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A Multivariate Analysis of the Factors Affecting Treatment in a Child Guidance Centre

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A MULTIVARIATE ANALYSIS OF THE FACTORS AFFECTING TREATMENT IN A CHILD GUIDANCE CENTRE

by

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ABSTRACT

Initially, all the children who had received treatment and been discharged from the West End Créche between 1962 and 1971 were selected for this study. These children were then sub-divided into groups according to where they had gone after discharge. This study considered only two of these groups, 32 children who went into the normal school system and 20 children who entered institutions after being discharged. Both groups were then examined with reference to a list of forty-two variables which provided information on the children's background and the facilities of the treatment centre. An analysis of these variables demonstrated that seven were statistically significant. These seven variables were (1) IQ, (2) speech, (3) sex of the child, (4) the age the child began treatment, (5) the experience of a stressful situation prior to the onset of the disorder, (6) the degree of withdrawal and (7) the severity of the illness - (age of the child when he began treatment was later found to be predictive but only for the non-schizophrenic children).
An attempt was made to increase the predictive power of the variables by testing them in various combinations of two or more. These combinations consisted of a relationship between two variables in which one or both variables must be present for the child to be represented in the school group. The two sets of variables with the highest predictive value and the lowest error term were a combination of sex of the child and/or the ability to interact with others or the combination of the absence of schizophrenia in the child's diagnosis and/or the child's ability to interact with people. In conclusion, it was recommended that due to the high ratio of male clients at the Créche, the number of male therapists

should be increased.

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INTRODUCTION

Very little of the research that has been done in the area of childhood emotional and behavioural disturbances has dealt with the problem of finding reliable variables which can predict a child's prognosis before treatment. Those papers that have been published, often lack explicit definitions of the syndrome being studied. Furthermore, the degree of consensus among researchers regarding what criteria must be present for a diagnosis of childhood schizophrenia, infantile autism, atypical development or infantile psychosis has been virtually non-existent. It becomes even more confusing and discouraging when one realizes that not only have some writers used different terms for the same disturbances but also that the same terms have been used for different disturbances. This lack of consistency in terminology and criteria is in no way a strictly academic question. It often affects the type of treatment the child receives; the institution or clinic the child is sent to; and most importantly his prognosis may be greatly influenced by the diagnosis assigned to him. On reviewing the literature, it becomes quite apparent which predictive variables were generally reported and which are not. The following selected studies are intended to illustrate the above mentioned inconsistencies and to lay the groundwork for the present study.

One of the earliest studies which examined predictive variables was done by Eisenberg (1956). He reported a follow-up study of 63 autistic children conducted following adolescence. Results indicated that those children who had spoken by the age of five made a significantly better adjustment than those who had not. Unfortunately, Eisenberg's article is very brief, deals only with one type of disorder and fails to mention which specific variables

were examined besides the two or three illustrated. In addition, his description of the criteria used in defining "the poor and good groups" in the study tended to be vague and lacking in explicit behavioural definitions. Criticism can also be applied to the inadequate description of the criteria employed to re-evaluate the children at follow-up.

A later study by Brown (1960) dealing with another classification of disturbed children also reported the significance of speech as a prognostic indicator. This was a follow-up study of forty pre-schoolers diagnosed as having an atypical development (childhood autism or childhood schizophrenia); twenty who benefited the most from treatment and twenty who benefited the least. Her study focused on historical variables, for example, sex of the child; treatment variables such as duration of treatment; and presenting symptoms, for example social withdrawal, as predictors of outcome. When Brown examined the presenting symptom variables for the two groups, she found that the depth and scope of the social withdrawal of the least benefiting group significantly differentiated them from the group which benefited the most from treatment. A complete absence of speech development by the age of three was also present in the least benefiting group. In addition, this group showed "libidinal and aggressive drives" toward themselves, e.g., self biting. Only two symptoms occurred significantly more often in the group benefiting the most from treatment, namely identification with animal objects (e.g., dogs and cats) and aggression, which was sometimes goal directed. However, the most significant difference between the two groups was the least benefiting groups' inability to play appropriately with toys. Brown concluded that none of the treatment variables were significant and the only significant

historical variable was that the least benefiting group tended more often to be only children or the oldest of two children.

While the Brown (1960) study pointed out some very important and interesting prognostic indicators, their generalizability and reliability are questionable because of some important omissions. Brown failed to define "atypical development" in explicit behavioural terms. Her attempt to define this term by referring to it as either childhood autism or childhood schizophrenia is then obscured by later restrictions that the children must have no organic complications, physical handicaps or psychotic parents. Such qualifications immediately signify that she isn't referring to cases Bender (1956); Pollack (1967) and Rimland (1964) would classify as autistics or childhood schizophrenics. Brown has also neglected to substantiate her statement that a higher level of development was responsible for the ability of the group benefiting the most from treatment to identify more with animate objects and to display goal directed aggression. In addition, this article fails to mention the degree of reliability between raters or to specify adequately the criteria for selecting the two groups. She merely states that they were chosen on the grounds of a psychological evaluation and in terms or formal learning.

A few years later, Gittleman and Birch (1967) did a follow-up study on 97 children diagnosed as childhood schizophrenics who attended a day-care school for severely disturbed children. They excluded any child who showed only mental subnormality or evidence of Central Nervous System (C.N.S.) damage without also displaying the behavioural characteristics of psychosis. Results indicated that the early appearance of symptoms, as reflected in early agency contact, i.e., before the age of six years, was

predictive of a poor prognosis. This finding may, however, indicate only that the more serious cases are noticed sooner, because of a severe retardation of total development or extreme forms of aggravating behaviour (i.e., aggressive, hyperactive, etc.) resulting in the child being brought in at a younger age for observation. Gittleman and Birch (1967) also found that the mean IQ of the improved group (84.3) was significantly higher than the mean IQ (52.6) of the unimproved group. Finally, they discovered no significant difference between the two groups in respect to reported prenatal and perinatal complications.

Unfortunately, once again no mention is made in this paper of the criteria used to classify children as schizophrenic. This study must also be criticized for the wide range of ages, (7.5 yrs to 19.4 yrs) the authors have grouped together under a diagnosis of childhood schizphrenia. An individual, who is diagnosed as schizophrenic at the age of 19 or even during early adolescence often manifests a form of schizophrenia associated more with adult rather than childhood schizophrenia. This broad inclusion of so many age groups may have negated the results of the study or at least caused them to be suspect.

During the same year Rutter, Greenfeld and Lockyer (1967) did a follow-up study of 63 children with infantile psychosis revealed that those who were untestable or had IQ's below 60 had poor outcomes. It was also discovered that a profound failure to respond to sound and a lack of verbal communication by age five signified a poor prognosis. In addition, the less severe the psychosis and the greater the amount of schooling the psychotic child received, the better was his prognosis at follow-up. A later paper of Rutter's (1965) on the subject of these same children also pointed

out that those with the best outcome had attended schools where they had received an unusual amount of individual attention focusing on their social and emotional needs.

A study which was one of the most inclusive in terms of examining childhood disorders, was done by Annell (1963). This prognostic study of psychotic syndromes in childhood consisted of 115 children who had a wide range of disturbances. The cases included schizophrenics, schizophreniform syndromes, epileptic psychosis, brain damage psychosis and reactive psychosis. The children were all seen by the age of 10 and, in 76 cases, onset of the disorder was reported by the age of six. Stereotypies, an unknown releasing factor (i.e., an unknown precipitating event), autism, and IQ less than 80 and a duration of the disturbance for more than two years, were all indicators which Annell found led individually to a poor prognosis. She also reported two factors indicating a good prognosis, namely, encephalitis in the child's history and somatic illness as the releasing factor of the psychosis.

Studies done up to the present time, excluding Annell's (1963), have been solely concerned with finding prognostic indicators for one specific childhood syndrome (i.e., childhood schizophrenia, autism or psychosis). They have avoided the question of prognosis for children below the age of six, with relatively common mixed or multiple diagnoses. Furthermore, many of the long term follow-up studies have reported conflicting results and part of this lack of agreement may be due to the different lengths of time between the initial study and the subsequent follow-up. Therefore, these findings may conflict because they are confounded with external changes (e.g., the family environment) and/or internal changes (e.g., maturation).

AIMS OF THE INVESTIGATION

It is the aim of this present study to identify a group of indicators of prognostic value for a wide range of childhood disorders. It is hoped that this broad inclusion of subjects will eliminate some of the controversy over criteria and terminology and will also increase the generalizability of the findings. The reported indicators are also meant only to predict those children who, using the criterion of entering the normal school system following treatment, appear to have benefited the most from treatment at this age level. These variables may in fact have a more far reaching predictive value but this paper is concerned with answering only one question, one of the most important questions facing any treatment centre; "Who will benefit the most from the services offered?"

METHOD

This study began with a survey of the literature from which some forty-two variables associated with the child, family background, and treatment program were selected for their potential prognostic value. Each variable was then sub-divided into levels, which denoted the appropriate quantitative (e.g., number of siblings) and qualitative (e.g., sex of the child) differences which existed within that variable. (See Appendix B). Then, every level of each variable was assigned to a numerical value. In addition, all the subjects in the research were given numerical references in order to insure that the identity of each subject would remain anonymous. These procedures also greatly increased the ease of coding the data. Next, a table listing the numerical values for the appropriate level of each of the forty-two variables was designed. (See Appendix C).

Case files for this research were chosen from records of the West End Créche, a treatment centre for emotionally disturbed preschoolers. Only the case files of children who had entered treatment by the first day of January 1962 and who had been discharged by the last day in December 1971, were selected for this study. Initially a total of 104 cases were slected which met the criterion of having entered and completed treatment within this ten year span. Data were then collected by recording the numerical value corresponding to the information present in the file of each subject beside the appropriate variable. However, sufficient data for this study could be collected on only one hundred children due to a lack of information present in the files of four subjects.

It is the policy of the West End Créche to discharge a child

when he or she reaches the age of six. Therefore, it was decided that the cases could be best differentiated in terms of their final outcome by simply grouping the cases according to where the children were placed after being discharged from the Créche. The information and the design of the new tables is identical to that present on the original table of which Appendix C is an example. Furthermore, it is the general consensus of the staff at this centre, that the children with a clearly successful outcome would be in the group entering classes in a regular school. In addition, those children with the poorest outcome would be in the group entering an institution upon being discharged. When the data had been regrouped onto the new tables, it was found that 32 cases were included in the regular school group and 20 cases were present in the institution group. Each of the forty-two variables for the two groups was then statistically examined for its significant ability to differentiate between them. It was thought that this method of analysis should reveal essential prognostic variables of value in the selection and prediction of the outcome of future cases at this centre.

