ANNOTATED BIBLIOGRAPHY ON THE
ABERRANT BEHAVIOR CHECKLIST (ABC)

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INTRODUCTION

The Aberrant Behavior Checklist (ABC) was originally developed for assessing treatment effects (psychopharmacological, behavioral, and other) in people with mental retardation. The ABC has 58 items that are rated on a four-point scale ranging from 0 ("not at all a problem") to 3 ("the problem is severe in degree"). The items are scored onto five subscales as follows: (I) Irritability, Agitation, Crying; (II) Lethargy, Social Withdrawal; (III) Stereotypic Behavior; (IV) Hyperactivity, Noncompliance; and (V) Inappropriate Speech. The original sample on which the ABC was developed was largely an institutional one, and the majority of the subjects were adolescents or adults, causing some commentators to state incorrectly that the ABC is solely an adult-rating instrument or that it is mostly relevant to institutional environments. This Bibliography presents much of the research with the ABC that has been done to the time of this writing. As will be noted, the ABC has been used very successfully with many samples that are solely community-based and also with many samples comprising only children and/or adolescents. Although originally developed for assessing treatment effects, the ABC has also been found to be useful for evaluating inappropriate and maladaptive behavior in its own right. At the time of this writing, the Aberrant Behavior Checklist-Community version is the primary version that is used.

At the outset, we had to make the difficult decision of whether to provide the ABC free to interested workers or whether to market it commercially. At the time that the ABC was developed, we (Michael Aman and Nirbhay Singh) resided in New Zealand. In the interests of achieving the broadest availability of the scale, we decided to market the ABC through Slosson Educational Publications. To maintain this level of availability, we ask all workers using the ABC (English version) to order copies through Slosson Educational Publications (see next page).
PART I: STUDY SUMMARIES

Listed farther below are summaries of most of the studies that have used the ABC as a substantive part of the research. To the best of the author's knowledge, this is a complete summary, although some studies may have been inadvertently missed or published since this summary was last updated. Readers are asked to bring any omissions to the author's attention.

Professionals and students wishing to use the ABC for research purposes may be able to obtain special copy privileges or may be able to collect ratings electronically without purchasing the scale from Slosson Educational Publications. To determine if this applies to you, please contact Michael Aman, Ph.D., and request a copy of the following: “GUIDELINES FOR USE OF ABBERRANT BEHAVIOR CHECKLIST (ABC).”

Finally, a number of users have scored and/or interpreted the ABC inappropriately. The most common example of this is the use of the “Total ABC score,” a practice that is strongly discouraged in the Manual for the Aberrant Behavior Checklist and in this Annotated Bibliography. The fundamental problem with such scoring is that it ignores the empirical origins of the instrument and its factor structure. Put another way, the “Total ABC score” lacks construct validity. For this and other reasons, we ask that users of the ABC contact Michael Aman before employing other systems for scoring the scale.

We hope that this Annotated Bibliography on the ABC will be helpful for researchers and clinicians! If you are aware of relevant material not contained here, we encourage you to forward
such work to Michael Aman at aman.1@osu.edu.

**Introduction Post Script:** At least two terms have been used interchangeably in this Annotated Bibliography: Mental Retardation (MR) and its socially more sensitive counterpart, Intellectual Disability (ID). The terms used in the summaries that follow are usually the terms that were used in the original papers.

**PART II: ONGOING WORK WITH THE ABC, TAKEN FROM ClinicalTrials.gov**

Some researchers may need to know about research that is underway with the ABC at the time of this update. Part II of the Annotated Bibliography on the ABC contains entries from the U.S. government from the web-site, [ClinicalTrials.gov](http://clinicaltrials.gov). To compile this listing, we entered the web-site on 04-02-2012, and we searched on the term, *Aberrant Behavior Checklist*. Some of the trials listed were designated as “Completed” and “Unknown;” these studies were not listed in PART II, because they may already be summarized in PART I of the Bibliography. Other studies were designated as “Recruiting,” “Not yet recruiting,” and “Enrolling by invitation.” These investigations were summarized in PART II.

Studies abstracted from clinicaltrials.gov were organized as follows. First, the studies were sequenced by their [ClinicalTrials.gov](http://clinicaltrials.gov) identifier (unique numeral), from lowest to highest. Second, these investigations were identified in PART II of the Index by an abbreviated version of their full titles. The identifier, truncated title, and page number appears in the PART II Index.

In Part II of this Annotated Bibliography, we present the following information: (a) Identifier, (b) Official title of the study, (c) Condition (e.g., autism, Angelman syndrome), Investigator or Study Director, and (d) Intervention (e.g., drug vs. placebo) or Study Design. From time to time, we shall repeat this search of clinicaltrials.gov. Our objective will be to
delete completed studies and to add investigations that are newly underway or in the advanced planning stages. If individual investigators would like to mail ongoing protocols to us, we would be happy to add this information to PART II of the Annotated Bibliography.

*ClinicalTrials.gov* has information on approximately 124,000 investigations with locations in at least 179 countries. However, by no means is Part II an exhaustive listing of all research that is underway with the ABC. Some countries have their own version of this registry. Furthermore, studies that do not involve a pharmacological or biological intervention may not be captured. Nevertheless, many prestigious journals now require prior registration in clinicaltrials.gov as a precondition to publishing scholarly papers. Therefore, there is a strong incentive for investigators to list their work there.

**PART III: TRANSLATIONS OF THE ABC INTO OTHER LANGUAGES**

The ABC is available in a number of foreign languages. Most of these translations (*) were conducted by the Mapi Research Institute (Lyon, France). Mapi used Forward translations followed by Backward translations for validation. In addition, Mapi conducted cultural adaptations to deal with subtle and (sometimes very significant) variations in meaning for terms that can convey different ideas if translated literally. All of these translations are available on request from Michael Aman, Ph.D. Besides English, the ABC-Community is available in the following languages (Table 1).

Table 1. Languages Into Which the ABC Has Been Translated†

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As of the June update, several foreign translations are being conducted by the MAPI Institute in Lyon, France. These appear in Part IV, at the end of this Annotated Bibliography.
STUDY SUMMARIES


This was a double blind, crossover study of placebo and two doses of methylphenidate (Ritalin) (0.30 and 0.60 mg/kg/day). The subjects were 28 residents with severe and profound mental retardation (mean IQ=12) living in a developmental center. Each drug condition lasted one week. Measures of drug change included a scale to measure instruction following, 10 direct observation categories taken in the living units, 7 direct observation categories collected at meal times, the AAMD Adaptive Behavior Scale Part II, a forerunner of the ABC completed by caregivers, and physical measures (heart rate, blood pressure, weight). Methylphenidate had few significant effects: Food consumption was significantly decreased with the high dose, and the forerunner of the Hyperactivity/Noncompliance subscale on the ABC showed significant differences between the low and high doses (favoring the low dose). Subjects were stratified by amount of stereotypy exhibited during direct observation periods. Several direct observation categories reflected significantly worse behavior as degree of stereotypic behavior increased. On the ABC, the Lethargy/Social Withdrawal subscale was scored significantly higher for the subjects who engaged in higher rates of stereotypic behavior ($p<.001$). Reduced food consumption and the forerunner of the ABC Hyperactivity/Noncompliance subscale were the only variables to show a drug effect in this very severely handicapped sample of residents.

