

## Maintenance of Sameness in Children with Kanner's Syndrome

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A study is presented with a focus on one of the primary symptoms of early infantile autism. Sameness behavior was examined in a group of 32 psychotic children, 29 boys and 3 girls ranging in age from 3 to 11 years. The group included autistic children diagnosed on the basis of Rimland's Check List E-2. The desire for maintenance of sameness was found to be present to a marked degree in the behavior of all autistic children. The intensity of various forms of such behavior varied considerably within the group, but 10 characteristic manifestations were found to discriminate between autistic and non-autistic children. It is suggested that manifestations of sameness behavior may be related to the level of cognitive development in the child.

The two outstanding characteristics of early infantile autism as established by Kanner were extreme aloneness and "an anxiously obsessive desire for the maintenance of sameness." These two features were essential diagnostic criteria since many symptoms resembling those of autism were present in retarded and brain-damaged children.

Every one of Kanner's 11 original cases had manifested the symptoms characterizing the desire for sameness to a marked degree, and Kanner (1943, 1946) included detailed descriptions of this kind of behavior in most of his original papers. Other investigators have accepted the symptom as a feature of infantile autism and have described it in different ways (Creak, Cameron, Cowie, Ini, MacKeith, Mitchell, O'Gorman, Orford, Rogers, Shapiro, Stone, Stroh, & Yudkin, 1961; Rimland, 1965; O'Gorman, 1967; Rutter, 1967; Rendle-Short, 1969). A large and comprehensive collection of behaviors has been described as attempts to maintain sameness. However, many writers have, in the main, been content to list such behaviors without attempting to discover whether in fact they may legitimately be grouped together.

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Sameness or "obsessive" behavior has been observed in varying degrees and forms in disturbed children with other diagnoses. Kanner was not the first clinician to report this type of behavior although his was the first attempt to relate it to a specific disorder. Sucharewa (1932), reporting on childhood schizophrenia, noted the presence of stereotypies, ritual acts and compulsive states in her patients, but this behavior does not seem to have been as extreme as that found in children with Kanner's Syndrome and seems to be of the type found in disturbed and retarded children. Despert (1955) indicated that obsessive behavior is frequently found in disturbed children. She discussed diagnostic confusion between severe obsessive-compulsive neurosis and schizophrenia in children whose behavior is often very similar. The essential difference between these two disturbances is related to intellectual functioning. The schizophrenic is at a lower level of functioning and has lost touch with reality.

Sameness is a behavioral symptom that is not confined to Kanner's Syndrome although different manifestations in this group may serve to differentiate it from other groups. The low level of functioning which characterizes many children with Kanner's Syndrome means that their sameness takes the form of a near absence of spontaneous behavior and an insistence on routine. In many cases the fact that the behavior is the same as that of a retarded child contributes to the difficulty of differentiating between a psychotic and a retarded child. In a child with Kanner's Syndrome functioning at a higher level, rituals are usually much more complex, and may involve speech as well as other behavior.

Several explanations for the desire for the maintenance of sameness have been proposed. O'Gorman (1967) and Rimland (1964) suggest that behavior directed towards maintaining sameness is the autistic child's way of coping with an environment he is unable to understand. Such child concentrates on aspects which he can predict and control. O'Gorman's theory is based on observation of schizophrenic adaptations to reality. The imposition of order and pattern on the environment makes reality less frightening. Rimland (1964) sees sameness behavior as a result of cognitive dysfunction with a failure to comprehend the meaning of change. By insisting that everything remain the same, the child retains some sense of safety and predictability in his world. Thus,

The obsessive preoccupation with mechanical objects and household appliances almost universally reported for autistic children may readily be understood as a type of corollary to the resistance to change. Mechanical objects are highly consistent in their behavior and characteristics.

An organically based learning deficit is suggested by DeMyer, Barton, and Norton (1972) as responsible for the inability to cope with change. DeMyer and her co-workers tend to believe that the autistic child forms a gestalt with difficulty and if any part is changed he reacts with extreme anxiety. Bettelheim (1967) suggested that the problem may be attributed to a lack of object constancy. The autistic child acts like a normal child prior to his attainment of such constancy.

