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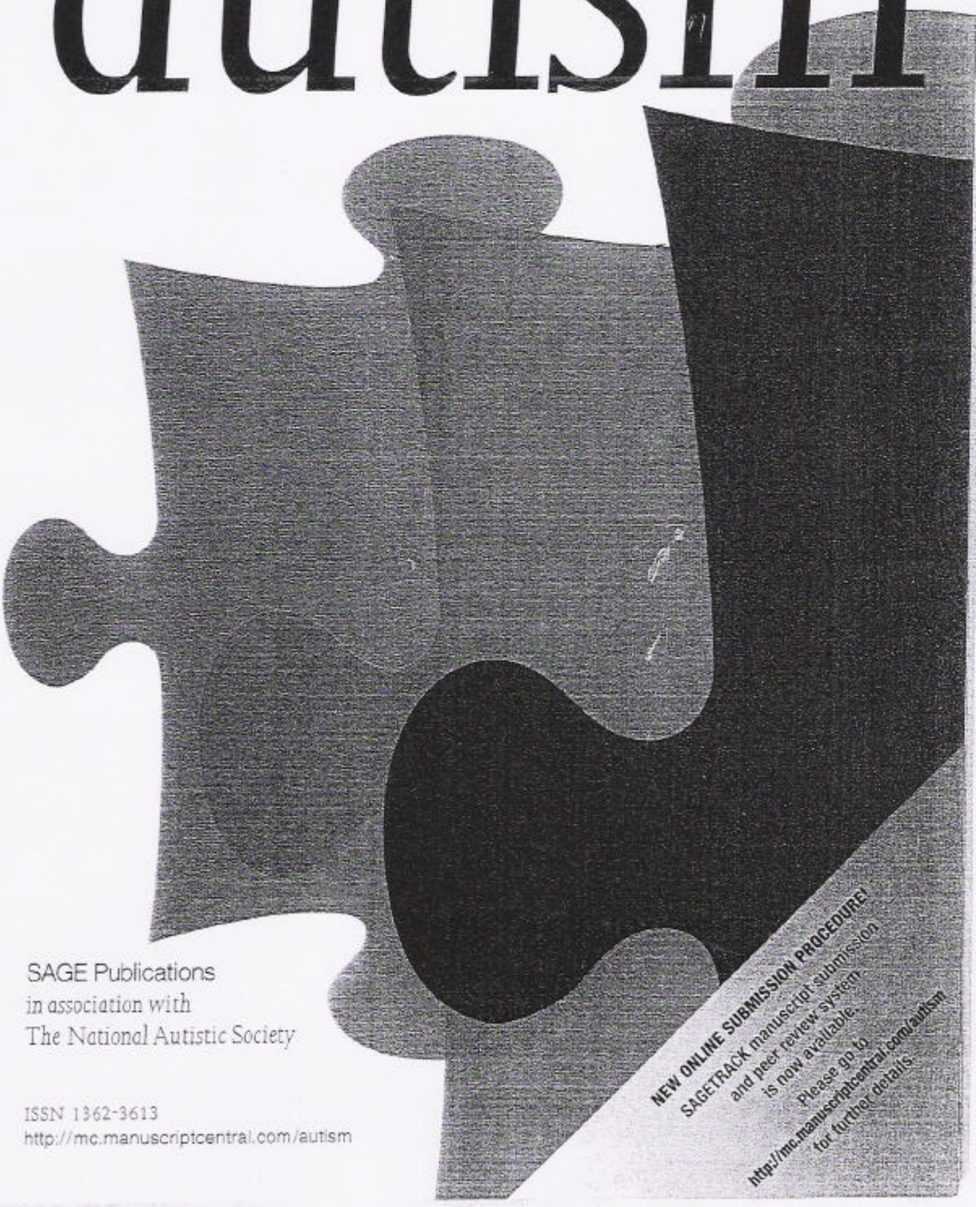

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Retrospective evaluation of an intensive method of treatment for children with pervasive developmental disorder

