SKIPPED SCHOOL?**

**Score:**

Habitually truants (whether or not dondoned by parents).
Never attends except under constant pressure. Several times a week ... 5
Truants once a week or once a fortnight or 1-2 weeks in past six months ... 4
Truants about once a month ... 3
Only one episode of truanting in the past six months ... 2
Does not truant ... 1
38. HAS HE EVER GOT LOST OR WANDERED AWAY FROM HOME? WHERE DOES HE GO? HOW LONG HAS HE BEEN AWAY? OVERNIGHT? DID YOU HAVE TO NOTIFY THE POLICE?

HOW OFTEN DOES THIS HAPPEN? HOW OFTEN IS HE LATE HOME FROM SCHOOL? HOW LATE IS HE? DO YOU USUALLY KNOW WHERE HE IS?

DOES HE TEND TO STAY OUT LATE AT NIGHT?

DOES HE EVERthreaten to run away from home?

Score:

Several times a week wanders off from home for considerable distances (i.e. away from own neighbourhood) without permission. OR parents have asked police to look for him or he has stayed out over night at least once in six months ... 5

Several times a week wanders off for short distances (i.e. within own neighbourhood) or has gone for considerable distances once or twice in six months ... 4

Once or twice a month wanders off short distances OR several times a week more than half-an-hour late home from school against parents' wishes OR frequent threats that he will run away ... 3

Once a week home late from school or with a friend without permission ... 2

Almost never leaves home without permission mother usually knows where he is ... 1
39. HOW DOES HE TREAT HIS BELONGINGS AND THOSE OF OTHER
PEOPLE? DOES HE TEND TO BE CAREFUL OR IS HE RATHER
DESTRUCTIVE? HAS HE EVER TRIED TO SET FIRE TO ANYTHING
OR LIT A FIRE? HAS HE BROKEN THINGS OUTSIDE THE HOUSE? DOES
HE BREAK THINGS WHEN HE IS CROSS? OR IS IT JUST THAT HE
TAKES THINGS TO PIECES OUT OF CURIOSITY?

Score:

Habitually very destructive of own toys, clothes, etc.,
or those of others. Compulsive urge to spoil and defile
things. Breaks outside property e.g. windows. Firesetting may occur. Not isolated events but habitual
episodes. May soil furniture etc., with excreta ... 5
Destructive of own and other people's property.
Seems to enjoy this but usually in response to identifiable frustration. Not a compulsive urge. Or one
isolated episode of firesetting, soiling, major breakage
etc., in six months ... 4
More destructive than average child of his age.
valuable objects to pieces perhaps out of curiosity.
Once or twice in six months has expressed anger by destruc-
tion of own or other's property ... 3
More careless and more accidents with property
than is average for his age but not destructive
except through curiosity ... 2
Occasional accidents only. Is normally cautious so that he is only occasionally destructive through curiosity.

40. HOW OFTEN DOES HE COMPLAIN OF A **HEADACHE, TUMMYACHE, VOMITING? GROWING PAINS OR OTHER ACHES OR PAINS WHEN HE'S NOT REALLY ILL?**

<table>
<thead>
<tr>
<th>COMPLAINT</th>
<th>FREQUENCY</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>almost every day</td>
</tr>
<tr>
<td>(a) Headache</td>
<td></td>
</tr>
<tr>
<td>(b) Abdominal pain</td>
<td></td>
</tr>
<tr>
<td>(c) Vomiting</td>
<td></td>
</tr>
<tr>
<td>(d) Limb or &quot;growing pains&quot; or other pains (specify)</td>
<td></td>
</tr>
<tr>
<td>Coding</td>
<td>5</td>
</tr>
</tbody>
</table>

**Combined coding** More than one coding of 5 or one 5 and one or more of 4

5
One coding of 5 or more than one of 4 ) 4
One coding of 4 ) 3
Maximum coding 2 or 3 ) 2
All codings of 1 ) 1

41. DOES HE EVER MAKE A FUSS ABOUT GOING TO SCHOOL?

HOW OFTEN DOES THIS OCCUR?