Subjects

The subjects in this study ranged in age from one year-seven months to five years-nine months. These children have all been diagnosed by one or more of six psychiatrists affiliated with the West End Créche during at least some portion of the ten year time period between 1962 to 1971. They also represent both a wide range of disorders and a large number of different combinations and mixtures of childhood disturbances. (See Appendix A).

RESULTS

Although each case file was examined for all forty-two variables, none of the 52 cases in this study had complete data reported for all variables. The significance of each variable was determined using Chi square. However, in instances where the frequency was below five; proportionality was used.

Only seven (7) of the original forty-two (42) variables were found to be significant; (1) I.Q. (2) sex of the child (3) level of speech (4) the age of the child at the start of treatment (5) amount of withdrawal (6) severity of the illness (7) the experience of a stressful situation (see Table 1).

TABLE 1

THE RESULTING PROGNOSTIC VARIABLES AND THEIR LEVELS OF SIGNIFICANCE

Prognostic Variables	X^2	Z Score
Sex of the Child		3.32 **
I.Q. Score		2.43 *
Level of Speech	5.36 *	
Degree of Withdrawal		3.11 **
Age the Child Began Treatment		2.38 *
Severity of the Illness	4.15 *	
Experience of a Stressful Situation	3.99 *	

* $p < .05$

** $p < .01$

One highly significant predictor was sex of the child. If the child entering treatment was a girl her prognosis of beginning school after treatment was significantly more favourable than that of a boy ($Z = 3.32$. $p < .01$). There were one hundred treated in this centre during the ten year period of this study and only twenty-four of these were girls. After having had treatment, fourteen of these girls were in the school group and only three were present in the institutional group. The significance of this variable is not merely a consequence of girls being initially diagnosed as having less severe disturbances. In fact, this study found that more girls (8 in 14) had severe diagnoses than boys (only 5 in 17) (See Appendix D).

The extent of the child's withdrawal was classified in terms of the number of people the child would interact with prior to treatment. There was a significant trend ($p < .01$) for children in the institution group to have had a history at admission of interacting with no-one. There were 17 of the 20 institutionalized cases classified as not interacting with peers or parents prior to treatment and only 11 of 31 school cases. Data on this variable was missing for one school case.

Intelligence quotient scores were not available for all subjects, inasmuch as some of the children had been classified as untestable. The scores reported in the children's files were not all based on the same test, nor was the particular I.Q. test used always named. The I.Q. scores were obtained by at least five different tests; 6 of the reported 39 scores failed to mention the test used (see Table 2).

TABLE 2

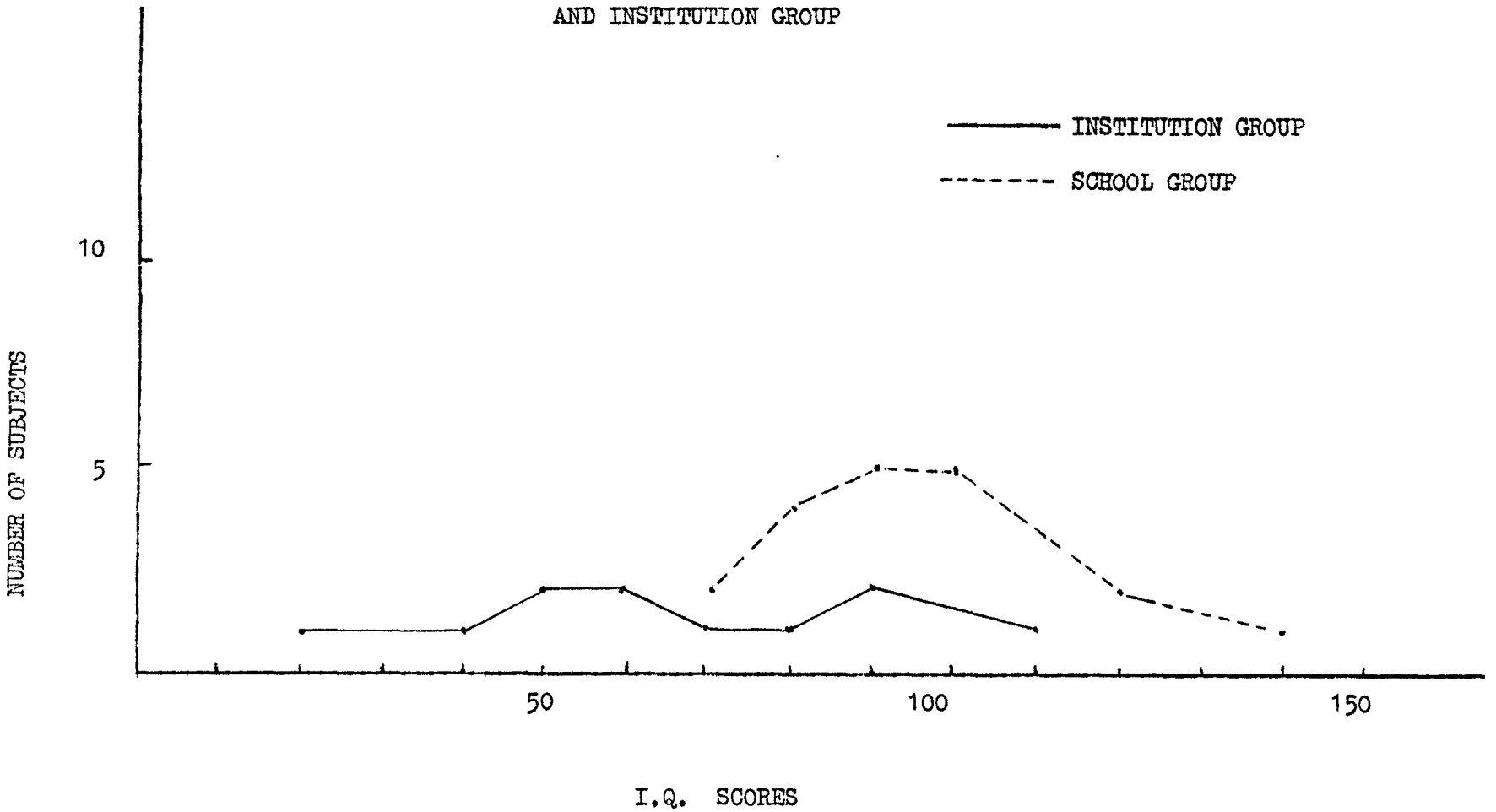
THE TYPE AND DISTRIBUTION OF I.Q. TESTS FOR THE SCHOOL AND INSTITUTION GROUPS

I.Q. Test	Number
Stanford Binet	21
Wechsler Intelligence Scale for Children	2
Scale of Intelligence	2
Cattell Infant Intelligence Test	7
Peabody Picture Vocabulary Test	1
Unidentified Tests	6

Since the I.Q. scores were taken from so many different tests and since some scores were extrapolated from scores on only a few subtests of a total I.Q. scale, the scores should be regarded as only rough approximations. Regardless of these intervening factors, there was still a significant trend for the school group to have I.Q. scores of 80 or above. Twenty-seven of the school group were tested and 20 children received I.Q. scores of 80 or above, (five of the six I.Q. tests not named were in this group). Twelve of the institution cases were tested and only four received scores of 80 or above (See Figure 1). It was also noted that there was a significant trend ($p < .05$) for untestable children not to be discharged into a school. This finding can probably be explained by the fact that participation in an I.Q. test and in a classroom both depend to a large extent on a child's ability to concentrate on a task, to attend to another

FIGURE 1

A COMPARISON OF THE INTELLIGENCE SCORES FOR THE SCHOOL AND INSTITUTION GROUP



individual and to carry out verbal instructions. It was additionally noted that I.Q. scores not only varied to a large degree within each group but also varied within the schizophrenic and non-schizophrenic subjects in each group. In the institution group, the schizophrenic children's scores ranged from untestable to a high of 85. The reported I.Q. scores for the non-schizophrenic children consisted of only four scores (48, 77, 87, and 110). Similarly, the scores for the schizophrenic children in the school group ranged from 75 to 136, while the non-schizophrenics' scores ranged from 62 to 114. Finally, there was also found to be a marked difference between I.Q. scores for boys and girls. No girl in the study scored below 70 on her I.Q. test, while 10 of the 26 boys scored below 70. Data was available for only 13 of the 17 girls.

The age at which the child began treatment was also shown to be a significant prognostic indicator. None of the 20 institution cases had begun treatment by the age of three. However, 7 of the 32 cases in the school group were in treatment by this age (See Figure 2). The two groups did not significantly differ in respect to the age at which the first symptom was noticed (See Figure 3). Therefore, the significant difference between the groups in regard to the age the child began treatment cannot be explained by the difference in the children's ages at the onset of the disorder.

The absence of communicative speech, which meant the child had no verbal language prior to admission, was also found to be statistically significant. Datum on one child in the school group was omitted since the child was only 19 months old when admitted into treatment. The youngest child for which data on this variable was included was aged 30 months. Only 6 of the 31 school cases didn't have communicative language when they began treatment.