Hutt, Hutt, Lee, and Ounsted (1965), on the basis of their behavioral and electroencephalographic study of autistic children, suggest that withdrawal and stereotyped behavior could be explained in terms of level of arousal. Evidence from animal studies had suggested that this type of behavior occurs in states of high arousal. If central arousal is at a very high level in these children it could lead to stereotypies designed to reduce sensory input and protect the organism from further excitation. Unfortunately this hypothesis arises from observation of one type of behavior only, namely that of stereotypies such as gesturing, hand-flicking and rocking.<sup>2</sup>

The work of Hermelin and O'Connor (1970) and Frith (1970) indicates inconsistencies in the arousal theory. The EEG records suggest under-arousal rather than over-arousal. Experimental findings of these writers lead them to conclude that autistic children are not able to appreciate order and meaningful structure in any input. Wing (1966) and Rutter (1966) have suggested that because the autistic child cannot comprehend his environment, he attempts to impose alternative patterns on it. This accounts for behavior directed towards maintaining sameness. Hermelin and O'Connor (1970) offer an alternative hypothesis to the effect that there is a single central deficit whereby autistic children are unable to encode stimuli in a meaningful way.

It appears that the evidence from the few experimental studies that have been attempted is weakened by several problems. These include those inherent in diagnosis such as the heterogeneity of any group of "autistic" children (in the absence of standard diagnostic criteria), and the variations in behavior found in any sample. This makes it virtually impossible to offer any generalized findings.

Thus, some form of objective classification and differentiation of sameness behavior is required. The type, as well as the intensity of the behavior may provide an aid to differential diagnosis. This paper reports a study which examined behavior concerned with maintenance of sameness and attempted to measure and categorize such behavior. Its purpose was to:

<sup>2</sup>This type of repetitive activity is common in many other disturbances as well as in mental retardation; it is therefore not a specific symptom of autism.

- (1) Discover whether the desire for sameness is always present in children with Kanner's Syndrome diagnosed on the basis of Rimland's Check List;
- (2) Discover to what extent this symptom is found in disturbed children with other diagnoses;
- (3) Discover what types of sameness behavior will differentiate between Kanner's Syndrome and other disturbances, and
- (4) Attempt to classify this kind of behavior in a way that will enable its use as an aid in the formulation of diagnosis.

## METHOD

### *The Sample*

Forty-two children known to various agencies in the state of Victoria were selected for study in accordance with the following criteria:

- (1) Previous diagnosis of "autism," "schizophrenia," "childhood psychosis," "psychotic," or "retarded with psychotic features";
- (2) History of "withdrawal" or "aloneness," or inability to relate to people from early in life; and
- (3) No clear-cut evidence of brain damage in the case history and lack of gross neurological signs of brain damage.

It was considered important to study children as young as possible since previous research has indicated that the unique pattern of symptoms found in Kanner's Syndrome often disappears or is modified after the age of 5 or 6 years (Rimland, 1968, 1971; Wing, 1972). However, it was not possible to get a large enough sample of children under 6 years of age. For this reason the upper age limit was set at 11, a compromise between the above requirement and the need to include enough children to make a representative sample. Forty of the parents contacted were willing to cooperate in the study, of these 8 were not available for interviewing; thus the actual number of cases in the sample was reduced to 32 as shown in Table 1. The group included 29 boys and 3 girls. The range in CA was from 3 to 11 years, with a mean of 7 years and 4 months. Inevitably this was a clinically heterogeneous group with much variation in level of functioning. No estimate of mental age was available as at least half the sample was untestable. Ten of the children had some speech. Five of these 10 could communicate adequately and were attending normal school.