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ABSTRACT The objective of this preliminary study was to evaluate a novel intensive therapy program in young children with pervasive developmental disorder (PDD). Twenty-three children treated at the Mifne Institute in Israel between 1997 and 1999 were assessed. Videos taken before coming to Mifne and after intensive treatment at the institute and before and after another 6 months of continued treatment at children's homes were coded and blind rated by trained personnel using the Childhood Autism Rating Scale (CARS) and the Social Behavior Rating Scale (SBRS). Total scores on both scales improved significantly after 3 weeks and after 6 months. There were some significant improvements at item level although the magnitude of the changes was modest. Despite the small number of participants, the modest increase in test scores, and the retrospective study design, these preliminary results are promising. There is a case for performing a full prospective, comparative investigation of this treatment approach.

KEYWORDS *childhood autism; Mifne approach; PDD; pervasive development disorder*

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Introduction

The goals of treatment for children with pervasive developmental disorder (PDD) are to reduce the behavioral symptoms with appropriate treatment interventions (National Research Council, 2001) and to foster communicative and cognitive skills. Thus it is imperative that new and innovative

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therapies be tried and tested (Howlin, 1997; 2000; Rogers, 1998; Rutter, 1996; Smith et al., 1997).

The Mifne treatment model

The aim of the present study was to assess the Mifne approach to autism/PDD, a novel treatment model developed in 1987 in Israel by Hanna Alonim, a family therapist. The approach is based on Bowlby's (1969) attachment theory and incorporates psychodynamic concepts introduced by Tustin (1981) and the systemic approach to family therapy of Minuchin (1974).

The Mifne treatment model (Alonim et al., 2002) is a sequential family program for children under the age of 5 who have been referred with a diagnosis of PDD/ASD (autistic spectrum disorder).

Mifne has been compared to the Option treatment (Kaufman, 1981) and Floor Time therapy (Greenspan, 1998) since all three approaches are based on a relational orientation rather than behavior modification techniques, and all use highly individualized therapy. However, the Mifne model consists of elements that collectively make it radically different from other methods of treatment. The distinguishing features of the Mifne model are

1 Treatment is intensive: initially the family must suspend their routine activities and come to the Mifne treatment centre, a new environment where they become immersed in treatment.
2 The entire nuclear family is an integral partner in the treatment process.
3 Therapy is provided in parallel and separately for family members (parents and siblings).
4 It is a sequential program, starting with a 3 week residential segment followed by an intensive period of home care, and later support for the gradual nursery integration process that can continue for several years.
5 Reciprocal play therapy (RPT) developed at Mifne is used to engage the child.
6 Therapists are recruited from the ranks of occupational therapists, physiotherapists, psychologists, social workers and speech therapists. They undergo a 1 and a half year training course and receive accreditation from a local university.

The intervention

This is an early intervention program for children under the age of 5. On the assumption that learning, development and performance are largely dependent on human contact (Winnicott, 1960), the therapist seeks to awaken in the child (referred to from now on as 'him') a desire to become engaged through their developing relationship. During the first few days in the treatment room the child is given freedom to help him adjust to his

new environment. The child is accepted by the therapist, who needs to be sensitive to every nuance of his or her behavior in order to assess how to build a relationship with the child.

The program begins with a 3 week residential segment at the Center for the nuclear family. The individual sessions with the child, the RPT (see below), last for 8 to 10 hours daily, including weekends.

While the child is in the treatment room, parents and siblings attend sessions with therapists for individual, couple, and family therapy. The first 3 days of the residential segment are devoted to observation.

During this time the staff assess the child's needs and his behavior patterns, how family members perceive him, what behaviors the child uses to gain attention, and what his preferences are in terms of objects, people, and food.