This was a double blind, placebo controlled, crossover study of chlorpromazine in six institutionalized residents, four of whom were selected for body rocking and two for other acting-out problems. Drug effects were monitored by means of direct observations of behavior, ratings on the Aberrant Behavior Checklist (ABC), performance on an operant conditioning task, and body rocking measured with a mechanical seat. Chlorpromazine caused marked sedation for most subjects and hence a loss of blindness on the part of many raters. Direct observations indicated that body rocking decreased by 36%, but seven other categories were unaffected by the drug. No significant changes were seen on the ABC. Operant conditioning performance deteriorated significantly with chlorpromazine. Body rocking in the laboratory (measured with mechanical seat) bore no relationship to body rocking in the residential setting.


This paper described the development of the Aberrant Behavior Checklist (ABC) for assessing treatment effects (psychopharmacological, behavioral, and others) in people with mental retardation. Scale items were generated by inspecting case records of residents within an institution and by referring to popular rating scales in the fields of mental retardation and child psychopathology. An initial version of the scale was used to rate 418 subjects, followed by a cross-validation in which an intermediate version of the scale was employed to rate a further 509 subjects with mental retardation. Factor analysis, using a principal factoring method and varimax rotation followed by the promax method, resulted in a five-factor instrument comprising 58 items. The five-factor solutions accounted for 71% and 76% of common variance, respectively, in stages 1 and 2. Subscale scores and standard deviation values were presented by
age and gender group.


Various subgroups were selected from the original sample used to develop the ABC in order to look at its psychometric characteristics. Coefficient alpha was found to range from .86 to .94 across subscales (median=.91). Interrater reliability was found to be moderate overall (mean of .63) but variable across subscales and raters. Test-retest reliability was extremely high (but see Aman, Singh, & Turbott, 1987, below). Criterion group validity was demonstrated for presence or not of Down Syndrome and attendance at a training facility. Convergent validity was established with respect to several adaptive behavior scales and divergent validity was shown relative to IQ. ABC subscales were significantly correlated with analogous scores derived by direct observation of behavior. It was concluded that the psychometric characteristics of the ABC vary and that they range from satisfactory to very good.


This article presents a brief history and description of the ABC. Instructions, behavioral items, and score sheet are presented.

**PLEASE NOTE.** Unlike most material presented in *Psychopharmacology Bulletin*, the ABC is NOT in the public domain. Page 715 of volume 21 provides this caveat.

This was a double blind, placebo controlled, crossover study of pimozide (Orap) in eight residents with severe mental retardation, selected for serious acting-out behavior problems. Each subject received 6 mg of pimozide per day (0.09 to 0.18 mg/kg/day); placebo and active drug were given for four weeks each. Dependent measures included five direct observation categories (gathered for 150 minutes/week), care provider ratings on the ABC, and accuracy on Harlow's "learning-to-learn" discrimination learning task. Analysis of covariance failed to show changes on the direct observation variables or on accuracy of discrimination learning. However, ratings on the Irritability and Lethargy/Social withdrawal subscales of the ABC were significantly improved with pimozide.


This was a double blind, placebo controlled, crossover study of imipramine (3 mg/kg/day) in profoundly retarded subjects, half of whom were selected for depressive symptoms and half for acting-out problems (hyperactivity, aggression, etc.). Measures of drug change included ratings on the ABC, direct observations of behavior in the residential units, observations of behavior in playroom sessions, and cardiovascular measures. Significant deterioration occurred with imipramine on the following ABC subscales, irrespective of subgroup (depressed or acting-out): Irritability, Lethargy/Social Withdrawal, and Hyperactivity. One of seven observational categories in the living units, amount of gross motor movement, also increased significantly with drug. In the playroom, there was a significant interaction for number of grid crossings, with depressed subjects becoming less active and acting-out subjects more active on drug. Imipramine also caused a significant increase in resting heart rate. These results suggested adverse effects of imipramine in the subjects studied, but the authors emphasized the serious
problems of diagnosing depression with confidence in this population.


A double blind reversal design was used to compare imipramine (100 mg; 2.4 mg/kg/day) with placebo over alternating treatment periods. The subject was a woman with moderate mental retardation and symptoms of chronic crying, weight loss, irregular sleep, and psycho-motor agitation, which were thought to be consistent with a diagnosis of depression. Measures of treatment outcome included direct observations of behavior in the living unit, number of hours of sleep, amount of food consumption, number of screaming outbursts, ratings on the ABC, and IQ performance. Imipramine was associated with marked decreases in crying, increased movement in the residential unit, increased food consumption, and reduced screaming outbursts. Ratings on the ABC declined markedly from pre-treatment baseline to all subsequent phases, but there were minimal changes between imipramine and placebo except for very small decreases on the Irritability subscale with imipramine. IQ performance showed no drug effects. The authors concluded that further studies of antidepressants are needed in clients with mental retardation.


Samples of 531 and 937 subjects were compared from United States and New Zealand institutions, respectively. When factor analyzed, the U.S. data produced a factor structure very similar to that found in the original study (Aman, Singh, Stewart, & Field, 1985). Eighty-six
percent of items loaded on the same respective factors, and a median coefficient of congruence of .94 was obtained. Data were analyzed for the effects of gender, age, country, and level of mental retardation and also for the effects of medical conditions (deafness, epilepsy, and cerebral palsy). Age, country, and level of mental retardation affected subscale scores, whereas gender did not. Subscale scores were influenced by epilepsy (higher scores, on average) and cerebral palsy (lower scores) but not deafness. Subscale scores were also related to psychoactive drugs taken by subjects.


Groups of three nurses in each of three residential units rated 28 subjects each with the ABC. Nurses in the first unit used the standard problem-based instructions to rate each item ("not a problem" through "problem is severe in degree"). Nurses in the second unit employed frequency-based instructions (judging behavior relative to other residents on the unit) and nurses in the third unit used time-based instructions (behavior occurs never, weekly, daily, hourly, etc.) All ratings were repeated after four weeks. Because the frequency-based instructions initially appeared to be superior, this procedure was repeated in a fourth unit, again with three nurse raters and 28 subjects. Averaging across raters, median reliability levels (Pearson coefficients) were found to be as follows over subscales: (a) problem-based instructions, .41 to .67 (mean=.58), (b) frequency-based instructions, .40 to .96 (mean=.70), (c) time-based instructions, .28 to .79 (mean=.50), and (d) frequency-based (repeated in the fourth unit), .21 to .78 (mean=.55). Median test-retest reliabilities were as follows: (a) problem-based, .55 to .83 (mean=.72), (b) frequency-based, .75 to .97 (mean=.86), (c) time-based, .62 to .86 (mean=.71),
and frequency-based (repeated, fourth unit), .63 to .89 (mean= .79). The authors observed that extremely high test-retest reliabilities reported in an earlier publication (Aman, Singh, Stewart, & Field, 1985) must be discounted in favor of these more conservative values. It was noted that the reliabilities found here were quite similar to those typically reported for popular rating scales in clinical child psychology.