FIGURE 2

A COMPARISON OF WHEN CHILDREN IN GROUPS BEGAN TREATMENT

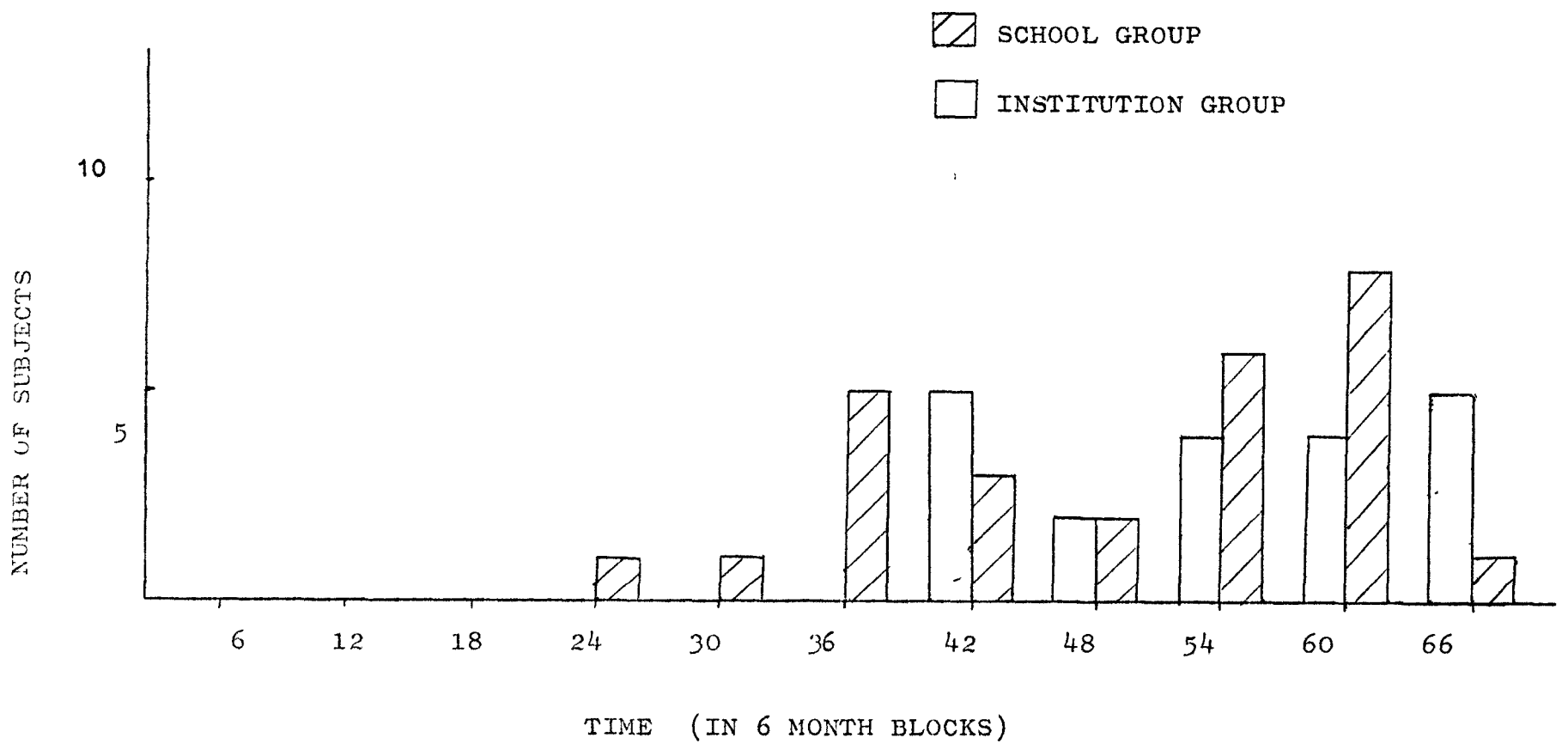
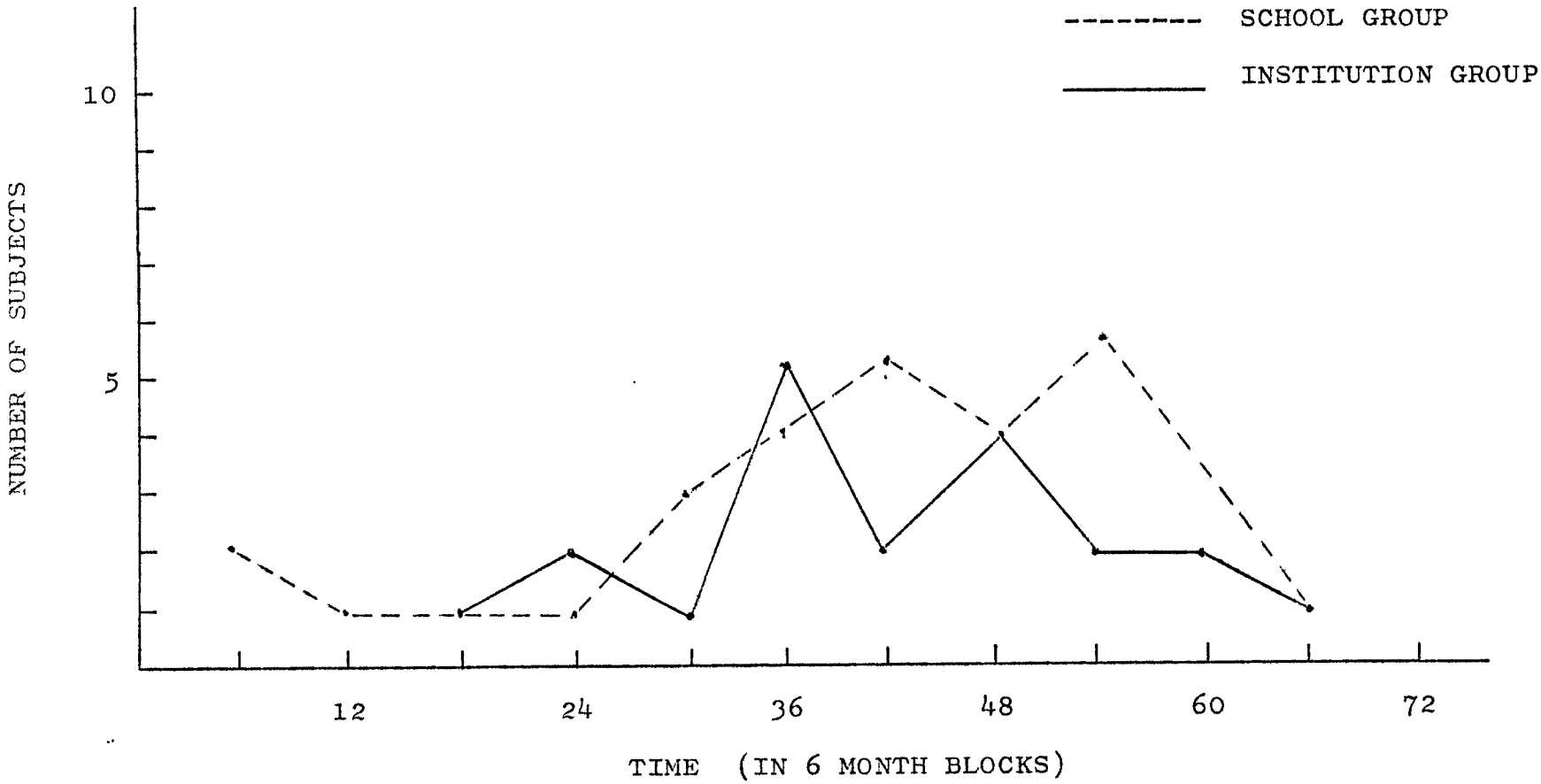


FIGURE 3

CHILD'S AGE WHEN FIRST SYMPTOM NOTED



However, more than half of the institution cases (11 children) began treatment without language (See Table 3).

TABLE 3

A DISTRIBUTION OF LANGUAGE ABILITY ACCORDING TO LEVELS OF DEVELOPMENT

Degree of Language Development	Number of Subjects	
	School Group	Institution Group
No Useful Speech	6	11
One Word Utterances	9	2
Two or More Word Phrases	10	3
Age Appropriate Speech	7	4

Cases which were classified as less severe for the purpose of this study were the ones which contained no mention of childhood schizophrenia in the initial diagnosis. Absence of schizophrenia in any of the forms present in the diagnostic list (See Appendix A) was a significant predictor of a child entering school following treatment. Some form of schizophrenia was mentioned in the initial diagnosis of 15 of the 20 institution cases and only 13 of the 31 school cases (one case had no reported initial diagnosis).

The final significant prognostic indicator was experience of a stressful situation prior to admission. If the child had been removed from his home and had been placed in a new one or if he had been hospitalized prior to treatment then he was scored on this variable. He was also assigned to this category if he had had an operation or if his mother was suddenly absent from the home for a

period of at least one month. Those children who had experienced one or more of the above stressful situations were found significantly more often in the school rather than the institution group. There were 20 children in the school group who had experienced a stressful situation before treatment. Of these 20 subjects 15 were attributed to being hospitalized, (only three of those cases underwent operations). The institution group had only two children who had been hospitalized and only one other that had had surgery. Furthermore, in all only six cases had experienced any form of the aforementioned stressful situations (See Table 4).

TABLE 4

THE TYPE AND DISTRIBUTION OF STRESSFUL SITUATIONS FOR THE SCHOOL AND INSTITUTION GROUPS

Stressful Situations	School Group	Institution Group
Child Placed in New Home	6	2
Child Having Undergone Surgery	3	1
Child Being Hospitalized [a]	12	2
Child's Mother Absent from Home for a Month or More	1	1

[a] These numbers do not include children having previously had surgery.

A variable found not significant ($p < .06$) but which manifested an interesting trend was that of age of the mother. Of the 28 mothers, from the school group whose ages were reported, only 4

were 30 years or older at their child's birth. In contrast, however, 7 of the 18 mothers from the institution group whose ages were recorded were 30 years and older when their child was born (See Figure 4). In addition, none of the four children in the school group whose mothers were 30 years or older at their birth were first born, while five of the seven children in the institution group were their mother's first child. The factor of the mother's age might have been significant if there had been records of all mother's ages. It is interesting that none of the previous prognostic studies have ever shown this factor to be even approaching significance. In fact, Lotter (1967) found no evidence of a higher maternal age in his Middlesex study; he stated that the ages were almost exactly those expected for the general population.