Table 1  
Age, Sex and Diagnosis of 32 Subjects

Subject	CA at time of investigation (yrs. and mos.)	Sex	Reported diagnosis	Diagnosis based on Rimland's E-2		
				Autistic	Doubtful	Non-autistic
LR	11.2	M	Autistic	X		
PD	9.4	M	Autistic	X		
JM	5.8	M	Retarded/autistic	X		
OP	10.2	M	Autistic	X		
KA	8.3	M	Autistic	X		
HS	6.1	M	Hyperactive/autistic	X		
HI	7.3	M	Autistic	X		
MC	4.9	F	Autistic tendencies/ retarded	X		
BG	8.4	M	Autistic	X		
MA	9.1	M	Autistic/psychotic		X	
UD	8.1	M	No diagnosis		X	
MW	10.0	M	Autism		X	
EJ	5.2	M	Infantile autism	X		
DP	7.1	M	Retarded and autistic		X	
WD	5.0	M	Psychosis			X
WP	3.1	M	Autistic			X
AB	8.0	M	Early infantile autism			X
NJ	8.4	M	Autistic			X
WM	9.0	F	Autistic features			X
IB	4.0	M	Adjustment reaction			X
AP	4.9	M	Developmental problems			X
RW	10.1	M	Autism			X
JJ	9.4	M	Psychotic			X
HD	5.4	M	Childhood psychosis			X
BR	8.5	M	Autistic			X
IG	10.3	M	Retardation/psychosis			X
YK	9.3	M	Familial retardation and psychosis			X
MM	9.2	M	Autistic			X
MR	5.4	M	Partly autistic			X
MS	7.5	M	Autistic			X
YG	9.2	M	Possibly autistic			X
CR	8.0	F	Mildly autistic			X

Note.—Diagnostic criteria varied considerably as no agency which referred the subjects was prepared to clarify such criteria.

### *Collection of Data*

Parents of children selected for the study were contacted by mail and asked to complete Rimland's Check List E-2.<sup>3</sup> The parents were also asked to supply written descriptions of any of their children's behavior concerned with maintaining sameness, such as routines, rituals, odd habits, obsessions, repetitive play, or resistance to change.

### *The Sameness Questionnaire*

A 28-item questionnaire was constructed with items derived from the following sources: (a) Descriptions of behavior submitted by parents; (b) clinical observations by the authors, and (c) compilation of all noted examples of sameness behavior derived from a review of the literature on childhood psychosis. The questionnaire was administered during an interview with the parents. In most cases only the mother was interviewed, although the father was also interviewed in 8 cases. Behavior was recorded at every stage of the child's development, regardless of age. The questions, generally presented as listed below, were amplified whenever necessary.<sup>4</sup> All parents were encouraged to detail any behavior relevant to these questions.

- (1) Does he insist on furniture remaining in the same place, windows or doors open or shut, blinds up or down, etc.?
- (2) Does he insist on creating and maintaining patterns of toys, objects, furniture, etc.?
- (3) Does he insist on eating the same foods or only a particular kind of food?
- (4) Does he object to visiting new places?
- (5) Does he refuse to allow anyone to teach him anything new?
- (6) Does he become very upset if interrupted in what he is doing?
- (7) Does he make a ritual out of (a) going to bed, (b) eating meals, (c) having a bath, (d) getting dressed?
- (8) Is he extremely attached to a particular toy or object?
- (9) Does he line things up in rows and refuse to have them disturbed?

<sup>3</sup>The E-2 provides information on the child's development from birth to 5 years of age, covering such areas as illnesses, physiological and biological data, social behavior, reaction to sensory and emotional stimuli, and family characteristics (Rimland, 1971).

<sup>4</sup>Thus "sentences" in Question 28 included "phrases or words."