Eleven institutionalized residents receiving chronic thioridazine therapy were assessed under their previous dosage, low and moderate standardized doses of thioridazine (1.25 and 2.50 mg/kg/day, respectively), and placebo. The comparison of the standardized doses comprised a controlled double blind crossover trial, whereas the comparison involving previous dose and placebo conditions (which were given first and last, respectively) comprised a quasi-controlled study. Measures of drug change included the ABC, the Fairview Problem Behavior Checklist (stereotypy and self-injury sections), direct observations of behavior, and cardiovascular measures. In the dosage comparison, ABC Hyperactivity subscale scores were significantly reduced, whereas Lethargy/Social Withdrawal scores were marginally increased ($p<.10$) with the higher dose. Ratings of self-injury on the Fairview Problem Behavior Checklist also decreased significantly with the higher dose. When all four conditions were compared, no significant changes were found. Subjects were sorted by a median split into low and high stereotypy groups, and the data were analyzed as a function of level of stereotypy and drug. High-stereotypy subjects responded better to medication than low-stereotypy ones on the following measures: ABC Lethargy/Social Withdrawal subscale ($p<.05$), ABC Hyperactivity subscale
p<.01), Fairview Problem Behavior Checklist score (p<.06), and direct observations of Inappropriate Behavior (p<.08). The authors suggested that a high level of stereotypic behavior may be useful for predicting a positive clinical response to neuroleptic drugs in clients with behavior problems.


Two-hundred and nine residents (45% of whom were nonambulatory) of two institutions were rated on the ABC by direct care staff. Two factor analyses were conducted, one using the original four-point scoring method and one using a dichotomous method (i.e., items were scored as "not a problem" or present). The analyses used a principal factoring method followed by varimax rotation and promax rotation. In the first analysis (using four-point ratings), 78% of items loaded on the same respective factors as indicated in the original report of the ABC (Aman, Singh, Stewart, & Field, 1985). Using the original subscale assignment of items, coefficient alpha ranged from .84 to .92 (median=.90), and median item-whole correlations ranged from .56 to .66 across subscales. In the second analysis, employing dichotomous data, 81% of items loaded most heavily on the same respective factors as in the original analysis of the ABC (Aman et al., 1985). Coefficients of congruence were not reported for either analysis. Using original subscale assignments, coefficient alpha ranged from .83 to .88 across subscales (median=.87), and median item-whole correlations ranged from .52 to .64 across subscales. The authors concluded that the study confirmed the original factor structure of the ABC, and they suggested that dichotomous ratings may boost reliability levels without reducing internal consistency (although the authors also noted that such a procedure may reduce sensitivity to

This was a double blind, placebo controlled, crossover study of haloperidol in institutional residents, who had previously taken chronic neuroleptic medication. Haloperidol was given in standardized doses of 0.025 and 0.05 mg/kg/day. Measures of drug change included staff ratings of behavior on the ABC and the Fairview Behavior Problem Checklist (FBPC), direct observations of behavior (6 categories), and instruction following/IQ performance with reinforcement for correct responses. Of the rating scale measures, only the Stereotypic behavior subscale on the ABC showed a main effect of drug, with less stereotypy occurring on the high dose of haloperidol. Direct observations of movement increased and inactivity decreased on the high dose. Contrary to a controversial earlier report, instruction following/IQ performance under reinforcement conditions was not impaired by drug treatment. Subjects were classified into high and low stereotypy groups according to ratings on the FBPC, and this predicted outcome on the ABC Irritability subscale, the ABC Stereotypic behavior subscale, the FBPC Stereotypy subscale, and direct observations of movement. In all cases, high baseline ratings of stereotypy were associated with a superior drug response. The authors suggested that stereotypic behavior may be a useful predictor for forecasting clinical response in individuals being considered for neuroleptic treatment for other problem behaviors.

Press.

[This article will be summarized in a future edition of this manuscript.]


This was an open study of buspirone (Buspar) in four children with autism. All subjects received a two-week drug-free baseline, followed by four weeks of buspirone treatment, followed by four weeks of methylphenidate or fenfluramine therapy. Dependent measures included the ABC, Conners’ Hyperkinesis Index, the Sensory Motor Checklist, and the Social Awareness Inventory (the latter two developed by the investigators). As assessed by the ABC and the Hyperkinesis Index, hyperactivity improved in two of three children with this target symptom. As assessed by the ABC, stereotypy decreased appreciably in another child when treated with buspirone.


This was a double-blind, placebo-controlled, crossover study of Org 2766 in 14 children with infantile autism (full syndrome present; N=12) or atypical pervasive developmental disorder (N=12). Org 2766 is a modified ACTH 4-9 analogue which is active in oral administration. Each child received 20 mg of Org 2766 per day, for four weeks, and matching placebo tablets, with drug order determined randomly. Dependent variables included direct observations of playroom behavior, clinical global ratings of response by the investigators, and ratings on the ABC completed by parents and teachers. Three of eight observational categories were found to
change with active drug: toy changes and locomotion increased, and stereotypic behavior decreased. Eight of the 12 children were rated as clinically improved by the investigators. No main effects were found on ABC ratings, but a drug order by drug interaction did appear.

Children in the drug-placebo treatment sequence showed significantly decreased scores during placebo on the Irritability, Stereotypy, Hyperactivity/Noncompliance, and Inappropriate Speech subscales. Teacher ratings were uniformly nonsignificant. The data analyses are difficult to follow in this presentation, but visual inspection of the parent ratings (Table III) suggests substantial worsening due to active drug on the Irritability, Stereotypic Behavior, Hyperactivity/Noncompliance, and Inappropriate Speech subscales.


This was a placebo controlled and mostly double blind study of methylphenidate (Ritalin) and fenfluramine (Pondimin), which extended over 22 years, in a 4-year-old boy with moderate mental retardation and Attention Deficit Disorder with hyperactivity. In three separate trials, placebo was compared with various doses of methylphenidate, and in a fourth trial, placebo was compared with 20 and 30 mg/day of fenfluramine. Teacher ratings on Conners' (1973) Abbreviated Symptom Questionnaire (CASQ) showed systematic improvements with methylphenidate in two separate trials over the first year of treatment. However, in the second year, as assessed on the CASQ, response appeared to deteriorate relative to placebo. Teacher ratings on the ABC showed a similar pattern, with the Irritability, Lethargy/Social Withdrawal, Stereotypic Behavior, and Hyperactivity subscales all showing methylphenidate improvement in the first two trials and worsening in the third. When placebo was subsequently compared with
fenfluramine, there were systematic reductions with active medication on the Hyperactivity subscale of the ABC. Overall, the CASQ and the ABC tended to show very similar patterns of change and, when both types were available, parent and teacher ratings of change on the ABC were consistent.


This was a psychometric study of the Psychopathology Instrument for Mentally Retarded Adults (PIMRA) conducted with 24 patients attending a clinic for mentally handicapped adults with psychiatric, behavioral, or medical problems. Subjects were rated on both the PIMRA and the ABC by staff members. Alpha coefficients were found to be inadequate to moderate in size (range=.04 to .60) across the eight PIMRA subscales. Numerous PIMRA and ABC subscales were correlated (range=-.38 to .73) with a median correlation of .42. The authors concluded that the data showed "only modest to adequate internal consistency" for the PIMRA, whereas there were moderate-to-strong correlations between the PIMRA and ABC. However, the investigators did not interpret these correlations in terms of whether they were logically supportive (i.e., as showing convergent validity).


Staff members rated 470 residents of an intermediate care facility for people with mental retardation. Ratings were factor analyzed using principal factoring and varimax rotation. The factor structure was essentially the same as that obtained in the original report describing the
ABC (Aman, Singh, Stewart, & Field, 1985). Much of the disagreement was confined to six
items that tended to cross over from the original Hyperactivity factor to the Irritability factor.
Coefficient alpha ranged from .84 to .93 across subscales (median=.91). The authors concluded
that the ABC is factorially sound, with factors that are both internally consistent and easily
interpretable.