Reciprocal play therapy (RPT)

RPT as developed at the Center is essentially designed to help the child discover the pleasures of human contact and communication. The goal of RPT is to engage the child by easing him into the experience of social interaction as a source of pleasure. When therapy begins, reciprocal interactions are determined principally by the child, and the therapist merely responds to his presence. After a few days the therapist will take the lead, focusing on the child's preferences. The first apparent improvement during the first treatment segment is eye contact: as the child begins to show preferences for specific objects that have been placed out of his reach, he will seek the therapist's attention to obtain them. Gradually, the therapist reduces the distance between them, and the child might allow physical contact. During this stage most children are led to sit at the table in the treatment room for some activities, and to eat their meals with the therapist. Many children begin using single syllable words during this stage. The therapist creates situations that motivate the child to attempt to obtain what he wants. This approach prompts the child to use language spontaneously instead of being taught words through repetitive trials. The developing relationships are defined by the extent of eye contact, play sharing, the child's readiness to enjoy a massage, whether he allows the therapist to cuddle him, and whether he shows pleasure when touched. A detailed structured evaluation form is completed after each session to assess the child's progress (for details see Alonim, 2004).

The three stages of RPT proceed from tempted play (TP) to sensory play (SP) to cognitive play (CP). It is a cumulative process that is enhanced by and incorporates the elements of the previous stages.

Focal goals of RPT

Tempted play (TP) The treatment room is sparingly equipped. The therapist tempts the child with specific objects such as wheels, bubbles, or rods that emerged during the first 3 days of observation as his favorite type of material. This ensures that the child is attracted to the object offered and is motivated to approach the therapist. He begins to pay attention to the therapist, who may offer him another favored item. Within a day or two he will look at the therapist who can be counted on to give him objects he wants.

Sensory play (SP) This stage focuses on tactile sensations using finger paints, oils and creams, and physical contact including touch, hugs, and eventually massage. Emotional expression is amplified and the child will show his joy, disappointment, and irritation. Exchanges of smiles indicate the child's engagement as he shares activities with the therapist.

Cognitive play (CP) This stage focuses on the development of basic skills, introducing memory games, building blocks, etc. involving some degree of reciprocity. Taking turns reflects the child's awareness of the shared activity with the therapist. His awareness of the environment and acceptance of social rules encourages the use of speech to express his intentions and preferences.

Additional sessions of hydrotherapy and/or Hippotherapy and sessions in the playground may be included for children who display coordination difficulties or other motor problems.

Simultaneous therapy for family members

A critical component of this model is the simultaneous treatment of family members. One important aim of therapy is to help them understand how their child's behavior has affected them and the family's interactions. Parents view treatment sessions through a one-way screen. They also work with the child and receive feedback. This short term therapy aims to give the family the opportunity to reflect upon themselves and their child, to get a better understanding of their needs and to be able to create a supportive and encouraging environment. The therapy promotes parents' understanding of their child's special needs, and they are helped to become skilled observers of their child's behaviour and to begin to understand the dynamics of their own communications. The therapist attempts to increase the awareness of their expectations, how these are conveyed to their other children, the extent that they are engaged with their special child, and how their coping style affects the family. In the family sensations the therapist acts as a 'participant observer' (Minuchin, 1974)

Home treatment

The 3 week intervention at the Mifne Center is followed by home treatment that can range from 6 to 18 months, depending upon the child's progress. Based on the intensive training in the Center, parents and trained therapists continue working with the child at home. The family sends videos of the child every 6 weeks to be assessed at the Center, and receives feedback about how to proceed. A therapist visits the family periodically. As home treatment is reduced, full time in a mainstream nursery school is phased in for children who show cognitive potential (Alonim et al., 2002).

First empirical study of effectiveness

As yet there is no controlled study to demonstrate the effectiveness of the Mifne approach to PDD. The current investigation was undertaken to explore the system's therapeutic effects using a retrospective analysis of child data available at the Mifne Center.