Score:

Never ... 1
Rarely, mild complaints ... 2
Sometimes when worried about a special event at school, e.g. examinations. May develop mild physical complaints ... 3
Usually more than once a week fusses about going to school or has physical complaint but goes to school with persuasion ... 4
Frequently fusses about going to school or has physical complaints. Has missed school because of anxiety several days running ... 5

HOW DOES HE GET ON WITH HIS LESSONS AT SCHOOL?

very well - among top \( \frac{1}{4} \) of class
average - among middle \( \frac{1}{2} \) of class
not so well - among bottom of \( \frac{1}{4} \) of class
Does he have any special difficulties in any subject?
Do you think he could do better?
What stands in his way?

Permission to send questionnaires to the teachers:

It is well-known that some children show patterns of behaviour at home different from those they show at school. I would like to ask ............... 's teacher how he/she is getting on. Is that alright with you?

Name of School:

Name of Headmistress/master:

" " Teacher:
HEALTH OF CHILD AND REACTION OF CHILD
AND PARENTS TO ILLNESS

SECTION I: HEALTH HISTORY - DIABETIC CHILDREN

Now I would like to ask you something about .......... 's health history.

1. Date of birth:
2. Sex:
3. Date Diabetes was diagnosed:
4. Any associated illness:
   (epilepsy, asthma, eczema)
5. Family history of diabetes:
6. Height:
7. Weight:
8. Admissions for complications (hypoglycaemia, ketoacidosis, poor control,) in the last six months:
9. Hospital admissions (with length of stay) before four years age:
   Child admitted to hospital
   - Overnight only
   - 1 - 7 days
   - 1 week - 1 month
   - Longer (Specify)
   - Hospital visiting: none daily once a week

Operation
How did he react?
How did you feel?
What did you think would happen?
Have there been any after effects?

10. Hospital admissions after the age of four years: Specify

   Child admitted to hospital

      Overnight only
      1 - 7 days
      1 week - 1 month
      Longer (Specify)

   Hospital visiting: none daily once a week

   Operation

      How did he react?
      How did you feel?
      What did you think would happen?
      Have there been any other effects?

   HEALTH HISTORY - CONTROL CHILDREN

1. Date of birth:
2. Sex:
3. School:
4. Illness for which child came to hospital:
5. Any other associated illness:
   (e.g. epilepsy, asthma, eczema)
6. Hospital admissions before aged four years:

   Child admitted to hospital
Overnight only
1 - 7 days
1 week - 1 month
Longer (Specify)
Hospital visiting: none daily once a week

Operation(s)

How did he react?
How did you feel?
What did you think would happen?
Have there been any other effects?

7. Hospital admissions after aged four years:

Child admitted to hospital

Overnight only
1 - 7 days
1 week - 1 month
Longer (Specify)
Hospital visiting: none daily once a week

Operation(s)

How did he react?
How did you feel?
What did you think would happen?
Have there been any after affects?

SECTION II

CHILD'S REACTION TO THE DIABETES
1. How do you think .......... reacted to being a diabetic?

Would you say he is upset about it?

What sort of questions does he ask about the illness?

Score:  Still moans about its chronic nature  ...  5
Very upset initially  ...  4
Moderately upset  ...  3
Mildly upset  ...  2
Just as before the illness started  ...  1

Who tests the urine?

2. What about the Insulin Injections

Who gives the injections?

Does he cry?

Do you have to coax him to give the injections?

When did this stop?

How long after the beginning did he start giving the injections himself?

Score:  Injection given by force  ...  5
Injection given after persuasion  ...  4
Would plead to have the injection postponed  ...  3
Soon resigned himself to having the injection
from father/mother  ...  2
Able to give the injection himself soon after  ...  1

3. Attitude to meals, particularly sweets

Are there any restrictions on diet?

What about intake of sweets?
Does he hide food or sweets?