The results of this study have indicated certain variables which appear highly predictive in deciding an incoming client's prognosis. There may, however, be a way of increasing the predictive value of these variables. It was with this purpose in mind that certain combinations of variables were exained for their prognostic value (See Table 5). This table indicates which variable was present in the largest number of school cases and the fewest number of institution cases. Thus, a child's ability to interact with others was present in the largest number of school cases (20) and the smallest number of institution cases (3). In order to increase the predictive power of this variable one must find another variable which, when combined in an and/or relationship with the ability to interact, accounts for the greatest number of previously unaccounted for school children and the fewest number of new institution children. As Table 5 indicates the female subjects in the study

FIGURE 4

A COMPARISON OF THE MOTHER'S AGES OF CHILDREN IN THE SCHOOL AND INSTITUTION GROUP

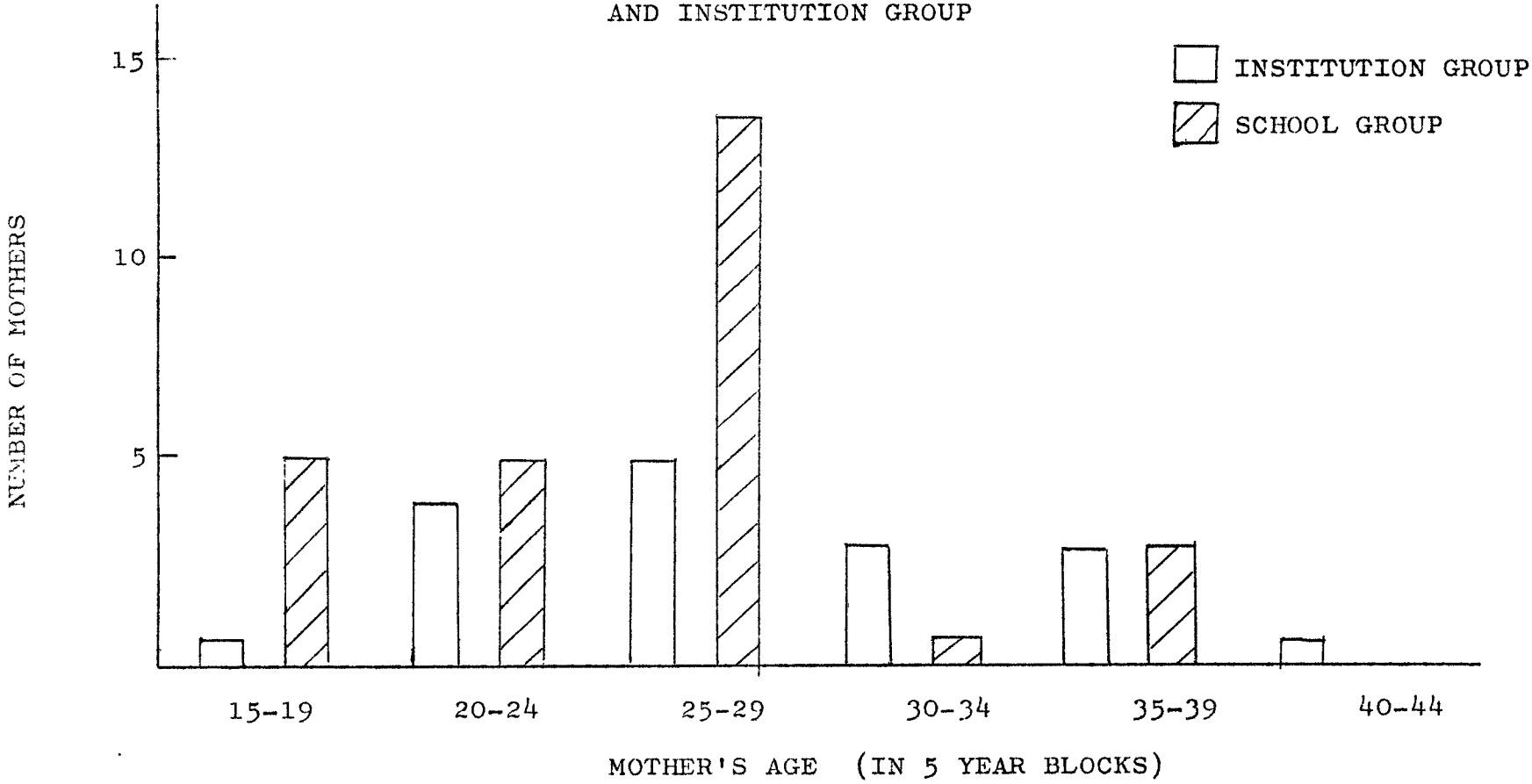


TABLE 5

AN ILLUSTRATION OF THE PROGNOSTIC VARIABLES PRESENT FOR EACH SUBJECT

Subject Number	Positive Prognostic Indicators						
	Ability to Speak	Ability to Interact	I.Q. of 80 or Above	Began Treatment by Age Three	Experience of Stressful Situation	Absence of Schizophrenia in Diagnosis	Female Subject
School Group							
10							X
14	X	X		X	X	X	
26	X		X		X		
28	X	X				X	X
29						X	
35	X		X				
37	X	X	X		X	X	
41	X		X		X	X	X
48		X	X	X			X

TABLE 5

AN ILLUSTRATION OF THE PROGNOSTIC VARIABLES PRESENT FOR EACH SUBJECT

Subject Number	Positive Prognostic Indicators						
	Ability to Speak	Ability to Interact	I.Q. of 80 or Above	Began Treatment by Age Three	Experience of Stress-ful Situa-tion	Absence of Schizo-phrenia in Diagnosis	Female Subject
	School Group						
10							X
14	X	X		X	X	X	
26	X		X		X		
28	X	X				X	X
29						X	
35	X		X				
37	X	X	X		X	X	
41	X		X		X	X	X
48		X	X	X			X

Subject Number	Positive Prognostic Indicators						
	Ability to Speak	Ability to Interact	I.Q. of 80 or Above	Began Treatment by Age Three	Experience of Stressful Situation	Absence of Schizophrenia in Diagnosis	Female Subject
	School Group (cont.)						
49			X	X	X	X	X
53	X	X	X			X	
57		X	X	X	X	X	
58	X	X	X		X		X
60	X	X			X	X	
61	X	X	X		X		X
62	X	X			X	X	
63		X			X	X	
64	X						
70	X		X		X		
74	X		X				

Subject Number	Positive Prognostic Indicators						
	Ability to Speak	Ability to Interact	I.Q. of 80 or Above	Began Treatment by Age Three	Experience of Stressful Situation	Absence of Schizophrenia in Diagnosis	Female Subject
School Group (cont.)							
76	X	X					X
82	X	X	X		X	X	X
83	X	X	X		X		X
84	X	X	X		X		X
88	X	X			X	X	X
89				X		X	
95	X		X	X		X	X
96	X	X	X		X		X
100	X	X	X	X			
102	X	X	X		X	X	
103	X	X	X		X	X	
104	X				X	X	

Subject Number	Positive Prognostic Indicators						
	Ability to Speak	Ability to Interact	I.Q. of 80 or Above	Began Treatment by Age Three	Experience of Stressful Situation	Absence of Schizophrenia in Diagnosis	Female Subject
			Institution Group				
7					X		
16					X	X	
19	X				X		
22	X						
23			X				
30							
32							
34	X						
36			X				
43							
44	X	X			X		X
59	X	X					

Subject Number	Positive Prognostic Indicators						
	Ability to Speak	Ability to Interact	I.Q. of 80 or Above	Began Treatment by Age Three	Experience of Stressful Situation	Absence of Schizophrenia in Diagnosis	Female Subject
	Institution Group (cont.)						
65					X		X
67	X	X	X			X	
72	X		X			X	
79	X				X	X	
87							
97							
99	X					X	X
101							

Note: The X represents instances where the variable was reported in the child's file.

increase the number of school children represented from 20 to 24 when this variable is combined with the ability to interact, while only increasing the number of represented institution cases from three to five children. In a similar manner, combining the children represented in the less severe diagnosis column with those children who have the ability to interact accounts for 25 of the school and only 7 of the institution cases. In summary then, if the child is a girl and/or has the ability to interact with others a successful prognosis (i.e., entering the regular school system) would be correct in 24 out of 29 cases. Secondly, if a child who had been initially diagnosed as having no form of schizophrenia and/or who had the ability to interact with others prior to entering treatment, then the prediction of a successful outcome would be correct in 25 out of 32 cases.

DISCUSSION

Many of the variables which are shown to be of significance in this study have also been reported in the work of other writers. However, there were three significant outcomes unique to this study and two combinations of variables shown to be highly predictive with a heterogeneous population of pre-school children.

The Age the Child Begins Treatment

The finding that a significantly larger number of children in the school group began treatment earlier than the institution group at first seems very straightforward and even obvious. It is natural to assume that those children who receive treatment earlier in life should benefit to a greater extent simply because the disorder has had less opportunity to retard their development. However, Brown (1960) reported that the age of the child at the start of treatment didn't influence the prognosis and Gittleman and Birth (1967) even reported that early agency contact was predictive of a poor outcome.

There is however a major difference between this study and those just mentioned. The difference lies in the types of disorders being studied. Brown's (1960) study deals exclusively with children having an atypical development and Gittleman and Birth (1967) focus only on schizophrenic children, while the present study encompasses a wide variety of childhood disorders. After examining the data, it was noticed that only one child beginning treatment by the age of three was initially diagnosed as schizophrenic and this was described as only a mild form of the disorder. While initially it was assumed that this variable was predictive for many types of childhood

disorders, it really appears of little value in predicting the outcome of schizophrenic cases. The one case for which it did seem to predict a favourable prognosis may have alternatively been the result of the fact that this child was a girl, having an I.Q. of 80 and who, furthermore, was able to interact with others prior to treatment. Consequently, the combination of these other three positive prognostic indicators was able to lead to a favourable outcome for the child even though she had a mild form of schizophrenia. Therefore, in general this study must conclude that this variable, beginning treatment by the age of three, is only predictive of a favourable outcome for the less severe cases, specifically those not diagnosed as having childhood schizophrenia.

The Severity of the Illness

This restriction on the predictive value of the preceding variable actually introduces the next predictor; severity of the illness. Although other authors (Annell, 1963; Brown, 1963; and Rutter, 1967) have all employed different criteria for the definition of this variable their findings have been consistent; the more severe the illness the poorer the prognosis. Similarly, the present study also reported that the severity of the illness was a significant predictive variable of prognosis although it used a slightly different criterion for severity. Since it is often so difficult to precisely determine the actual onset of the disturbance, especially in progressive cases, duration of the illness prior to treatment was not used as the criterion. In addition, it was decided that the number and severity of the symptoms was also not a viable criterion, since diagnostic terms (e.g., infantile autism, deprivation syndrome) were used to differentiate disorders instead of behavioural descriptions of symptomatology. Since the staff at the Créche

regarded cases diagnosed as childhood schizophrenia to be the most severe, it was therefore decided that this same criterion should be one adopted for the present study. Therefore, in terms of illness severity, the least severe cases were the non-schizophrenic children; alternatively the most severe cases were those children diagnosed as schizophrenic.