Methods

Population

The study sample included the 23 children with PDD (15 males and eight females) treated at the Mifne Institute in Israel between 1997 and 1999 for whom full documentation was available. The mean age was 42.8 ± 11.4 months (range 38–49 months). The diagnosis was made at a university-affiliated institution, on the basis of DSM-IV. Diagnoses were made by consultant child and adolescent psychiatrists, based on open non-structured interviews with children and their parents and psychiatric examination of the children. Two of the senior clinicians on the study team (IF and AA) reviewed the charts so as to confirm the diagnoses. Fourteen children met the criteria for autistic disorder and nine for PDD not otherwise specified (PDD-NOS). Two children were also diagnosed with comorbid intellectual impairment and one with specific developmental language disorder. All parents gave signed informed consent for their children's participation in the program.

All families were intact two-parent families. The mean maternal and paternal ages were 34 ± 5.0 and 36.3 ± 5.6 years respectively. The mean number of children per family was 2.3 ± 0.08.

Instruments

To assess the effectiveness of the program we used the extensive video material available at the Mifne Institute. Two specific assessment instruments were used, both of which have been used in previous autism research, are relatively easy and cheap to use and are sensitive to change:

- The *Childhood Autism Rating Scale* (CARS: Schopler et al., 1980) is a quantitative measure of direct behavior observation. It consists of 15 scales of which 14 cover various aspects of interactive behavior – communication, body use, the child's response to stimuli, and activity level; the last scale is a general impression of the degree of autism in the child. All scales are rated from 1 (normal) to 4 (severely abnormal and/or inappropriate). Total scores above 27 are considered abnormal; severely affected individuals with PDD have scores in the region of 35 or more.
- The *Social Behavior Rating Scale* (SBRS: Feinstein and Walters, 1982) is a quantitative measure of children's social interactive behavior as observed during a 30–45 minute period of play and talk. The scale contains 19 items, four of which rate deviant behavior other than social interaction. The final item is a summary rating of overall sociability. Each item is rated from 1 to 4, according to the frequency with which the specific behavior occurs.

Assessment

A naturalistic design was used. All assessments were made by trained raters blinded to the temporal sequence of the tapes. The taped sessions were unstructured, but all were conducted at the same time of day following the morning meal. Four coded tapes were reviewed for each child as follows:

1 A 30 minute videotape made by the parents in their home a few weeks before treatment at the Mifne Center commenced.
2 A 30 minute videotape made at the Mifne Institute on the third day of treatment (baseline). (The first 2 days of treatment at Mifne are spent helping the child adjust to the situation.)
3 A 30 minute videotape made at the Mifne Institute on the 21st day of treatment.
4 A 30 minute videotape made by the parents in their home 6 months after completion of the residential program.

A senior child and adolescent psychiatrist (IF) trained raters to reach high reliability on both assessment scales before starting the study. Thereafter inter-rater reliability of the procedures was tested among four raters. High inter-rater reliability was eventually achieved on a sample of 11 cases whose data were not included in the present study. For almost all items, the intra-class correlation coefficient (ICC) was > 0.8, and for the total scores on the CARS and the SBRS, > 0.9. Only CARS items 6 (adaptation to change, ICC = 0.5) and 14 (level and stability of intellectual function, ICC = 0.6) were found to be unreliable and were excluded from the present analysis. Two of the trained raters were used to rate all the items during the study.

Data analysis

Because the tapes made at home differed in quality and setting from those recorded at the Mifne Institute we compared the pre- and post-treatment home videos with each other and the pre- and post-treatment videos recorded at Mifne with each other using the paired sample testing technique. To compensate for multiple statistical tests $p < 0.01$ was considered an appropriate estimate of statistical significance. However, as this was very much an exploratory study, significance levels of $p < 0.05$ are also reported below.

Results

Mean (SD) baseline scores of individual CARS items ranged from 1.3 (0.5) to 3.5 (0.8) points in the assessments of videotapes taken at children's homes, indicating very different levels of behavioral disturbance. Baseline scores originating from assessments of videotapes taken at the Mifne Center showed a very similar pattern to those taken at children's homes, although the total baseline CARS scores assessed from the Mifne tapes were somewhat higher.