Restrictions: Yes or No

Score: Completely out of control with regard to food or sweets (specify)

... 5

Quite upset about not getting as much sweets/food as he wishes

... 4

Complains moderately often for not getting enough food/sweets

... 3

Talks occasionally about the sweets or other foods he misses

... 2

No problem about diet control

... 1

4. Change in Personality

Has there been any change in his nature since the illness was discovered?

If yes - please, in what way(s) has he changed?

Mother's reaction to the Diabetes

1. How easy was it for you to tell other people like friends and family that .......... has Diabetes?

What did they say?

How did you feel?

2. What would you say the effect of the illness has been on you?

How worried would you say you are about it?

Score: Very worried

... 3

Moderately worried

... 2

Not really worried

... 1
3. Father's reaction to Diabetes

What has the effect of the illness been on your husband?

How worried would you say he is about it?

Score: Very worried ... 3
Moderately worried ... 2
Not really worried ... 1

What sort of things have been particularly worrying?
APPENDIX F

PSYCHIATRIC STATUS AND MARITAL ADJUSTMENT OF THE PARENTS

SYMPTOM SIGN INVENTORY (S.S.I. P.D. & C.D.)

1. Would you describe yourself as suffering from your nerves?
   Score: Definitely ... 3
   Doubtful ... 2
   Not at all ... 1

2. How long would you say your nerves have troubled you?

3. When do you think the change occurred?

4. Have you ever had to consult your doctor for your nerves or for any other emotional problem?

5. Have you ever consulted a psychiatrist? If so, for what reason? Which hospitals?

6. Would you say your husband suffered with his nerves
   Score: Definitely ... 3
   Doubtful ... 2
   Not at all ... 1

7. How long would you say his nerves have troubled him?

8. When do you think the change occurred?

9. Has he ever had to consult his doctor for his nerves or for any other emotional problem?

10. Is drinking a problem?

11. It is known that illness or some other stress sometimes brings people closer together and sometimes it has the opposite effect.
What would you say happened in your own case?

12. How long have you been married?
13. Would you say you are happily married?
14. What about your own childhood? Would you say that was happy?
15. Were you brought up by both your own parents?
16. How many brothers and sisters did you have?
17. Where did you come in the family?
18. What about your husband? Was his childhood happy?
19. Was he brought up by both parents?
20. How many brothers and sisters did he have?
21. Where did he come in the family?

S.S.I. - Introduction to parents:

There are some questions about how people feel which I am asking all the mothers. Some will apply to you and some may not. For the completeness of the study, I would like to ask you the following questions.

The S.S.I. (P.D. & C.D.) is then administered.

(The answers are scored as present or not present. When present it must be distressing. The respondent is asked to consider the previous two weeks in answering the questions).

Would you like to know the result of this study? Yes or No.

THANK YOU.
APPENDIX G

Address ____________________________

Sex M : F

SSI - PD X CD

PD ______

CD ______

1. Does your hand often shake when you try to do something?
2. Are you afraid of going out alone?
3. Have you lost interest in almost everything?
4. Is the simplest task too much of an effort?
5. Are you depressed because of some particular loss or disappointment?
6. Have you found it difficult to concentrate recently?
7. Does the future seem pointless?
8. Are you slower recently in everything you do?
9. Are people talking about you and criticising you through no fault of your own?
10. Are you distressed by silly, pointless thoughts that keep coming into your mind against your will?
11. Are you unnecessarily careful in carrying out even simple everyday tasks like folding up clothes, reading notices, etc?
12. Are you afraid you might do something seriously wrong against your will?
13. Do distressing thoughts about sex and religion come into your mind against your will?
14. Do you feel you just have to check things again and again - like turning off taps or lights, shutting windows at night, etc., - although you know there is really no need to?

15. Have you an unreasonable fear that some careless act of yours might have very serious consequences?

16. Do you have an uneasy feeling if you don't do something in a certain order or a certain number of times?

17. Do you feel that there is some sort of barrier between you and other people so that you can't really understand them?