The variable illness severity, while it accounts for the majority of the school cases, by no means represents the total population. Examination of the data in Table 5 reveals that 9 of the 13 cases in the school group having a severe diagnosis also had at least three other positive prognostic indicators and most had four or five. Since the data of Table 5 make it quite evident that a large number of school children had many more positive variables than did the institution children, it is not difficult to see how some children, even though they had a diagnosis of schizophrenia, could still be among the school group. In addition, the majority of the cases in the institution group (i.e., four out of five) who had a less severe diagnosis had only one or two other positive variables in their favour. This fact combined with environmental and/or constitutional factors which were not represented in this study, may account for these exceptions.

The Inability to Interact with Peers or Parents

The degree of withdrawal displayed by a child is an additional variable which was found quite often to be indicative of the severity of a child's disturbance and thus a significant predictor of prognosis. Not only has this inability to relate physically and emotionally with others been associated with many childhood disturbances, but it has also been described in many different ways. It has been viewed as a withdrawal of attention and interest from the outer environment

(Jenkins, 1952), as a downward adjustment to avoid further damage (Nageberg, 1953) and finally as a turning away of the ego because of a lack of supportive libido (Wolman, 1970). The present paper, however, is concerned with examining the predictive value of withdrawal rather than qualifying its function. Experimental findings on withdrawal arrived at by various authors studying different age groups and disorders are quite consistent. Rutter (1966) studying psychotic and non-psychotic children, found abnormal peer relationships present in both groups, but they were much more severe in the psychotic group. Kanner (1943), studying autistic children, reported that extreme affective isolation was present in those children with the poorest outcome. Finally, Bender and Helme (1953) noted that both the schizophrenic and non-schizophrenic children they studied displayed withdrawal towards peers, parents and adults in general. However, the schizophrenic group showed the most significant withdrawal.

The findings reported in this study are therefore in complete agreement with those reported by the previous authors. Impaired relationships with others are characteristic of disturbed children. Both the school and institution cases displayed a lack of interaction with others. Severity of withdrawal, however, was significantly greater in the institution group. Only three children able to interact with others were represented in the institution group. Two of these three had I.Q.s below 80 and initial diagnoses of childhood schizophrenia. Furthermore, although all three children were able to interact with others, these relationships were described in each case as being impaired in some manner. Alternatively, there were 11 children, who were still present in the school group although they were unable to interact with others. Of these, records of five

made no mention of schizophrenia in initial diagnoses. However, of the six remaining children having such severe diagnoses, five were able to speak and four of these same five also had I.Q.s above 80. There may, however, be other factors involved in determining the significance of this variable.

Indeed, the predictive value of this variable may result from the fact that all children strongly rely on interpersonal experience for the knowledge and skill they require for growth and development. For example, one of the most important skills a child learns is the ability to speak. This is a skill that can only be acquired through an interaction with people. Moreover, the normal development of even the most basic skills such as walking, dressing and feeding oneself depends upon some form of interaction with others. Ours is a social species. We not only obtain knowledge from others but our very survival is dependent on working, playing and living with others. Furthermore, the therapeutic programme at the Créche and at many other centres relies very heavily on the child's ability to interact with adults and peers. If a child withdraws from his therapist then there is very little if any benefit to be derived from psychotherapy. The focus of the therapeutic environment in most such centres is a group setting. A great deal of the child's therapy time is therefore directed toward teaching him how to interact appropriately with peers. Additionally, the high degree of significance of this variable may also stem from the fact that the therapeutic benefits of the programme at the Créche are thought to be derived from the therapist's constant attempts to have the child both become aware of and discuss his feelings. This result can only be accomplished by an interaction between child and therapist. Typically, it is an interaction in which the therapist asks the

child to talk about his feelings in reference to an encounter which the child has just experienced with a peer or adult. Consequently, a child who cannot interact in this manner is usually in an unsatisfactory position to benefit from this type of therapeutic programme.

The Significance of Stressful Situations

A survey of the relevant literature soon revealed that very little had been written about the next prognostic indicator; the experience of a stressful situation. Furthermore, what had been written tended to be devoted to the question of whether or not stressful events had a causal relationship to emotional disturbances. For instance, Bettleheim (1956) states that every schizophrenic child has experienced his or her own specific stressful event which has left them fearing total destruction. Additionally, the outbreak of a manifest symptomatology after a traumatic event has been reported in a high percentage of children diagnosed as having deviant personalities or atypical developments (Rank, 1955).

However, since no one has dealt with stressful events in relation to predicting outcome, this paper will introduce a concept of childhood disorders which seem to best explain the data obtained. Basically, the concept is that childhood disorders have two types of onset which is similar to the notion of process and reactive adult schizophrenia. Therefore, the reason why 20 of the school cases had experienced a stressful situation was that the childhood disorder was a reaction to the traumatic event. Consequently, this meant that there was a specific precipitating factor which both child and therapist were aware of and which could be dealt with through play therapy. Further support for this explanation is also given by the fact that 16 of the 20 children possessed at least three

or four other positive prognostic indicators. This fact seems to imply that their disorder has not affected their total development but is instead more specific and confined. Thus, it has not affected other developmental areas, as one would have expected if the type of onset had been one of process. With reference to the school cases, in which no stressful event was reported, there is the possibility that one did occur at least in some of the 12 cases but that it wasn't recorded in the child's file. This seems a very plausible explanation due to the fact that in some cases a substantial amount of data was omitted from the children's files and furthermore that 6 of these 12 cases presented the same pattern of having at least three other positive predictive indicators as the previously mentioned 16 children. While the remaining six cases in the school group do not appear to be suffering from a reactive disorder, it must be remembered that no one is attempting to account for all the school cases on this premise. These cases may indeed be due to a process type of onset, as the paucity of alternative positive indicators suggests. However, the majority of these children did have language and henceforth were able to participate in verbal exchanges; the primary mode of therapy at the Créche. Finally, of the six children in the institution group who also experienced a stressful situation, four had only one or two other positive prognostic indicators; and one other case had none at all. This pattern suggests that the disturbances of these children were affecting many areas of their development and that they had been slowly regressing for months. Thus, the experience of a stressful situation appears more coincidental than causal in these cases.

Alternatively, the different patterns that exist in the data in respect to this variable for the two groups, may also be accounted

for by examining the characteristics of stressful events. First, they can be physical or emotional. Secondly, stressful events can vary in intensity, degree and duration. Moreover, the effect any traumatic event has on a child depends to a great extent on the chronological and developmental level of the child. Thus, the traumatic events the institution group experienced may have differed in several ways from those of the school group. Moreover, the individual response to similar events can also vary from child to child. They may have occurred at an earlier age, to children who were more dependent and attached to their parents and less able to utilize substitutes. Since exact information concerning the nature and time of the onset of the traumatic event or if even one had occurred was unavailable for each child, one can only theorize.

Limitations and Functions of Various I.Q. Tests

One of the most extensively examined variables connected with childhood schizophrenia or any other childhood disorder is intelligence. Research with psychotic children (Rutter, 1965a, 1965b), schizophrenic children and brain damaged children (Annell, 1963) has all confirmed the finding of this paper, that I.Q. is a good prognostic indicator.

Moreover, work done by other researchers (i.e., Gilles 1965; Birch and Gittleman 1967; and Pollack 1967) in the area of childhood schizophrenia have all agreed that the range of the test scores for such children is of high magnitude. The scores usually vary from untestable (i.e., mentally or emotionally incapable of doing the test) to normal or above normal levels. The range of scores in the present study naturally also varied to a great extent, since this was one of the significant predictors of outcome. As previously mentioned, highly scattered I.Q. scores were present for both the schizophrenic and non-schizophrenic children of each group.

The presence of this duplicate pattern of scattered scores among the non-schizophrenic children lends support to the belief of Rutter (1966a) and others, that childhood schizophrenia is not a result of subnormality but an entity in itself. The subnormality in this study is not confined to one disorder, namely childhood schizophrenia. Instead, it is present or absent in many childhood disturbances and therefore not the cause of the disturbance per se.

When comparing intelligence quotient test scores from study to study, and especially in this paper, one must be aware of the different characteristics of the intelligence quotient tests present in the study. It must be noted that different tests often measure different ability, use dissimilar standardization procedures, and vary in the degree to which they are weighted for certain skills. As mentioned above, the I.Q. scores in this study are based on at least five different tests, the Standard Binet, the WISC, the WPPSI, the Cattell Infant Intelligence and the Peabody Picture Vocabulary test. Consequently, conclusions derived from this study's I.Q. scores must be viewed with a degree of reservation. They are discussed in this study as if they had a positive correlation of one, primarily because the treatment personnel at the Créche make no distinction between I.Q. scores obtained from different tests.

Most of the I.Q. scores in this study were obtained by the use of the Stanford-Binet test, which predominantly measures scholastic aptitude and is largely comprised of verbal tasks. An individual with a language handicap or whose strongest abilities lie along non-verbal lines, will presumably score relatively low on such a test. Interestingly enough, a great many children in this study were initially referred for treatment because of a lack of language development, and many others, when examined, were found to have speech

defects (echolalia, perseveration). There were 24 children in both the school and institution groups who had I.Q.s of 80 or above and of these only five lacked the ability to speak. It should be noted however that four of these five exceptions had I.Q. scores which did not exceed 85. Therefore, the significance of I.Q. as a predictor may actually stem from its strong relationship with verbal ability. Rutter (1966a) had earlier suggested this possibility. Whether or not intelligence is validly being measured in this study can also be questioned when one points out certain defects in the Wechsler Intelligence Scale for Children (WISC) and Peabody Picture Vocabulary test (PPVT). For instance, attention, activity level and persistence all contribute to the final score obtained on the WISC. Hence, it is only reasonable to assume that these traits may have a negative influence in the final I.Q. scores of disturbed children. In addition, there is a lack of consistency among authors as to the degree of correlation that exists between the Stanford-Binet test and the WISC (Pinneau, 1961; Anastasi, 1961). Finally, the Peabody Picture Vocabulary test, which measures verbal comprehension without requiring speech, has been shown to yield intelligence quotient scores which cannot be reliably compared to those derived from the Stanford-Binet test. Consequently, it seems that I.Q. scores are much better predictors of prognosis with these children than they are necessarily accurate indications of intelligence.