- (10) Does he insist on drinking from one particular container or eating from one particular plate?
- (11) Does he insist on walking in straight lines?
- (12) Does he continually turn faucets or light switches on and off, flush toilet, etc.?
- (13) Does he make the same, repetitive, ritual-like movements?
- (14) Does he continually twist pieces of string, wire, etc., or manipulate other objects repeatedly?
- (15) Does your child insist on using the same route (a) when out for a walk, (b) when out in the car?
- (16) Does he refuse to wear new clothes?
- (17) Does he insist on wearing the same clothes?
- (18) Does he insist that clothes must be (a) put on in a certain way, (b) worn the same way always, (c) covering certain parts of the body (e.g., hands)?
- (19) Does he insist on his food being cooked (or served) in a special way?
- (20) Does he insist on sitting at the same place at table or in the same chair?
- (21) Is he extremely attached to any person or persons?
- (22) Does he insist on toys being set up, put out, or put away in a particular order?
- (23) Does he dislike changes in appearance or behavior of the people around him?
- (24) Does he insist on using a particular door?
- (25) Does he like the same record, or piece of music, played continually?
- (26) Does he use verbal rituals by insisting on the same reply to questions each time, or saying the same thing in a particular situation?
- (27) Does he like to talk about the same things all the time?
- (28) Does he sing the same tunes or repeat the same sentences?

The sameness questionnaire was scored using the following method. A score of 2 was given if the item of behavior was present to a considerable degree, i.e. severe, marked, or frequent. A score of 1 was given if the behavior was present but not strongly marked, and a score of 0 if the behavior was not shown by the child. Children were rated on sameness behavior reported at any time from birth to the time of interview. The total score for each child was the sum of the ratings that could range from 0 to 56; the actual range was from 5 to 41. Median score was 20, with 16 children scoring 21 or above and 16 scoring 18 or below. A high sameness score was defined as 21 or above.

The check lists were scored on the basis of Rimland's Scoring Key.<sup>5</sup> Thus, each child had an E-2 score and a Sameness score. Scores on the 13 items of the E-2 which measure sameness behavior were omitted from the E-2 score, so that spurious correlations were avoided in the correlational and item analyses.

## RESULTS

All 10 children diagnosed as autistic on the Rimland E-2 had high sameness scores (21 or above). In addition, 4 children whose E-2 scores were a little below the cut-off point also had high sameness scores. These were described as a "doubtful" group and subjected to further analysis. The relationship between the desire for sameness and the E-2 scores was measured by correlating the E-2 with the score on the Sameness Questionnaire. This was done first for the whole group when a Spearman rank order correlation .56 ( $p < .01$ ) was obtained. Then, a second calculation was made omitting the results for 2 discrepant children whose high sameness scores accompanied by negative E-2 scores were almost certainly associated with conditions other than autism.<sup>6</sup>

### *The Total Sample*

The behaviors most commonly found in the entire group are listed in Table 2. All except three children engaged in stereotyped motor movements such as head-banging and rocking. While most of the other five listed behaviors were common to the whole group; with the exception of items 13 and 14 they were more common in autistic than in non-autistic children.

### *Item Analysis*

Biserial correlation coefficients were calculated between the E-2 score and every item on the Sameness Questionnaire. For this analysis sameness

<sup>5</sup>One point is scored for each symptom characteristic of autism and a minus point for an answer which is not characteristic of autism. The total score is calculated by subtracting the number of non-autistic responses from the number of autistic responses. Rimland's Check List uses 20 as a cut-off point. A child scoring 20 and above is designated as an "A" or autistic child, while one scoring below 20 is designated as a "Non-A" or non-autistic child (Rimland 1968, 1971).

<sup>6</sup>Behaviorally, one presents as an obsessive compulsive child, while the other is probably a case of development aphasia with accompanying psychotic behavior. He did not show the "aleness" which is associated with autism and frequently made strenuous efforts to communicate. Psychotic behavior appeared to be a reaction to the frustration of being unable to communicate.



Table 2  
Most Frequent and Most Discriminating Behavior in 32 Subjects

Item*	Brief description	Frequency and proportion of responses		
		Total	Autistic	Non-autistic
Most frequent items				
13	Motor stereotypies, e.g., rocking	29	.70	1.00
6	Objection to interruption	22	1.00	.55
3	Insist on same foods	20	.90	.50
14	Manipulating string, wire, etc.	20	.50	.68
12	Manipulating lights, faucets, etc.	20	.80	.55
5	Resistance to new learning	19	1.00	.41
Most discriminating items				
1	Furniture etc. in same place	18	1.00	.36
2	Creating and maintaining patterns	14	.80	.27
3	Objection to interruption	22	1.00	.55
4	Rituals in eating, dressing, etc.	13	.60	.32
5	Object attachment	18	.80	.45
6	Lining objects in rows	15	.70	.36
7	Insist on same clothes	11	.20	.41
8	Manipulating lights, faucets, etc.	20	.80	.55