18. Do you think other people regard you as very odd?

19. Do you often feel puzzled, as if something has gone wrong either with you or with the world, without knowing just what it is?

20. Do you feel you cannot communicate with other people because you don't seem to be on the same "wave length"?

21. Do you have very strange and peculiar thoughts at times?

22. Do you ever lose all feeling in any part of your skin; so that you wouldn't be able to feel a pin prick; or do you ever have burning or tingling sensations?

23. Are you worried about having said things that have injured others?

24. Because of things you have done wrong, are people talking about you and criticising you?
25. Are you ever so low in spirits that you just sit for hours on end?
26. Do you cause harm to people because of what you are?
27. Do you ever go to bed feeling you wouldn't care if you never woke up?
APPENDIX H

A CHILDREN'S BEHAVIOUR QUESTIONNAIRE

APPENDIX

CHILD SCALE B

To be completed by Teachers.

Below are a series of descriptions of behaviour often shown by children.
After each statement are three columns: "Doesn't Apply", "Applies Somewhat", and "Certainly Applies". If the child definitely shows the behaviour described by the statement place a cross in the brackets under "Certainly Applies". If the child shows the behaviour described by the statement but to a lesser degree or less often place a cross in the brackets under "Applies Somewhat". If, as far as you are aware, the child does not show the behaviour place a cross in the brackets under "Doesn't Apply".

1. Please put ONE cross against EACH statement. Thank you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Doesn't Apply</th>
<th>Applies Somewhat</th>
<th>Certainly Applies</th>
<th>FOR USE ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Very restless. Often running about jumping up and down.</td>
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<td></td>
<td></td>
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<tr>
<td>Hardly ever still.</td>
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<tr>
<td>2. Truants from school</td>
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<td>( )</td>
</tr>
<tr>
<td>3. Squirmy, fidgety child</td>
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<tr>
<td>4. Often destroys own or others' belongings</td>
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<td>( )</td>
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<tr>
<td>5. Frequently fights with other children</td>
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<td></td>
<td></td>
<td>Doesn't Apply</td>
<td>Applies Somewhat</td>
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<tr>
<td>6.</td>
<td>Not much liked by other children</td>
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<tr>
<td>7.</td>
<td>Often worried, worries about many things</td>
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<td>8.</td>
<td>Tends to do things on his own - rather solitary</td>
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<tr>
<td>9.</td>
<td>Irritable. Is quick to &quot;fly off the handle&quot;</td>
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<tr>
<td>10.</td>
<td>Often appears miserable, unhappy, tearful or distressed</td>
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<tr>
<td>11.</td>
<td>Has twitches, mannerisms or tick of the face or body</td>
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<tr>
<td>12.</td>
<td>Frequently sucks thumb or finger</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Frequently bites nails or fingers</td>
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<tr>
<td>14.</td>
<td>Tends to be absent from school for trivial reasons</td>
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<tr>
<td>15.</td>
<td>Is often disobedient</td>
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<td>16.</td>
<td>Has poor concentration or short attention span</td>
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<tr>
<td>17.</td>
<td>Tends to be fearful or afraid of new things or new situations</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
18. Fussy or over-particular child
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

19. Often tells lies
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

20. Has stolen things on one or more occasions
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

21. Has wet or soiled self at school this year
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

22. Often complains of pains and aches
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

23. Has had tears on arrival at school or has refused to come into the building this year
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

24. Has a stutter or stammer
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

25. Has other speech difficulty
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

26. Bullies other children
   Doesn't Apply ( ) ( ) ( ) ( )
   Somewhat Applies ( ) ( ) ( ) ( )
   Certainly Applies ( ) ( ) ( ) ( )

Are there any other problems of behaviour?

signature: Mr/Mrs/Miss ..................

How well do you know this child? Very well ( )
   Moderately ( ) Not very well ( )

THANK YOU VERY MUCH FOR YOUR HELP.