Inasmuch as both sex and I.Q. of the child were significant predictors of outcome one may not find it difficult to accept the fact that there emerged a significant difference between the number of subnormal boys and girls in this study. A study by Gittleman and Birch (1967) however reported finding no significant difference in the proportion of intellectually subnormal boys and girls. It is

felt that the difference in the results of these two papers can best be explained by the fact that in this study the majority of the scores were derived from the Stanford-Binet test. This test, as previously mentioned, stresses verbal ability and girls develop verbal skills much earlier in life than do boys (Longstreth, 1968). Only 4 of the 17 girls in this study lacked the ability to speak while 13 of the 34 boys were without language (data were unavailable for one boy). Consequently, pre-school aged girls will probably do better on this test than boys of a similar age. In the Gittleman and Birch (1967) study both the Stanford-Binet and the WISC were used. Some of the difference in the findings may, therefore, be the result of fewer Binet scores being present. The Stanford-Binet test was utilized to obtain 2/3 of the I.Q. scores in the present study. In addition, the subjects in the aforementioned paper were older than those in the present study and the difference that exists in the verbal ability of girls and boys disappears in most cases as they receive a greater degree of formal education. Accordingly, as their verbal skills become more similar so will their I.Q.s measured by Stanford-Binet.

The present discussion concerning the importance of language ability on I.Q. tests can be further substantiated in this paper. For instance, the majority of the children who were unable to speak were found to be classified intellectually as either untestable or else as having measured I.Q.s below 50. The exceptions to this were usually children who had been administered the Peabody Picture Vocabulary test, a test which, as mentioned above, doesn't yeild an I.Q. score that can be reliably compared to those obtained on the Stanford-Binet test. This relationship between a child's inability to speak and his low I.Q. has also been noted by Lotter (1966).

Furthermore, Rutter (1968) has reported that the child's low I.Q. on tests which rely on verbal ability (e.g., the Stanford-Binet) was strongly related to the child's level of language development.

Prior authors (Rutter, 1966a; Lockyer and Rutter, 1967) have noted that the behavioural characteristics of both high and low I.Q. groups of disturbed children are very similar (retardation of speech, abnormal peer relationships). In the present study, certain behavioural abnormalities such as inability to interact with others, occurred more frequently with the low I.Q. groups of disturbed children but were nevertheless not exclusive to these children. In fact, with respect to the inability to interact with other people, it has been shown that low I.Q. scores are not the result of this behavioural abnormality (Rutter, 1967). A reduction in this type of behaviour has not inevitably resulted in a corresponding improvement in the child's I.Q. score. The present study noted an increase in social interaction resulted in an increase in I.Q. for eight cases. However, it also led to a decrease or no effect at all in four other cases. Furthermore, five other children were reported to have not changed in ability to interact with others and yet had notably improved their I.Q. retest scores. However, due to the relatively small number of children retested on I.Q. in this study (22) and the even smaller number of those, who were retested with the same I.Q. instrument initially used, it is very difficult to ascertain any definite conclusions from these findings.

Alternatively, it has been proposed that these low intelligence quotient scores may be associated with some form of brain damage or dysfunction. The current study originally collected data for 104 children, 44 of the group were classified as having some type of brain damage, dysfunction or mental defect. It was noted that only

39 of the total 104 children had I.Q. scores below 80 and 18 of these 39 had some form of brain abnormality. Therefore, these 18 children appear to account for almost half of the original 39 subnormal scores. This association between overt damage or dysfunction of the brain and low I.Q. scores has also been reported in earlier studies (Rutter, Greenfield and Lockyer, 1967). Similarly, children with moderate to severe neurological dysfunction have been shown to have lower I.Q. scores than children without neurological defects (Gittleman and Birch, 1967). Although it isn't possible to conclude from these findings that abnormalities of the brain are responsible for all the low I.Q. scores in this study, there is sufficient evidence to suggest that it is a significant factor which may be connected with almost half of the I.Q. scores below 80.

An important consideration when discussing the intelligence of disturbed children concerns the stability of their I.Q. as the child matures. Is the child's I.Q. affected by maturation or different forms of therapy or is it fairly constant and unchangeable? This area of research seems to be confounded by many different opinions and contradictory findings (Pinneau, 1961; Goldfarb and Pollack, 1969; Gittleman and Birth, 1967). Regretfully, the present study found only 10 children in the sample who had been retested on the same test. Furthermore, no specific pattern emerged even from these few scores, (i.e., four scores increased, three remained unchanged and three decreased). It seems reasonable to conclude that this study can add little support to any stand on the question of the stability of I.Q. scores.

In conclusion, it appears quite evident that the topic of intelligence scores is multifaceted. However, there seems to be

definite agreement that I.Q. scores are excellent prognostic indicators. If one is aware of the controversy that still exists in reference to the stability of I.Q. tests, the role that brain dysfunction plays, and the influence the type of test can have on the final score; then and only then can one really understand and benefit from the information provided by the raw I.Q. data.

The Importance of Language Ability in Disturbed Children

Language has been said to be an integral part of the structure of our mental processes and a very powerful method of regulating human behaviour (Luria, 1961). Moreover, the ability to speak is both a very basic and important characteristic of man. A child who is unable to speak typically shows limited understanding of the world around him. Nor is such a child always able to interact with people in his environment to satisfy his needs. This child may soon become a disorganized stranger lost even in his own surroundings. Consequently, some form of language disability is often one of the first symptoms reported by the parents. In 11 of the school and 13 of the institution cases, this was noted as being the first symptom which the parents observed. Of course this is not astonishing since most parents are not likely to be aware of more subtle signs of abnormality which may have occurred earlier. However, they are well aware that their child should begin to speak around two years of age. Consequently, speech disorder may or may not have actually been the first symptom displayed by the child. It may have just been the first one the parents could recognize as significant.

The importance of speech as a valid predictor of treatment outcome has been verified not only in this study but in many earlier papers. Eisenberg (1956) clearly showed that the prognosis was less optimistic for autistic children who were still without

communicative language by age five. Similarly, Brown (1960) studying a somewhat different group of children (i.e., atypical development) found the absence of speech at even age three was predictive of a poor outcome. In the present study only six children who couldn't speak were in the school group. Four of these children possessed three or more other positive prognostic indicators, which may explain the presence of the two exceptional children among the school group. Alternatively, there were nine children in the institution group who had at least some speech facility. Only two of these nine had three other positive indicators; and the majority possessed only one or two other prognostic indicators. Since the absence of language has been found to be so indicative of outcome, many different theories have been put forward to explain disorders in children. A number of them focus on the role the mother plays in this process (M. Klein, 1956; Wilcox, 1956, and Goldfarb and Braunstein, 1958), while others view the failure of the child to learn to speak as being functional (Arieti, 1955) or stemming from an impairment in comprehension (Rutter, 1966b).

The speech patterns of disturbed children and especially schizophrenics, have also been examined and found to exhibit many different forms of abnormalities. If schizophrenia appears in the first two years of life before language is well established, the child's speech is often retarded, blocked or even nonexistent. In some cases, this failure of speech development may be partially overcome in later years. If the child acquires speech prior to the onset of schizophrenia then the child usually has a very disturbed and peculiar manner of speaking. For instance, he may often excessively repeat phrases or invent his own words for various objects and things. The child may use conventional words but in

such an idiosyncratic fashion that their meaning is unintelligible to others. They also have a great deal of difficulty using words which have several different connotations. Moreover words in a sentence are sometimes placed in the wrong order or completely left out.

One of the most prevalent speech abnormalities of disturbed children appears to be echolalia. Of the children of the present study who could speak, 5 of the 9 institution cases and 11 of the 26 school cases were echolalic. Similar findings have been reported by other authors. For example, Rutter (1965a) found three-quarters of the children with the ability to speak in his study to be echolalic. In addition, the present study noted that echolalia was present twice as often in schizophrenic as compared to non-schizophrenic children. Rutter (1966a) had earlier alluded to the possibility of this pattern. Hence, in the present study, it appears that presence of echolalia may suggest a more severe disturbance (i.e., childhood schizophrenia) in two-thirds of the 16 cases reported.

Although the exact figures as to how many children can talk and when they first begin to speak varies between studies, nevertheless they all indicate some abnormality in the area of speech development. For example, Lobascher, Kingerber and Gublay (1970) reported that 52% of the autistic children in their study had spoken words by the age of two as compared to 96% of their control group. In the present study, there were only 10 children, six school children and four from the institution group, having normal appropriate speech before treatment. This notable lack of speech development in a population as large as 52 children is not unique in the literature. An absence of speech of any kind, even babbling, has been reported

in previous studies (Whittam, 1964; Bender, 1955). Following treatment, the current study noted that the number of children with age appropriate speech rose to 14 for the school group, while the figure for the institution group showed a gain of only two additional children. This finding cannot be explained in terms of maturation, since the age groups being studied were the same in both instances. The finding can best be explained by the effects of treatment and the fact that more children in the school group had some degree of speech initially. This last point is very important because the speech that was present in the children had an opportunity for further development and expansion through the verbal interactions with the therapists at the centre.

Different studies, that have been previously reported have also suggested that the child's I.Q. score is an important indicator of whether or not he will speak (Rutter and Greenfeld, 1966; Lotter, 1966). In the current study, all the children who had age appropriate speech, regardless of which group they were in, had I.Q.s above 55, the cut off point used in both studies referred to above. However, there are some authors who discount this relationship. Minski and Sheppard (1970) reported no evident relationship between I.Q. and speech, but rather that the amount of speech present varies inversely with the degree of disturbance. A real point of contention does exist however, between Minski and Sheppard's study, those referred to earlier and the present study. Minski and Sheppard (1970) studied only children whose I.Q. scores were 70 or above. Since many children of the present study have I.Q.s below 70 there is very little basis by which to compare results of the two studies. This study's findings suggest that Minski and Sheppard's (1970) conclusion that the degree of disturbance is more predictive of the

level of speech than is the child's I.Q., should be limited in generalization to children of moderate to above average I.Q.s. In addition, it may possibly be that I.Q. is a better predictor of whether or not a child will develop speech for children with lower range of I.Q. scores, such as below 70. Surely, a certain amount of intelligence is requisite to learning to speak. If such is lacking, then it is highly likely that the child will never speak, or will take an extraordinarily long time to develop speech. For instance Gittleman and Birch (1967) pointed out that children with I.Q.s below 70 took longer to develop speech than those with higher I.Q. scores. It may be that differences in the amount of intelligence possessed above some hypothetical point (e.g., a score of 70) are really relative, since all children above this level have sufficient intelligence to learn how tospeak. Beyond this minimum level, whether or not a child speaks may depend on the child's degree of disturbance as Minski and Sheppard (1970) have suggested rather than his level of intelligence. This paper has admittedly ignored the question of the child's motivation to speak but it was felt that an accurate method for assessing this retrospectively was not available.