\*Item numbers identify questions listed on pp. 159-160.

scores of 1 and 0 were treated as equivalent so that scores were either 2 or 0. These results are shown in Table 3.<sup>7</sup>

Ten items out of 28 correlated with the E-2 score at a significance level of .05 or better. A further analysis was carried out on eight of these items with the remainder excluded.<sup>8</sup>

<sup>7</sup>The use of biserial correlation coefficients may be criticized on the grounds that this technique is not the strongest possible one for analysis of this type of data. However, by providing a measure of discriminatory power of particular items it was adequate for the information which we required. Although some information was lost in combining the scores of 1 and 0, the 1 was scored infrequently. Moreover, this combination meant that only extreme forms of the behavior were scored in this analysis.

<sup>8</sup>Item 11 was excluded because only 7 children showed this behavior. Item 19 was excluded in spite of its significant correlation because of the possibility of obtaining some chance correlations in a large number of items.

Table 3  
Item Analysis

Item*	Number scoring	$r_{b1}^{**}$	Level of significance†	% of A scoring	% of NA scoring	Item*	Number scoring	$r_{b1}^{**}$	Level of significance†	% of A scoring	% of NA scoring
1	18	.89	.001	100	36.4	13	29	.45	NS	70	100
2	14	.99	.001	80	27.3	14	20	.03	NS	50	68
3	20	.43	NS	90	50	15	18	.04	NS	50	59
4	18	.38	NS	80	45.4	16	11	-.71	.01	20	40.9
5	19	.30	NS	100	40.9	17	10	-.28	NS	40	27.3
6	22	.59	.01	100	54.5	18	14	.13	NS	40	45.4
7	13	.87	.001	60	31.8	19	11	.53	.05	10	45.4
8	18	.58	.01	80	45.4	20	11	.46	NS	60	22.7
9	15	.85	.001	70	36.4	21	9	.26	NS	40	22.7
10	12	.26	NS	30	40.9	22	8	.42	NS	40	18.1
11	7	1.1	.001	40	13.6	23	7	.30	NS	30	18.1
12	20	.56	.01	80	54.5	28	10	.46	NS	50	22.7

Note.—A = Autistic; NA = Non-autistic; \*Item numbers identify questions listed on pp. 159-160 (questions 24, 25, 26, and 27 are omitted because responses were too few in number to be included in the analysis); \*\*Biserial correlation coefficient; † Significance level was computed by converting the biserial correlation coefficient to a point biserial coefficient which is then tested with a *t* test (Ferguson, 1959).

Mean Sameness scores on these eight items, as calculated for all subjects, were:

“Autistic” = 11 ( $N = 10$ )  
 “Doubtful” = 8.5 ( $N = 4$ )  
 “Non-autistic” = 4.1 ( $N = 18$ )

The difference between means of autistic, and doubtful *plus* non-autistic groups, was significant at the .001 level ( $t = 5.5$ ;  $df = 30$ ).<sup>9</sup>

Some frequently reported behaviors which did not discriminate between the two groups of children are given in Table 4.

Table 4  
 Frequently Reported Non-Discriminating Behaviors

Item	Brief description	Frequency and proportion of responses		
		Total	Autistic	Non-autistic
13	Motor stereotypies, e.g., rocking	29	.70	1.00
14	Manipulating string, wire, etc.	20	.50	.68
5	Resistance to new learning	19	1.00	.41
15	Insists on same route	18	.50	.59