Total CARS scores improved from a pre-treatment mean (SD) of 27.7 (6.1) to a post-treatment mean of 24.5 (5.3) on the home video assessments. This difference was not statistically significant. On the Mifne-based videos the change was from 29.6 (7.1) to 26.8 (6.0), which did reach statistical significance (Table 1). There was a shift from 'severe' to 'mild' PDD in some children, but the shift was more notable in the home videos (six children) than in the Mifne videos where only two children show this change (Table 2).

Improvement (i.e. decreased scores) was noted on most CARS items on both home and Mifne videos, although this difference was marginally significant for only three items – emotional response, fearful and nervous

Table 1 **Comparison of Childhood Autism Rating Scale (CARS) and Social Behavior Rating Scale (SBRS) scores before and after treatment (paired sample test)**

Total scores	*Before treatment Mean ± SD*	*After treatment Mean ± SD*
CARS (home)	27.7 ± 6.1	24.5 ± 5.3
CARS (Mifne)	29.7 ± 7.1	26.7 ± 6.0*
SBRS (home)	46.0 ± 8.1	41.2 ± 7.6*
SBRS (Mifne)	48.5 ± 7.9	44.0 ± 1.4*

*$p < 0.01$.

Table 2 **Distribution of CARS scores before and after treatment: home and Mifne based assessments**

CARS total	*Home before*	*Home after*	*Mifne before*	*Mifne after*
< 20	4	6	2	4
21–26	7	11	6	6
27–35	10	5	10	11
> 36	2	1	5	2

response and overall impression. (Pre-treatment versus post-treatment means were as follows. At home: emotional response 2.0 ± 0.8 v. 1.8 ± 0.8; fearful and nervous response 1.8 ± 0.0 v. 1.0 ± 0.0; overall impression 2.9 ± 0.7 v. 2.5 ± 0.8; all $p < 0.05$. At Mifne: emotional response 2.4 ± 0.7 v. 2.0 ± 0.4; fearful and nervous response 1.6 ± 0.9 v. 1.1 ± 0.3; overall impression 2.7 ± 0.7 v. 1.7 ± 0.5; all $p < 0.05$.)

As was the case for the CARS scores, individual mean SBRS scores at baseline showed a wide range but high consistency between the assessments of videos taken at children's homes and those taken at the Mifne Center. Total scores on the SBRS improved significantly from a pre-treatment mean of 46.0 (8.1) to a post-treatment mean of 41.2 (7.6) ($p < 0.01$) on the home video assessments, and from 48.5 (7.9) to 44.0 (1.4) ($p < 0.01$) on the Mifne video assessments (Table 1). As with the CARS, there was some shift from more severe to less severe impairment. This shift was similar in the home and Mifne videos. At an item level the difference was marginally statistically significant for only three items on the home videos (awareness of others' emotional states, mutuality and overall impression) and for five of those recorded at Mifne (awareness of others' emotional states, joint positive emotional experiences, emotional availability, reactions to social initiative, and overall impression). (Pre-treatment versus post-treatment means were as follows. At home: awareness of others' emotional states 3.3 ± 0.7 v. 2.8 ± 0.9; mutuality 3.7 ± 0.5 v. 3.1 ± 0.7; overall impression 3.0 ± 0.8 v. 2.5 ± 0.8. At Mifne: awareness of others' emotional states 3.5 ± 0.6 v. 3.0 ± 0.8; joint positive emotional experiences 3.4 ± 0.7 v. 2.8 ± 0.7; emotional availability 3.1 ± 0.9 v. 2.5 ± 0.7; reactions to social initiative 3.1 ± 0.8 v. 2.4 ± 0.7; overall impression 3.0 ± 0.9 v. 2.4 ± 0.7; all $p < 0.05$.) Overall, improvement was quantitatively more marked on the SBRS than on the CARS.