The Sex Ratio of Disturbed Children

The finding that there were three times as many boys as girls in treatment at this centre over the ten year period of this study is not unique or unusual. Others who have written on childhood disorders have also noted this fact (Kanner, 1954; Creak and Ini, 1960; Lotter, 1967; Rutter, 1967). The more interesting feature of the sex ratio in this study is its relationship to outcome. It was mentioned previously that the results indicate that girls who receive treatment at this centre have significantly better out-

comes than boys. Twelve of the fourteen girls in the school group had at least three other positive predictors of outcome and 10 girls had four others. Most of these girls were able to speak, to interact with others and had I.Q. scores above 80. Alternatively, of the three girls who were in the institution group only one possessed three other positive prognostic indicators. Therefore, the girls in this group had far fewer additional predictors than did the girls in the school group. This marked difference in outcome for boys and girls in this study may be explained in several ways. The first point to note is that females from birth onward have been shown to be less susceptible to certain diseases; to have lower infant mortality rates and to live longer than males. Therefore, it is possible that this basic physiological superiority of females may account for part of the sex ratio difference in regard to treatment outcome. Malzberg (1963) has shown that the higher prevalence of males in treatment exists even for children under the age of five. He concluded that this finding ruled out the theory that more boys are in treatment because they present a greater social problem than do girls. Since this difference occurs at such an early age it may be possible to signify a basic sex difference. Furthermore, the proposition that fewer girls have childhood disorders and those who do respond more favourably to treatment than boys because of physiological superiority, seems even more plausible when one considers how many authors believe that the etiology of many childhood disorders stem from physiological factors (i.e., Bender, 1956; Fish, 1957; Rimland, 1967).

The type of therapy a treatment centre utilizes may also be important as a factor in explaining the effect a child's sex has on his or her outcome. The Créche employs a very verbal type of

therapy. No form of insulin therapy, electro-convulsive therapy or any other kind of somatic therapy is used at this centre. As a result, the core of the therapy is based on getting the child to become aware of his environment and his feelings and to encourage him to discuss these feelings with his therapist. In this type of atmosphere having good verbal skills is definitely an asset. It allows the child to comprehend more, thus giving him the opportunity of expressing himself in a more intelligible manner. Consequently, since girls tend to excel in verbal skills from a very early age, it is not hard to understand why they would benefit more from the type of therapeutic environment available at the Créche.

Perhaps another aspect of the reason why girls have a more favourable outcome at the Créche may also be related to the sex ratio of the staff. During the ten year period under study there has been only one full time male therapist, who remained on the staff for only eight months. There are, of course, two part time male psychiatrists who see patients, but only 3 or 4 children are seen by these men on a weekly basis. Furthermore, it has only been during the last two or three years of this study that the centre has had one or two male child care worker students and they spent only two days a week at the Créche. The point being emphasized is that the majority of the children are boys, at this centre, and the overwhelming majority of therapists are females. It is during these early years that children begin to identify and to model their behaviour after persons of the same sex. For the boys then there are very few models or persons of the same sex with whom they may identify. The girls, however, are surrounded by female models after whom they can pattern their behaviour. Equally important is the fact that the therapist herself is working with someone with

whom she can identify. This may help create a better rapport between the two. Consequently, it strengthens and increases the empathy and understanding that each has on the other's feelings and experiences. This is definitely the crucial point, since focusing on understanding feelings is at the centre of the therapy at the Créche.

Finally, it is important to consider the criterion of successful therapy at this centre, namely being accepted into the regular school system. A little girl who sits quietly at the back of the classroom all day long, never saying a word, may or may not be disturbed as the boy in the second row who is very aggressive, doesn't do his work and disrupts the class. However, the boy's behaviour will definitely be noticed first, and tolerated for the shortest time, by the teacher. However, there is far more social pressure on little girls not to be aggressive or swear or display delinquent behaviour. Therefore, it is much easier to get a quiet composed girl returned to the school system than an active, mischievous boy.

It may be that only one of these factors or else a combination of two or more accounts for the high ratio of female cases. It really is very difficult to judge. It is however an inescapable fact that at this centre girls definitely benefit from treatment to a greater degree than boys. In any case, where there must be a decision made whether to accept a boy or a girl to fill a vacancy in a therapy group, it is recommended that a girl be chosen. In addition, a serious effort should be made by the Créche to alter the overwhelming ratio of female therapists, especially in view of the high ratio of male clients.

SUMMARY

This study examined the case files of 52 children, 32 who had been discharged to a regular school and 20 children who had been discharged to an institution, following treatment at the West End Créche. Resulting from a statistical examination of 42 variables, associated with each child's background and the treatment centre itself, seven variables were found to predict a discharge to a normal school. These were:

1) An I.Q. of 80 or above,
2) Some ability to speak prior to treatment
3) If the sex of the child is female
4) The experience of a stressful situation prior to treatment
5) The ability of the child to interact with adults and peers prior to treatment
6) If the initial diagnosis of the child wasn't childhood schizophrenia
7) If the child had entered treatment by the age of three. This variable was found significant for only the non-schizophrenic children.

In addition, in order to increase the predictive power of these variables, they were tested in various combinations of two and more. A combination of the sex of the child and/or the ability to interact with others; and also the combination absence of schizophrenia in the child's diagnosis and/or the child's ability to interact with others, were shown to have the highest predictive value, resulting in a child being discharged to a normal school after treatment.

Recommendations to the West End Créche

1) The employment of a greater number of male child care workers.

2) There should be a more systemized criteria for determining the level of speech development of an incoming child. This could be accomplished most accurately by making an examination of each child by a speech therapist mandatory prior to admission.

3) There should be a behaviourally defined table devised, listing the child's type of interactions with other children and thus increasing the predictive value of this variable. For instance, maybe only children who can interact in complex games or who are able, for a period of five minutes or more, to interact with others, should be present in this classification.

4) Children referred before the age of three should be given preferential treatment and diagnosed before older age groups and, if schizophrenia is absent, they should be admitted to treatment as soon as possible.

5) Female patients should be considered for treatment before male patients.

APPENDICES

APPENDIX A

APPENDIX A

TYPES OF DIAGNOSES REPRESENTED

DIAGNOSIS	TYPE
SINGLE	Infantile Autism
	Childhood Schizophrenia
	Brain Damage
	Brain Dysfunction
	Maturational Lag
	Behaviour Defect
	Symbiosis
	Childhood Schizophrenia - Autistic Type
	Schizophrenic Personality
	Neurotic
	Borderline Childhood Schizophrenia
	Pseudoneurotic Childhood Schizophrenia
	Borderline Adjustment and Intellect
	Adjustment Reaction of Childhood
	Hypertonic
MULTIPLE	Maturational Lag and Behaviour Defect
	Symbiosis and Chronic Anxiety
	Brain Dysfunction and Neurosis
	Brain Dysfunction and Symbiosis and Chronic Anxiety
	Brain Dysfunction and Borderline Schizophrenia
	Maturational Lag and Mental Defect and Behaviour Defect
	Behaviour Defect and Schizophrenic Personality

APPENDIX A

TYPES OF DIAGNOSES REPRESENTED

DIAGNOSIS	TYPE
MULTIPLE	Childhood Schizophrenia Autistic Type and Pseudo-neurotic Childhood Schizophrenia
	Brain Dysfunction and Behaviour Defect
	Behaviour Defect and Hypertonic
	Mild Childhood Schizophrenia and Maturational Lag
	Brain Dysfunction and Maturational Lag
	Brain Dysfunction and Mental Defect and Behaviour Defect
	Mild Childhood Schizophrenia and Mental Defect
	Brain Dysfunction and Mental Defect and Borderline Childhood Schizophrenia
	Childhood Schizophrenia Autistic Type and Symbiotic Childhood Schizophrenia
	Moderate Childhood Schizophrenia and Maturational Lag and Mental Defect
	Mental Defect and Childhood Schizophrenia Autistic Type and Pseudoneurotic Type
	Brain Dysfunction and Maturational Lag and Neurosis
	Brain Damage and Behaviour Defect

APPENDIX B

APPENDIX B

EXPERIMENTAL VARIABLES AND THEIR CODINGS

VARIABLES	CLASSIFICATION	NUMERICAL CODING
Sex of the Child	Male	1
	Female	2
Initial Diagnosing Doctor and Final Diagnosing Doctor	Havelkova	1
	Greenbaum	2
	Coyle	3
	Goldstein	4
	Shaw	5
	Beeseley	6
	Vries	7
	Tenhuen	8
	Danoff	9
Initial Diagnosis and Final Diagnosis and Sibling Diagnosis	Infantile Autism	1
	Childhood Schizophrenia Mild	2
	Childhood Schizophrenia Moderate	3
	Childhood Schizophrenia Severe	4
	Pseudoneurotic	5
	Brain Damage	6
	Brain Dysfunction	7
	Maturational Lag	8
	Mental Defect	9
	Behaviour Defect	10
	Deprivation Syndrome	11
	Symbiosis	12
	Psychosis	13
	Epilepsy	14
	Childhood Schizophrenia Autistic Type	15
	Childhood Schizophrenic Personality	16
	Convulsion	17
	Neurosis	18
	Borderline Childhood Schizophrenic	19
	Early Deprivation Syndrome	20
	Postencephalitic Syndrome	21
	Childhood Schizophrenia Pseudoneurotic Type	22
	Aphasia	23