One-hundred and ten outpatient subjects, most of whom were aged 3 to 18 years
inclusive, were rated on a modified version of the ABC. Ninety-four of these subjects were also
rated by their teachers. The data were factor analyzed by a principal factoring method followed
by varimax rotation and promax rotation. Because of low-squared multiple correlations or low
factor loadings, four and five items were dropped from the parent and teacher ratings,
respectively. For the parent ratings, a five-factor structure very similar to that for the original
ABC solution (Aman, Singh, Stewart, & Field, 1985) was found. The coefficients of congruence
ranged from .82 to .88 across subscales (median=.86), and 91% of the items loaded on the same
respective factors as in the original analysis. Coefficient alpha ranged from .83 to .93 across
subscales (median=.90), and one-month test-retest reliability ($r_s$) ranged from .80 to .95
(median=.88) for parent ratings. Factor analysis of the teacher ratings also produced a five-factor
solution similar to that originally reported for the ABC (Aman et al., 1985). Coefficients of
congruence ranged from .65 to .91 across subscales (median=.81), and 80% of items loaded on
the same respective factors as in the original analysis. Coefficient alpha ranged from .79 to .94
(median=.89), and 1-to-2 month test-retest reliability ($r_s$) ranged from .50 to .67 (median=.61)
across subscales for teacher ratings. Parent-teacher reliability was described as adequate ($r_s = .39$ to $.45$) for four of the subscales. The investigators concluded that "the ABC is a useful, reliable instrument for assessing maladaptive behavior in young, developmentally disabled outpatients."


[This article will be summarized in a future edition of this manuscript.]


Direct care staff rated 199 child and adolescent inpatients, having dual diagnoses, with the ABC. Subjects were rated daily by staff in each of two work shifts. Factor analysis (using a principal factoring method and varimax rotation) produced a five-factor solution very similar to the original factor solution for the ABC (Aman, Singh, Stewart, & Field, 1985). Coefficients of congruence ranged from .80 to .89 across subscales (median=.82). Coefficient alpha ranged from .82 to .94 across subscales (median=.90). Interrater reliability (for one day only) taken from double scheduling of raters produced Pearson correlation coefficients ranging from .39 to .61 across subscales (median=.49). Subjects with any of six psychiatric diagnoses were compared, and several ABC subscales were found to differentiate significantly between the groups. The authors concluded that the ABC can be recommended for rating children and adolescents with dual diagnosis.

levels of mental retardation. Unpublished doctoral dissertation, University of Southern Mississippi.

This study used the Aberrant Behavior Checklist (ABC) to assess the problem behavior of 898 subjects in two state-operated residential facilities for individuals with no retardation to profound mental retardation (MR). Eighty-two percent of the individuals, however, had severe to profound MR. ABC scores from each subject’s yearly evaluation were analyzed. Independent t-tests revealed no significant differences between the ABC subscale scores for this sample and Aman et al’s (1985) New Zealand sample or Aman et. al’s (1986) North Carolina sample. Regarding level of mental retardation, significant main effects (as determined by one-way ANOVAs) were found for Lethargy/Social Withdrawal ($p<.01$), Stereotypic Behavior ($p<.001$), Hyperactivity/Noncompliance ($p<.05$), and Inappropriate Speech ($p<.001$). Overall, subjects who were prescribed psychotropic drugs received significantly higher ABC subscale scores than did subjects who did not receive these drugs. Several other factors affected ABC subscale scores, including level of care, ethnicity, psychiatric diagnosis, physical impairment, and gender. S.A.


Four-hundred and seventy residents of an intermediate care facility were rated by staff members on the Reinforcer Responsiveness Survey (RRS) (developed by the investigators) and on the ABC. Eight classes of reinforcers were extracted from the RRS by means of a principal components factor analysis. Using the eight RRS subscales, five ABC subscales, and one aggression item and one self-injury item taken from the ABC, the data were analyzed for the effect of gender, age, and level of mental retardation. Gender and age had only modest effects
on RRS scores, whereas level of mental retardation had pervasive effects. Gender had a moderate effect on ABC scores, and age and functional level were modestly related to subscale scores. The RRS was then used successfully to predict each ABC subscale separately (as well as the aggression and self-injury items) by means of multiple stepwise regression. The authors suggested that researchers consider responsiveness to reinforcers when trying to understand psychopathology in people with mental retardation.


This was a study of ORG 2766, a neuropeptide analogue of adrenocorticotrophic hormone (4-9), in 20 children with autism. A double-blind, placebo-controlled, crossover design was used, in which the children eventually received placebo and a standard dose (40 mg/day) of ORG 2766 for eight weeks each. Parents rated the children on the ABC, Conners Abbreviated Symptom Questionnaire (CASQ), and the General Assessment Parents (GAP) Scale, a 6-item instrument designed for this study. Teachers rated 15 children on the ABC, and the experimenters rated all subjects on the Clinical Global Impressions Scale (CGI). Finally, the subjects were observed in a 20-minute playroom session which incorporated both solitary play and interactive tasks set by the experimenter. Significant drug-related improvements were observed on the Lethargy/Social Withdrawal subscale and on the ABC total score as rated by parents. No change appeared on the CASQ or the GAP Scale completed by parents. ORG 2766 resulted in significant improvement in CGI severity and global improvement ratings. Teacher ratings on the ABC failed to show main effects due to drug condition, which the authors attributed to the reduced sample size and increased variability of teacher ratings. Direct
observations of playroom behavior indicated that ORG 2766 caused significant increases in play, improved interaction between child and examiner, and improved interactive verbal behavior by the child.


This was a double-blind, placebo-controlled, crossover study of clonidine (Catapres) in eight autistic children with severe inattention, impulsivity, and hyperactivity. Dependent measures included Conners’ Abbreviated Symptom Questionnaire (CASQ) completed by parents, the ADD-H Comprehensive Teacher Rating Scale (ACTeRs) and the ABC completed by teachers, and ratings on the Brief Psychiatric Rating Scale (BPRs) filled in by the physician. As assessed by paired t-tests, parent ratings on the CASQ showed significant improvement with clonidine. Teacher ratings showed improvements on the Irritability, Hyperactivity, and Inappropriate Speech subscales of the ABC and a strong but nonsignificant trend toward improvement on the oppositional behavior subscale of the ACTeRs. Clinician ratings did not distinguish between placebo and clonidine treatments. The authors noted that the ABC was relatively more sensitive to drug effects than other scales in this group of children.


Six-hundred sixty-six children and adolescents in central and northern Ohio special classes and with IQs less than 70 were rated by their teachers on the ABC. The data were factor analyzed using a principal factoring method followed by promax rotation. A four-factor solution
was derived (accounting for 52% of the variance) that approximated the original five-factor solution of Aman, Singh, Stewart, and Field (1987). (The five-factor solution produced a "self-injury" factor, comprising items formerly from the Irritability factor, rather than the Inappropriate Speech factor.) Coefficients of congruence ranged from .87 to .96 (median=.90) across the four factors. Coefficient alpha ranged from .76 to .96 (median=.90) across subscales when the original subscale assignment was used. ABC scores were analyzed for the effect of gender, class placement, and age. Gender failed to affect scores, but type of placement influenced all five subscale scores and age influenced two. Finally, norms were presented broken down by age and gender. The authors concluded that this factor solution was sufficiently close to the original factor solution for the ABC that the original scoring method can be used with community samples of children and adolescents when rated by their teachers.