As a preliminary exploratory analysis we divided the group of participants by degree of severity according to total median CARS score (27.50) at baseline. This exploratory analysis showed that improvement was greater for children with more severe disorder (CARS score ≥ 28, $N = 14$) but not for children with less severe symptomatology (score ≤ 27, $N = 9$). The

same was found for the SRBS (Table 3). Division of the participants by diagnosis (autism v. PDD-NOS) did not show differential response, probably due to the small numbers in each subcategory.

Discussion

This study indicated that children with PDD showed some improvement in many areas measured by the CARS and SBRS after attending the Mifne program, although the difference from baseline was statistically significant for only two items on the CARS (emotional response and fearful and nervous response) and specific items on the SBRS (awareness of others' emotional states, mutuality, and overall impression on the home video assessment; and awareness of others' emotional states, joint positive emotional experiences, emotional availability, reactions to social initiative, and overall impression on the Mifne video assessment). For both scales there was a significant improvement in total scores, except on the CARS home videos. A high degree of concordance was noted between the home and Mifne tapes, although assessment of the home videos yielded lower total CARS and SBRS scores overall than the Mifne videos. This might be due to the fact that, in an unfamiliar environment, autistic-like behaviors become more pronounced, and supports our decision to analyze home and Mifne videos separately. Nonetheless, the change in scores was similar in both home and Mifne environments. The mean values after 6 months at home after the Mifne treatment were lower, although only slightly so, than

Table 3 **Improvement of participants with low CARS scores compared with those with high CARS scores before and after treatment (paired sample test)**

Instrument	*Groups assessed*	*Paired mean difference (pre–post treatment)*
Low CARS group (n = 9)		
CARS	Total home based score	–0.27 ± 3.6
	Total Mifne based score	0.25 ± 4.8
SBRS	Total home based score	1.27 ± 4.8
	Total Mifne based score	2.92 ± 8.4
High CARS group (n = 14)		
CARS	Total home based score	7.56 ± 7.8*
	Total Mifne based score	5.82 ± 6.3**
SBRS	Total home based score	9.11 ± 8.3**
	Total Mifne based score	6.27 ± 7.3*

Significance (two-tailed): *$p < 0.05$; **$p < 0.01$.
Note: data are presented on paired mean difference between baseline and post-treatment; a positive value means improvement.

the final scores at Mifne, suggesting that the immediate treatment effect was maintained after the families returned to their homes. However, progress was slower than during intensive intervention.

Some areas of behavior (use of body taste, smell, and touch response on the CARS; sensory behavior, verbal behavior, and physical interaction on the SBRS) showed no improvement; however, these were all characterized by very low baseline values, i.e. they offered little room for improvement to begin with. The wider range of items showing some improvement in the SBRS, together with the specific CARS items that showed improvement, suggest that the Mifne program is generally more effective in the areas of social behavior which are more comprehensively tapped by the SBRS than by the CARS. However, it would be premature on the basis of this small exploratory study to be overly specific as to how and in which areas the Mifne method works. Moreover, it is important to note that, although all children showed some improvement, only in the more severe cases (home-based CARS above the median of 27.5) did this improvement reach statistical significance.

PDDs are extremely serious disorders and thus any treatment that could potentially be of benefit should be investigated scientifically. The Mifne approach is a novel method recognized by the Health Ministry in Israel. It has not yet been accepted by orthodox medical practitioners as a standard method of treatment of PDD. It is costly and involves a long duration of time spent with the child.

The findings of this pilot study are too modest and too limited by methodological difficulties to form the basis for recommending this treatment, but they do indicate that the approach is worthy of further investigation, and more thoroughly grounded prospective evaluations comparing it with conventional methods of care should be undertaken.

Future studies should make use of the newer and more rigorous diagnostic methods such as the Autism Diagnostic Interview and the Autism Diagnostic Observation Scale and formally evaluate cognitive, communicative and developmental levels both before and after therapy. More objective evaluations of family burden, placement decisions and educational functioning will also have to be included. In contrast to many other treatments for autism, the Mifne approach focuses on the family system rather than the child's specific behaviors; thus measures of family functioning and generalized wellbeing and quality of life are important features. A further study should take the form of a randomized controlled trial using standard educational and behavioral interventions as the control treatments.