## DISCUSSION

### *Sameness as a Symptom*

The correlation between scores on the Sameness Scale and on Rimland's E-2 confirms the importance of the symptom in Kanner's Syndrome. This is evident at least with respect to diagnoses formulated on the basis of the E-2 Check List. All children with an E-2 score of 20 *plus* also scored above 20 on the Sameness Scale. Four children with scores just below the E-2 cut-off point had high sameness scores. This could indicate that they should have been included in the group diagnosed as autistic by the E-2, on the basis of their marked sameness behavior. It is clear that an extreme desire for sameness is part of the behavior

<sup>9</sup>These eight items which appeared to discriminate autistic from non-autistic children may be seen in the lower part of Table 2.

pattern of every autistic child in this sample. However the finding that two children, clearly non-autistic (scores of *minus* 13 and *minus* 17 on the E-2), were among the eight top scorers on the Sameness Scale suggests that extremes of this symptom will be found in disturbed children with other diagnoses.

### *Types of Sameness Behavior in the Autistic Group*

In general the level of sameness behavior in the autistic group was higher than in the non-autistic. Further, such items as creating and maintaining patterns, lining things up in rows, insisting that furniture and other objects remain in the same place, and rituals in going to bed, dressing or eating, which discriminate between the autistic and non-autistic groups, were at a higher developmental level than some of the other behaviors found frequently among the total sample. These behaviors have in common a concern for maintaining a pattern or an order in the environment. While this could indicate abnormalities in perception in autistic children, it seems more likely that such type of obsessive behavior is related to the actual or potential level of cognitive development in the child. Ability to perceive and create a pattern implies some level of cognitive organization. Support for this hypothesis is found in the fact that of the 13 children with the highest sameness scores, 11 attended either normal or special schools. Nine of the 10 speaking children had high sameness scores, and of these, 7 were in the autistic group.

There appears to be an association in our sample between ability to attend school, level of speech development and the type of sameness behavior. Wolff and Chess (1964) found more complex obsessional behavior among the less handicapped children in their sample of 14 psychotic children, while Rutter (1966) detected in such children a close relationship between speech and cognitive development.

In view of the reports of Kanner (1973), Wolff and Chess (1964), and also Rimland (1964) on the speech patterns reflecting the desire for sameness in autistic children, it was surprising to find very little of such behavior in our sample. Three speech items were included in the questionnaire relating to verbal rituals, echolalia, and perseveration.<sup>10</sup> Since more than two-thirds of the children were mute there was insufficient data on echolalia for further interpretation. Responses to the other two items on speech (26 and 27) were so rare that they could not be included in the item analysis. Only four children scored on these two items. Two of these were autistic children with high sameness scores.

<sup>10</sup> Responses to the question dealing with echolalia (item 28) are given in Table 3.

*Sameness Behavior in the Total Sample*

As expected, motor stereotypy (head-banging, body-rocking, hand-flicking, etc.) was the most common behavior in our sample. This symptom is common not only to psychotic but also to retarded and brain-damaged children, appearing to be a general symptom of disturbance. It is obvious that this type of behavior should not be regarded as a feature of autism because it has no discriminatory value. In fact, the only children who did not score on this item were three in the autistic group. It may be argued that stereotypies should not be included in a list of behaviors in view of the generality of this symptom, but their inclusion may be justified on the grounds that they serve to maintain a fixed level of sensory input, thus maintaining sameness in the environment. It seems very likely that the underlying cause of stereotyped motor behavior is different from that of other sameness behavior. The same comments could perhaps be applied to behaviors such as repetitive manipulation of faucets, light switches, pieces of string and wire, etc.

No age trends in sameness behavior were analyzed. Such analysis may prove a fruitful area for further investigation, with obvious diagnostic implications in view of Rimland's (1968) and Wing's (1972) comments on changes in behavior with age.

Our study indicates that a certain amount of repetitive and obsessive behavior is present in most psychotic children. However, while autistic children share with disturbed and retarded children some forms of stereotyped behavior, they show other behaviors directed towards the maintenance of sameness which are specific to autism. This behavior varies in type and intensity from that found in non-autistic children and may be indicative of a higher developmental level. However, conclusions from this study must be considered tentative until cross-validation of our questionnaire has been carried out with other samples of psychotic children.

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