This was a double blind, placebo controlled study of fenfluramine (Pondimin) and methylphenidate (Ritalin) in 28 nonautistic children with ADHD (hyperactivity) and mental retardation. Each treatment was given for four weeks, with fenfluramine graduating to 1.5 mg/kg/day and methylphenidate provided in doses of 0.4 mg/kg given in the morning. Measures of drug change included: (a) teacher ratings of behavior on Conners' Teacher Rating Scale (TRS) and on the ABC, (b) parent ratings on the Revised Behavior Problem Checklist (RBPC), on the ABC, the Real Life Rating Scale for Autism (RLRS) (2 subscales only), and a 10-point global improvement scale, and (c) cardiovascular measures. Teacher ratings showed significant changes on three of four subscales on Conners' TRS and on two of five subscales on the ABC.
(Irritability and Hyperactivity). Parent ratings indicated significant improvements on two of five subscales on the RBPC, on three of five subscales on the ABC (Irritability, Hyperactivity, and Inappropriate Speech), on one of two subscales of the RLRS, and on the global rating scale. Teacher ratings indicated slight superiority for methylphenidate over fenfluramine, whereas parent ratings often reflected slightly greater efficacy for fenfluramine. Heart rate was increased with methylphenidate and decreased with fenfluramine; methylphenidate tended to increase blood pressure, whereas fenfluramine tended to decrease it. Low IQ subjects responded better to fenfluramine than methylphenidate. The authors concluded that fenfluramine may be a useful back-up treatment for children with mental retardation and ADHD.


This was a comparison of three groups of subjects in a developmental center: (a) a group of 12 adults having depressive symptomatology (based on DSM-III-R criteria), (b) 22 subjects without typical symptoms of depression but with aggressiveness, self-injury, or withdrawal, and (c) a control group comprising 8 residents with no significant psycho-pathology. All subjects were given 1 mg of dexamethasone at 11:00 p.m., and blood was drawn for serum cortisol the following afternoon. In addition, all subjects were rated on the ABC by a psychiatrist. Results indicated that the following proportions of each group tested positive (≥ 5 μg/ml) on the dexamethasone suppression test (DST): 8 of 12 subjects with depressive symptoms (67%), 7 of 22 subjects with behavioral symptoms (32%), and 2 of 8 controls (25%) (N.S.). A one-way analysis of variance indicated that cortisol levels were significantly higher for the depressed group (8.72 μ/ml) than either the behavior problem group (3.64 μg/ml) or the controls (4.74 μg/ml).
μg/ml). All subscales from the ABC were compared with DST results and cortisol levels, and the Irritability subscale was found to be significantly associated with both positive DSTs and cortisol level. Three individual items presumed related to depression, taken from the Irritability subscale of the ABC were significantly associated with cortisol level and positive DSTs; ABC items indicative of self-injury, aggression, and withdrawal were not related to DST variables.


Eight residents of a developmental center were selected for the presence of verbal and physical aggression. An ABAB design was used to assess the effects of Required Physiological Relaxation (RPR) on maladaptive behavior. RPR was defined as attaining finger temperature vasodilation that exceeded pretest measures for the individual in a relaxed state. Ratings on the ABC indicated a decline in target subscales during RPR treatments.


This was a study of sleeping problems in 36 children with Down syndrome, and a control group of 50 non-handicapped children matched for age and socioeconomic status. Parents rated their children for occurrence and severity of sleeping problems on a comprehensive sleep questionnaire and for daytime behavior problems on the ABC. Children in the Down syndrome group were found to have significantly more frequent sleep problems than youngsters in the control group. The most frequent sleep problems among the children with Down syndrome were: restless sleep, snoring, being afraid of the dark, frequent awakenings, teeth grinding, and
early morning waking. Children in the Down syndrome group had significantly lower scores on the ABC than reported for a normative sample (Marshburn & Aman, 1992) on all except the Inappropriate Speech subscale. Strong positive correlations were found within the Down syndrome group between the number of sleep problems and ABC subscale scores. These correlations accounted for 31% of the variance in ABC Irritability subscale scores, 14% of the variance in Stereotypic Behavior, and 27% in Hyperactivity/Noncompliance. The author concludes that sleep problems are common in children with Down syndrome and they are linked with disturbed behavior during the day.


This was a study of sleeping problems and daytime behavior problems in three groups of children aged 4 to 19 years: (a) children with Down syndrome (N=91), (b) normal siblings of the children with Down syndrome (N=54), and (c) control subjects unrelated to the children with Down syndrome (N=78). All children were rated by their parents on a detailed sleep questionnaire and on the ABC (for daytime behavior). Children in the Down syndrome group were found to have significantly higher rates of sleeping problems than the two control groups on each of the following categories: night-time waking, night-time settling, early waking, insistence on sleeping with a parent, mouth-breathing, restless sleep, sleeping with head back, apneic episodes, teeth grinding, bedwetting, day naps, excess daytime sleepiness, narcolepsy, and cataplexy. Children in the Down syndrome group were rated as having significantly worse daytime behavior than children in both control groups on all five subscales of the ABC (p< .004 to .0001). Further analyses are planned to see if (a) there are differences
with respect to children having other forms of mental retardation and (b) the number of sleep problems is related to specific problem behavior during the day as assessed on the ABC.


A group of 123 residents (aged from 10 to 82 years) was rated on the Behavior Problems Inventory (BPI). Twenty-four subjects were also rated initially on the ABC, and all subjects were rerated four weeks later on the BPI. Approximately 30 subjects were also rated by a second rater at Time 2 to assess interrater reliability. Test-retest and interrater reliability were both found to be moderate to high for the BPI. A factor analysis of the BPI rendered a 2-factor structure, with the factors designated as Self-Injury and Aggression. Internal consistency statistics ranged from mediocre to moderately high for the three preexisting subscales of the BPI (Self-Injurious Behavior, Stereotyped Behavior, and Aggression). When correlated with the ABC, the following comparisons were found to be significantly associated (BPI and ABC, respectively): (a) Self-Injury and Irritability ($r=.65$), (b) Self-Injury and Inappropriate Speech ($r=.61$), (c) Stereotypy and Stereotypic Behavior ($r=.77$), (d) Stereotypy and Hyperactivity ($r=.52$), and (e) Aggression and Hyperactivity/Noncompliance ($r=.46$). The authors concluded that concurrent validity was moderately good for the two instruments but that some correlations posed problems of interpretation.


This was a double-blind, placebo-controlled, crossover study of risperidone, an
antipsychotic drug which is also a 5-HT$_2$ receptor blocker, in 37 residents with moderate to profound mental retardation. Subjects were selected for persistent behavior problems, such as aggression, irritability, agitation, hyperactivity, self-injury, and autism. All subjects were observed for a one-week baseline followed by three weeks with active drug or placebo, followed by a week of drug wash-out, and finally followed by three weeks with the alternate drug condition. Risperidone was given in doses of 4 mg during the first week of the treatment phase followed by increases of 4 mg/week if subjects were able to tolerate this without side effects. Risperidone was added to previous pharmacotherapy which most often comprised butyrophenones, phenothiazines, and benzodiazepines. Measures of drug change included the ABC (total score only) and a Visual Analogue Scale, completed by residential nursing staff, and the Clinical Global Impressions Scale and the Extrapyramidal Symptom Rating Scale completed by the investigators. Seven subjects dropped out of the study: three because of intercurrent events (e.g., illness) and four because of adverse reactions to risperidone. The subjects received a mean dose of 8.3 mg of risperidone by the third week of treatment. Risperidone resulted in significant reductions in the ABC total score but no significant changes as measured by the Visual Analogue Scale. On the Clinical Global Impressions Scale, a significant improvement was also observed. Ratings on the Extrapyramidal Symptom Rating Scale failed to show statistically increased neurological side effects due to risperidone.