Limitations

This study is limited by its retrospective design and small sample size. Diagnoses were not made on the basis of structured diagnostic instruments, but rather made by clinicians and then verified by chart review (IF, AA). In addition, the follow-up period was relatively short. Finally we could not blind raters to the purpose of the study or to the treatment method used, although the tapes were coded and their time sequence was randomized and blinded; furthermore, none of the raters had any connection to Mifne. The decision to use only 30 minutes of tape was due to the fact that this was deemed to be enough to rate the children on the instruments chosen and because of constraints on raters' time. (This was a pilot study done with minimal funding.) The high inter-rater reliabilities achieved on the CARS and SBRS would appear to justify this decision.

It may be that changes in children's behavior were confounded by changes in parental behavior. Finally the lack of a control group receiving treatment as usual precludes the possibility of knowing whether any gains made were in fact due to the specific Mifne intervention or due to other non-specific factors.

References

ALONIM, H. (2004) 'The Mifne Method – Israel. Early Intervention in the Treatment of Autism/PDD: A Therapeutic Programme for the Nuclear Family and Their Child', *Journal of Child & Adolescent Mental Health* 16: 39–43.

ALONIM, H., GLICK, F., KADOSH, E., PALMONY, Y., WERNER, A. & ZOHAR, K. (2002) *Post-Treatment Social Integration of Children with Contact and Communication Disorder: The Mifne Approach*. Israel: Mifne.

BOWLBY, J. (1969) *Attachment and Loss. Volume 1: Attachment*. London: Hogarth.

FEINSTEIN, C. & WALTERS, A. (1982) 'The Social Behavior Rating Scale', paper presented at the American Academy of Child and Adolescent Psychiatry, Denver, Colorado.

GREENSPAN, S. (1998) *The Child with Special Needs: The Floor-Time Approach*. New York: Perseus.

HOWLIN, P. (1997) 'Prognosis in Autism: Do Specialist Treatments Affect Long Term Outcome?', *European Journal of Child and Adolescent Psychiatry* 6 (2): 55–72.

HOWLIN, P. (2000) 'Outcome in Adult Life for More Able Individuals with Autism or Asperger Syndrome', *Autism* 4 (1): 63–83.

KAUFMAN, B. (1981) *Son Rise*. New York: Ballantine.

MINUCHIN, S. (1974) *Families and Family Therapy*. Cambridge, MA: Harvard University Press.

NATIONAL RESEARCH COUNCIL (2001) *Educating Children with Autism*. Committee on Educational Interventions for Children with Autism. Washington, DC: National Academic Press.

ROGERS, S.J. (1998) 'Empirically Supported Comprehensive Treatments for Young Children with Autism', *Journal of Clinical Child Psychology* 27 (2): 138–45.

RUTTER, M. (1996) 'Autism Research: Prospects and Priorities', *Journal of Autism and Developmental Disorders* 26 (2): 257–75.

SCHOPLER, E., REICHLER, R.J., DEVILLIS, R.F. & DALY, K. (1980) 'Toward Objective Classification of Childhood Autism: Childhood Autism Rating Scale (CARS)', *Journal of Autism and Developmental Disorders* 10: 91–103.

SMITH, T., EIKESETH, S., KLEVSTRAND, M. & LOVAAS, O.I. (1997) 'Intensive Behavioral Treatment for Preschoolers with Severe Mental Retardation and Pervasive Developmental Disorder', *American Journal of Mental Retardation* 102 (3): 238–49.

TUSTIN, F. (1981) *Autistic States in Children*. New York: Routledge.

WINNICOTT, D. (1960) 'The Theory of Parent–Infant Relationship', *Journal of Psychoanalysis* 41: 585–95.