VARIABLES	CLASSIFICATION	NUMERICAL CODING
Abnormality of Relatives	Mother	1
	Father	2
	Mother and Father	3
	Grandmother	4
	Grandfather	5
	Cousins	6
	Neither Parent	7
	Uncle	8
	Aunt	9
Placement after Discharge	Normal School	1
	Special School	2
	Private Treatment	3
	Institution	4
	School for the Retarded	5
	Day Care Centre	6
First Symptom Noted	Abnormality of Speech	1
	Withdrawal	2
	Fear of Objects	3
	Disciplinary Problems	4
	Not Toilet Trained	5
	Overactive	6
	Problems in Sleeping	7
	Temper Tantrums	8
	Rocking	9
	Hypersensitivity to Noise	10
	Aggression	11
	Short Attention Span	12
Initial and Follow-up Intelligence Test	Stanford Binet	1
	Wechsler Intelligence Scale for Children	2
	Gesell Intelligence Test	3
	Nebraska Test of Learning	4
	Wechsler Preschool Performance Scale of Intelligence	5
	Terman Merrill	6
	Cattell Infant Intelligence Test	7
	Peabody Picture Vocabulary Test	8
	Bender Gestalt	9
	Merrill Palmer	10
	Columbia Mental Maturity Scale	11
Type of Treatment	Individual	1
	Group	2

VARIABLES	CLASSIFICATION	NUMERICAL CODING
Education of Parents	Grade School	1
	High School	9-13
	University	14-17
	Graduate School, M.A.	19
	Ph.D.	20
Medical Problems	Bronchitis	1
	Entrogastritis	2
	Celiac	3
	Oxygen at Birth	4
	Epilepsy	5
	Deafness	6
	Convulsions	7
	Asthma	8
	Encephalitis	9
	Respiratory Infection	10
	Caffes Disease	11
	Herniotomy	12
Occupation of Father	Unemployed	1
	Unskilled Labourer	2
	Skilled Labourer	3
	White Collar Worker	4
	Administrative Position	5
	Professional	6
Occupation of Mother	Housewife	1
	Unskilled Worker	2
	Skilled Worker	3
	White Collar Worker	4
	Administrative Position	5
	Professional	6
Birth Position	First Born	1
	Second Born	2
	Third Born	3
	Etc.	Etc.
Stressful Situations	Placement in a New Home	1
	Undergoing Surgery	2
	Being Hospitalized	3
	Absence of Mother for at Least One Month	4
Interaction Before and After Treatment	Interaction with No-one	1
	Interaction with 1-5 Persons	2
	Interaction with 6-10 Persons	3

VARIABLES	CLASSIFICATION	NUMERICAL CODING
Interaction Before and After Treatment	Indiscriminate Interaction with Anyone Age Appropriate	4 5
Degree of Speech Development Before and After Treatment	No Speech Single Words Simple Phrases Age Appropriate Speech	1 2 3 4
Number of Siblings	Numerical Values Given	
Duration of Treatment	Numerical Values Given in Months	
Age Child Spoke	Numerical Values Given in Months	
Age Child Sat	Numerical Values Given in Months	
Age Child Stood	Numerical Values Given in Months	
Age Child Walked	Numerical Values Given in Months	
Age Child Was Toilet Trained	Numerical Values Given in Months	
Age Child Began Treatment	Numerical Values Given in Months	
Age of Child at Initial I.Q. Test	Numerical Values Given in Months	
Age of Child at Follow-up I.Q. Test	Numerical Values Given in Months	

VARIABLES	NUMERICAL CODING
Age First Symptom Noted	Numerical Values Given in Months
Initial I.Q. Score	Numerical Values Given
Follow-up I.Q. Score	Numerical Values Given
Parent's Age at Child's Birth	Numerical Values Given in Years
Year Child Began Treatment	Numerical Values Given in Years
Age of Siblings	Numerical Values Given in Years
Number of Abnormal Siblings	Numerical Values Given

APPENDIX C

APPENDIX C

EXAMPLE OF DATA TABLE

EXPERIMENTAL VARIABLES	SUBJECT NUMBER						
	1	2	3	4	5	6	7
	Numerical Coding						
Number of Siblings	2	0	1	0	1	2	0
Child's Sex	1	2	2	1	1	1	1
Education of Father	6	8	9	8	9	17	9
Education of Mother	7	5	9	7	8	15	8
Duration of Treatment	4	6	8	5	9	7	4
First Noted Symptom	1	3	2	1	4	2	3
Intelligence Quotient	77	96	87	99	50	65	97
Name of I.Q. Test	1	2	1	1	1	3	2
Type of Treatment	1	2	2	2	2	2	1
Initial Diagnosis	14	3	1	7	5	8	22
Diagnosing Doctor	1	4	2	3	1	4	4
Final Diagnosis	1	4	3	7	8	6	1
Diagnosing Doctor	1	1	2	2	1	3	2
Medical Problems	4	1	5	3	6	9	7
Placement after Discharge	1	1	2	3	5	1	3
Follow-Up I.Q.	80	76	97	65	87	98	94
Name of I.Q. Test	1	2	3	1	3	2	7
Age at Follow-up Testing	85	97	89	92	79	95	89
Age at Initial Testing	49	52	39	45	34	42	47
Speech Abnormalities	1	2	3	2	1	2	1
Age First Symptoms Noted	25	31	27	33	41	34	24
Father's Age at Child's Birth	25	19	41	33	29	43	31
Mother's Age at Child's Birth	22	19	41	34	29	32	31
Number of Disturbed Siblings	0	1	0	1	1	0	0
Disturbed Relatives	1	5	3	2	4	1	1
Initial Level of Speech	1	2	5	3	5	5	2
Stress Situations	1	2	1	3	2	1	1
Initial Degree of Withdrawal	1	1	4	1	5	3	2
Age Child Sat	6	9	8	7	8	9	10
Age Child Stood	11	14	20	16	14	12	14

EXPERIMENTAL VARIABLES	SUBJECT NUMBER						
	1	2	3	4	5	6	7
	Numerical Coding						
Age Child Walked	17	20	19	15	22	15	17
Age Child Spoke	22	22	25	27	30	24	23
Age Child was Toilet Trained	27	31	30	29	24	28	29
Birth Order	1	2	3	1	1	2	2
Father's Occupation	4	3	5	2	1	5	3
Mother's Occupation	7	7	3	7	4	5	7
Diagnosis of Disturbed Siblings	1	2	4	3	6	8	6
Final Degree of Withdrawal	4	3	1	2	5	1	1
Final Level of Speech	1	2	4	3	1	1	2
Year Child Began Treatment	64	67	65	69	70	64	71
Age of Siblings	2	4	14	2	17	3	1
Child's Age at Beginning of Treatment	36	20	41	45	29	51	59

Note: See Appendix A for an explanation of the numerical values present in this table.

APPENDIX D

APPENDIX D

INITIAL DIAGNOSIS CLASSIFIED BY SEX AND SEVERITY FOR EACH SUBJECT

Classification of Severity	Subject Number	Sex of Subject	Initial Diagnosis
SEVERE DISORDERS	10	F	Childhood Schizophrenia Autistic Type
	48	F	Childhood Schizophrenia (Mild)
	58	F	Borderline Childhood Schizophrenia
	61	F	Borderline Childhood Schizophrenia and Brain Dysfunction
	76	F	Mixed Form of Pseudoneurotic and Autistic Childhood Schizophrenia
	83	F	Childhood Schizophrenic Personality and Behaviour Defect
	84	F	Childhood Schizophrenia Autistic Type
	96	F	Childhood Schizophrenia and Maturational Lag
LESS SEVERE DISORDERS	41	F	Neurosis
	49	F	Maturational Lag
	28	F	Borderline Adjustment and Intelligence
	82	F	Adjustment Reaction of Childhood
	88	F	Brain Dysfunction and Behaviour Defect
	95	F	Behaviour Defect
SEVERE DISORDERS	26	M	Childhood Schizophrenia (Moderate)
	35	M	Childhood Schizophrenia (Moderate)
	67	M	Childhood Schizophrenic Personality and Behaviour Defect
	70	M	Childhood Schizophrenia Pseudoneurotic Type
	74	M	Childhood Schizophrenia (Moderate)

Classification of Severity	Subject Number	Sex of Subject	Initial Diagnosis
	14	M	Maturational Lag and Behaviour Defect
LESS	29	M	Symbiosis and Cerebral Palsy
SEVERE	37	M	Maturational Lag and Behaviour Defect
DISORDERS	53	M	Neurosis and Brain Defect
	57	M	Brain Dysfunction
	60	M	Brain Dysfunction and Symbiosis
	62	M	Maturational Lag and Behaviour Defect
	63	M	Maturational Lag, Mental Defect and Behaviour Defect
	89	M	Behaviour Defect and Hypertonic
	103	M	Brain Dysfunction, Behaviour Defect and Deprivation Syndrome
	102	M	Brain Dysfunction
	104	M	Brain Dysfunction
	100	M	No Initial Diagnosis

APPENDIX E

APPENDIX E

THE EXPERIMENTAL VARIABLES AND THEIR RESPECTIVE CHI SQUARE AND Z SCORES

Experimental Variables	X^2	Z Score
Number of Siblings		.26
Child's Sex		3.32
Education of Father	1.07	
Education of Mother	1.72	
Duration of Treatment		.74
First Noted Symptom	2.35	
Initial Intelligence Quotient		2.43
Name of I.Q. Test		.89
Type of Treatment		1.06
Initial Diagnosis	4.15	
Final Diagnosis	3.17	
Initial Diagnosing Doctor	2.38	
Final Diagnosing Doctor	1.96	
Medical Problems		.54
Follow-up I.Q. Test		1.19
Name of I.Q. Test		.74
Age at Follow-up Testing	1.83	
Age at Initial Testing	2.19	
Speech Abnormalities		.09
Age First Symptom Noted	1.39	
Father's Age at Child's Birth		.37
Mother's Age at Child's Birth		.19
Number of Disturbed Siblings		.24
Disturbed Relatives		1.47
Initial Level of Speech	5.36	
Stressful Situations	3.99	
Initial Degree of Withdrawal		3.11
Age Child Sat	2.31	
Age Child Stood	1.84	
Age Child Spoke	2.12	
Age Child Was Toilet Trained	1.41	
Birth Order		1.37
Father's Occupation	3.04	
Mother's Occupation	.89	
Diagnosis of Disturbed Siblings		.41
Final Degree of Withdrawal		1.36
Final Level of Speech	2.71	
Year Child Began Treatment		.27
Age of Siblings	.84	
Child's Age at Beginning of Treatment		2.38

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