    [This article will be summarized in a future edition of this manuscript.]

This was a summary of several representative studies concerning the epidemiology and prevalence of comorbid psychopathology in individuals with intellectual disability. The difficulty in definition and diagnosis of psychopathology in this population was also discussed. The original version of the ABC is referenced in the context of a discussion regarding normative data for individuals with intellectual disability. The standardization sample for the original ABC was largely institutional. The authors contrasted this with the Reiss Screen, which had a smaller sample and was well-represented in terms of age, sex, ethnicity, and level of functioning. CAF Tags: dual-diagnosis, normative data, literature review[not a study]


This was a case report of an 11-year-old boy with PDD, mental retardation, and self-injury, overactivity, inattention, and pica. An open trial was undertaken involving baseline (no medication for 12 weeks), propranolol (tapered to 80 mg/day; 16 weeks in duration), and nalolol (tapered to 80 mg/day, 20 weeks in duration). Measures of drug effects included the CAP Scale (Edelbrock, 1986) (completed weekly by the child's teacher), the ABC (filled in every 4 weeks by the teacher), frequency counts of self injury by residential staff and teacher, and daily frequency counts of pica. CAP Scale scores on the Inattention and Overactivity subscales indicated statistically significant improvement due to nadolol over both baseline and propranolol conditions (which did not differ from one another). SIB frequency was significantly lower with nadolol than propranolol, whereas propranolol did not appear to differ from baseline. Visual analysis of ABC ratings suggested significant improvement with nadolol on (I) Irritability, (III) Stereotypic behavior, (IV) Hyperactivity/Noncompliance, and (V) Inappropriate speech, whereas
the baseline and propranolol conditions did not appear to differ. However, ratings of (II)
Lethargy/Social withdrawal appeared to increase somewhat with both active drugs.

Aberrant behaviors of young boys with fragile X syndrome. *American Journal on Mental
Retardation, 98*, 567-579.

This was a study of 55 boys with fragile X syndrome and 57 boys without fragile X
syndrome who were matched for level of intellectual functioning, age, and race. Mothers rated
all subjects on five standardized behavior rating scales: the Autism Behavior Checklist (Krug,
Arick, & Almond), Conners Parent Rating Scale (Conners, 1990), the ABC, the Child Behavior
Checklist (Achenbach & Edelbrock, 1983), and the Fragile X Parent Questionnaire (developed
by the first three authors of this article). The data were first analyzed by multivariate analyses of
variance (MANOVA), followed by univariate ANOVAs if the MANOVAs were statistically
significant. Subscale total scores were analyzed for all except the Fragile X Parent
Questionnaire, in which case all 23 items were entered into the analysis. Neither the Conners
Parent Rating Scale nor the Child Behavior Checklist differentiated between the groups, whereas
the remaining three instruments did. The Inappropriate Speech subscale of the ABC
discriminated between the fragile X and control groups, and two of four items on this subscale
also differed significantly between the groups. Nine items from the Autism Behavior Checklist
and 10 items from the Fragile X Parent Questionnaire differed significantly between the groups,
with higher scores occurring for the fragile X group on all instances. Entry of all 23 items into
the analysis from the Fragile X Parent Questionnaire (as contrasted with entry of subscalescores
for the remaining instruments) may have led to a disproportionate number of discriminating
items from the Fragile X Parent Questionnaire. Factor analysis of the 21 items that
discriminated between the groups resulted in five factors designated as (1) Abnormal language, (2) Tactile defensiveness, (3) Poor self-control, (4) Poor eye contact, and (5) Hand flapping.

More detailed analyses comparing fragile X subjects with nonkaryotyped controls revealed significant differences on the Irritability, Lethargy/Social Withdrawal, and Inappropriate Speech subscales of the ABC, but these differences did not occur for the comparisons of fragile X and karyotyped controls.


This was an attempt to develop a shortened version of the ABC that would continue to show acceptable internal consistency and a high correspondence with the full ABC. In all, 467 clients of an ICF/MR facility were rated on the full ABC. Items having the highest alpha coefficients were considered for retention, whereas items that appeared to be redundant in content were considered for deletion. The alternate form comprised 9 items on the Irritability subscale, 12 on the Lethargy/Social Withdrawal subscale, 3 on the Stereotypic Behavior subscale, and 10 on the Hyperactivity/Noncompliance subscale; the Inappropriate Speech subscale was left unchanged. With the exception of the Stereotypic Behavior subscale, mean scores were basically the same for subscales on the original and on the alternate form. Correlations between the original and the alternate subscale scores ranged from .96 to .98. Alpha scores ranged from .79 to .95 on the new subscales from the alternate form. Spearman-Brown split-half reliabilities ranged from .81 to .95. The authors concluded that reliability was established for the alternate form of the ABC and that use of this form may produce economies in administration and scoring time.
PLEASE NOTE. Although some time may be saved with the alternate ABC, the developers of the ABC (Drs. Aman and Singh) encourage workers to continue using the original ABC either the Residential or the new Community version. Published norms are not available for the alternate form, and use of multiple versions is likely to create confusion and inconsistency across studies. If additional research supports the usefulness of the short version, we would hope to publish it in due course.


This study explored the relationship between parent and teacher ratings of hyperactivity on the one hand and age, IQ, and mental age on the other. Two samples of children were studied: (a) a general clinical sample (N=58, normal IQ) referred to a neuropsychology clinic and (b) a developmentally handicapped sample (N=55) taking part in a study of hyperactivity. The children were rated by their parents or teachers on the relevant hyperactivity subscales of the following instruments: (a) the ABC, (b) Personality Inventory for Children-Revised (Lachar, 1990), (c) the Child Behavior Checklist (Achenback & Edelbrock, 1986), (d) Conners' Parent Rating Scale-48 (Conners, 1990), (e) the Teacher Report Form (Achenback & Edelbrock, 1986), and (f) Conners' Teacher Rating Scale -28 (Conners, 1990). Within the developmentally handicapped sample, age was consistently related to hyperactivity ratings, whereas mental age was related in only a small number of comparisons. Mental age was totally unrelated to hyperactivity ratings in the general clinical sample. Results with the different scales were essentially the same. The findings challenge clinical guidelines stating that mental age should be taken into account when behavior ratings are used to assess children with mental retardation.

This was a study of 43 children in classrooms for developmentally handicapped pupils. The aim was to look at the validity of attentional tasks, administered both within the classroom and a quiet office setting, for assessing ADHD in children with developmental handicaps. All subjects were assessed for hyperactivity on Conners' Teacher Rating Scale (CTRS), the IOWA Conners Teacher's Rating Scale (IOWA), and the ABC. Subsequently, subjects were tested on the Children's Checking Task (CCT) and on the Continuous Performance Task (CPT) from the Gordon Diagnostic System. Pearson correlations between the CTRS inattention subscale and comparable subscales from the IOWA and ABC were .45 and .54 respectively, whereas the correlation between these subscales for the IOWA and ABC was .81. Performance on the attentional tasks was only modestly correlated (.00 to .42) with teacher ratings of inattention/hyperactivity on the CTRS, IOWA, and ABC. In general, IOWA ratings were most strongly associated of the three scales with CPT performance, whereas CTRS ratings were most strongly related to CCT performance. With the exception of the CCT total score (which was highly consistent across settings), the performance measures of attention in class were poorly correlated with the same measures in a quiet environment.


This study involved comparisons of the Reiss Screen for Maladaptive Behavior with the Psychopathology Instrument for Mentally Retarded Adults (PIMRA), the ABC, and programmatic variables. Correlations between the Reiss Screen subscales and PIMRA subscales
were inconsistent for apparently homologous subscales, whereas analoguous subscales from the Reiss Screen and the ABC were usually associated highly. Minimum, maximum, and median alpha coefficients for the three instruments were as follows: Reiss Screen range .40 to .75, median .62; PIMRA-range -.12 to .79, median .40; ABC- range .57 to .88, median .82. Median item-total subscale correlations for the three tools were as follows: Reiss Screen, .43; PIMRA, .20; ABC, .53. The authors also found modest correlations between Reiss Screen subscale scores and use of psychotropic medication, assessment of a psychiatric diagnosis, residence in a dual diagnosis unit, or receiving a behavior therapy program. The authors concluded that this study broadly supported the validity of the Reiss Screen. They also commented that, "[t]he Aberrant Behavior Checklist subscales and total score were highly internally consistent, which presumably reflects this instrument's strong empirical basis and numerous replications of its psychometric properties . . . ."


Seventy-seven residents of a developmental center were observed while taking Depakote and subsequently when medication was changed to Depakene. Subjects were observed for four weeks (for most variables) with both proprietary forms of medication. Subjects were monitored daily for occurrence of seizures, sleep problems, nausea, vomiting, diarrhea, constipation and change of appetite. Weight was measured weekly, and the Aberrant Behavior Checklist was completed "biweekly" (presumably every two weeks). An open trial design was used, in which observers knew the purpose of the study and identity of the drug condition. Mean interobserver agreement on the ABC was 70.2%. No changes were found in seizure occurrence, amount of sleep, nausea, and appetite. The Irritability, Stereotypic Behavior, and Hyperactivity subscales
were not affected by medication, and the Lethargy/Social withdrawal subscale showed a significant decrease with a change from Depakote to Depakene. Diarrhea increased significantly with Depakene. Changes in psychiatric symptoms did not appear to be lawfully related to either proprietary form of medication. Significant financial savings were realized on an institutional basis (as Depakene is less expensive than Depakote), with little if any cost in terms of side effects.


A total of 1,040 adults residing in 120 group homes in the Midwest were rated on the new Aberrant Behavior Checklist-Community (ABC-C). An exploratory factor analysis indicated that the factor structure for the original ABC appears to be valid for the ABC-C. Fifty-five of the 58 items (95%) loaded most highly on the same respective factors as in the original analysis, and coefficients of congruence between the original and newly-derived factors ranged from .84 to .97. Alpha coefficients ranged from .84 to .94 across subscales (mean=.90). Additional analyses looked at the effects of sex, age, and level of mental retardation. Gender affected scores on the Irritability and Inappropriate Speech subscales, with women scoring higher than men. All subscales except Lethargy/Social Withdrawal and Stereotypic Behavior were affected by age, and all subscales except Irritability were influenced by level of mental retardation. Other subject variables (e.g., hearing impairment, seizure condition, Down syndrome) had no effect on ABC subscale scores. The prescription of neuroleptics, antidepressants, and mood stabilizers was associated with significantly higher scores on several subscales. The authors concluded that the original factor structure appears to be valid for rating adults in group homes on the ABC-C and
that some correction appears to be appropriate for the effects of gender, age, and level of retardation.


In this study, the researchers mailed surveys to the parents of children who participated in either one of two drug studies. Each of the two studies used a double blinded, placebo-controlled, crossover design to examine the effects of methylphenidate and fenfluramine in children aged 5-14 who had an intellectual disability or borderline with attention-deficit disorder. Study I was a comparison of placebo, methylphenidate (.4 mg/kg per day) and fenfluramine (1.5 mg/kg per day) for thirteen weeks, while Study II involved a comparison of placebo, methylphenidate (.4 mg/kg per day) and three doses of fenfluramine (1.0, 1.5, 2.0 mg/kg per day) for two weeks each. In both studies, the ABC was used as a primary outcome measure, which was administered to parents and teachers at the end of each drug sequence. Of the 63 families who participated in either Study I or Study II, 40 (63.5%) responded to the satisfaction surveys they received in the mail. Overall, 88% of the parents indicated that they would join the drug study again if they had the decision to make again, and 88% felt that they were satisfied with the clinical conclusions drawn about their children. The researchers concluded that parents believed that their participation in pharmacological intervention research was a positive experience.


This was a study of acupuncture in two institutional residents with mental retardation
who had chronic self injury. Two raters assessed collateral behavioral changes prior to, during, and after acupuncture. The instruments used were the ABC, the Reiss Screen for Maladaptive Behavior, and the Psychopathology Instrument for Mentally Retarded Adults (PIMRA). The authors reported that one of the two cases was successfully treated by acupuncture. They also reported that the Irritability, Lethargy/Social Withdrawal, Stereotypic Behavior, and Hyperactivity subscales of the ABC all showed substantial decreases (59% to 83%) in the resident whose self injury was successfully treated. Less substantial changes (23% to 50% decreases) were observed in the other resident. Mixed results were found with the Reiss Screen and with the PIMRA. The authors concluded that the ABC was superior to the other scales for tracking overt clinical changes in this trial.


This was a study comparing 30 boys (aged 3 to 18 years) with fragile X syndrome with 30 boys having mental retardation due to other etiologies. All subjects were tested cytogenetically, and the groups were matched for age. Both parents and teachers rated the boys on the ABC. Parents were interviewed regarding the subjects’ adaptive behavior (using the Vineland Adaptive Behavior Scale) and about psychiatric conditions (using a modified version of the Diagnostic Interview for Children and Adolescents). No group differences were found from the three domain scores of the Vineland Adaptive Behavior Scale. Both parents and teachers rated the children with fragile X syndrome as significantly more problematic on the following ABC subscales: III. Stereotypic Behavior, IV. Hyperactivity/Noncompliance, and V. Inappropriate Speech. The highest severity scores occurred for Hyperactivity, followed by
Inappropriate Speech, followed by Stereotypic Behavior. The authors concluded that behaviors in these areas constitute a specific fragile X profile.


A total of 71 children from three ethnic groups were rated by their parents on the Vineland Adaptive Behavior Scale and on the ABC. The children were drawn from a single health district in England and represented three ethnic groups: Asian (n=32), Afro-Caribbean (n=11), and European (Caucasian) (n=27). No differences were associated with ethnicity on the Vineland Adaptive Behavior Scale. No gender effects were found for the ABC. Scores on the Lethargy/Social Withdrawal subscale were found to increase with age (i.e., from 5 through 16 years). Ethnicity was associated with significantly different scores on the Hyperactivity and the Inappropriate Speech subscales. In both cases, European children were scored higher than Asian children. Vineland scores were correlated with ABC subscale scores. Small but significant inverse correlations were found between the Socialization domain and Irritability, Stereotypic Behavior, and Inappropriate Speech on the ABC. The Communication and Daily Living domains were also inversely correlated with Inappropriate Speech.


This study employed the ABC, the Psychopathology Instrument for Mentally Retarded Adults (PIMRA), the Disability Assessment Schedule (DAS), and ICD-10 Classification of Mental and Behavioral Disorders to assess 31 people aged 17 to 69 years. The subjects lived in
four special residences of a developmental center as follows: two challenging behavior units (units A and B), an admission unit (C), and a rehabilitation unit (D) for residents awaiting resettlement. Care providers provided feedback on the ABC, PIMRA, and DAS. In general, there was poor correspondence between disorders identified on the PIMRA and as diagnosed by ICD-10 criteria. Resident adaptive profiles were presented for the DAS (not described further here). A number of ABC subscales were significantly correlated by Kendall coefficients with DAS scores. I. Irritability was significantly correlated with a lack of self-help skills, such as feeding, washing, dressing, and reading ($r_s=.34$ to $.47$, $p<.02$). II. Lethargy/Social withdrawal was correlated with limited ability to wash, communicate, and with stereotypy ($r_s=.36$ to $.43$). IV. Hyperactivity/Noncompliance was correlated with lack of self-help skills, lack of reading, and lack of counting skills ($r_s=.37$ to $.46$). ABC scores were also compared across the four residential units. The Irritability and Hyperactivity/Noncompliance subscales discriminated significantly across units, with residents in unit A (challenging behavior) scoring significantly higher than those in unit D. The authors commented that they agree with a recent review which found the Aberrant Behavior Checklist to be the most sensitive and appropriate instrument for measuring maladaptive behaviours associated with learning disability [the British term for mental retardation] in adults. . ., and intend to use it together with measures of adaptive behavior and ICD-10 to provide multi-axial psychiatric diagnoses, in future studies.


These authors extracted 15 items from the ABC that loaded highly on their respective factors. A total of 378 adults living in the community with their families (44%), in institutional
settings (15%), and in community homes (40%) were rated by their care providers. The results were factor analyzed, and four factors were derived as follows: 1) Impulsive and Aggressive Behavior, 2) Passive Behavior and Lethargy, 3) Stereotypic and Self-injurious Behavior, and 4) Active Social Avoidance. The authors felt that factors #1 and 3 were conceptually similar to I (Irritability) and III (Stereotypic Behavior) of the ABC and that factors 2 and 4 seemed to be active and passive forms of factor II (Lethargy, Social Withdrawal) on the ABC.


[This article will be summarized in a future edition of this manuscript.]


This was a double blind, placebo controlled study of clomipramine treatment in 10 adult residents who had excessive stereotypic behavior and (in five cases) compulsive behavior. Clomipramine produced significant reductions in ABC Stereotypic Behavior and, when two subjects were eliminated (because of behavioral toxicity), on ABC Irritability and Hyperactivity as well. Five of 12 direct observation categories also showed significant improvement with clomipramine, especially on stereotypic movement. Staff intervention for disruptive behavior was needed on significantly fewer days during clomipramine treatment than during placebo.

This was a study of 40 residents with severe and profound retardation who were free of medical conditions or medication that might invalidate the dexamethasone suppression test (DST). The subjects were rated on several behavioral instruments, including the ABC, the Diagnostic Assessment for the Severely Handicapped (DASH) (Matson, Gardner, Coe, & Sorner, 1991) and the Behavioral Symptoms of Depression (BSD), a tool developed for this study. Depending on the criterion adopted (i.e., cortisol level used), between three and six subjects were found to be positive on the DST. None of the scores on the behavioral instruments (ABC, DASH, BSD) were related to the presence of a positive DST. The authors concluded that the DST should not be regarded as a useful component in the diagnosis of depression (as it is currently conceptualized) in people with severe mental retardation.


Seventeen autistic children and adolescents were compared in a blind parallel study of auditory integration training as developed by Berard. Experimental subjects listened to processed music for 10 days, whereas control subjects heard unprocessed music. Music was presented to most subjects through headphones. Measures of outcome included the ABC, Fisher's Auditory Problem Checklist, and the Hearing Sensitivity Questionnaire. Using a combined total score for the ABC (all subscale scores summed), the auditory training group showed significant improvement (one tailed test) after auditory training. At 3-month follow-up, 14 ABC items showed significant differences between the groups, 13 changes favoring auditory training. On Fisher's Auditory Problems Checklist, subjects in the experimental group had significantly fewer problems (one-tailed test) 3 months after auditory training. The groups
showed no differences on the Hearing Sensitivity Questionnaire, on a test of discomfort for pure
tones, or on a test of hearing acuity.

drugs and self-injury in mental retardation and developmental disability. *Mental
Retardation and Developmental Disabilities Research Reviews, 1*, 120-129.

This was a report of the use of clozapine to manage chronic self injury in three adults
with profound mental retardation. Clozapine reportedly did not affect self injury in the first
subject, and no ABC data were presented. In the second subject, clozapine given in various
doses, from 200 to 300 mg/day, produced a dramatic reduction in self injury and in aggression.
Blind ratings on the ABC showed marked reductions with clozapine in Irritability,
Lethargy/Social Withdrawal, Stereotypic Behavior, and Hyperactivity. The third participant was
treated with clozapine, titrated up to 475 mg/day, in an open trial. Self injury declined
substantially in a leisure condition and showed equivocal improvement when demands were
placed on the subject. Ratings on the ABC showed no consistent pattern, although scores may
have decreased marginally on the Hyperactivity subscale at most maintenance doses of
clozapine.

stereotypy, and social behavior of adults with developmental disdabilities.*Journal of
Developmental and Physical Disabilities, 7*, 137-146.

Two women in a developmental center were selected for the presence of self-injury,
stereotypy, and poor social behavior. An ABAB design was used in which one 30-day baseline
occurred, followed by 12 30-day treatment periods, followed by a second 30-day baseline and 3
30-day treatment periods. One subject received 50 mg of natrexone, whereas the other received
100 mg of naltrexone during treatment (B) phases. Naltrexone was associated with reduction of self-injury as assessed by direct observations during the active treatment phases. Direct observations indicated that social behavior improved dramatically with naltrexone and stereotypy declined impressively. Rating scores on ABC subscales (I) Irritability, (II) Lethargy, and (III) Stereotypic Behavior declined markedly during naltrexone treatment phases.


This was a study of naltrexone in 33 adults residing in developmental centers. Twenty-four subjects had autistic disorder (17 of these had self injury), and nine subjects (without autism) were mentally retarded with prominent self injury. All subjects received single doses of placebo and 100 mg of naltrexone in a double blind, crossover design. Subsequently, 19 subjects received naltrexone (50 mg/day) and placebo for 4 weeks each. Fourteen subjects received naltrexone (150 mg/day) and placebo with the same design. A double blind crossover design was used. No behavioral effects were seen in the acute phase of the study. In the four-week comparison, staff ratings with the ABC showed increased scores due to naltrexone on the Stereotypic Behavior subscale, regardless of dose. Eleven subjects were assessed on 15 behaviors with a direct observation technique, and no changes were seen. For the subjects receiving the low dose (50 mg/day), clinical global impressions favored the placebo condition; no difference was found for the high-dose group.

This was a double blind, placebo controlled, crossover study of acute doses of naltrexone (40 mg/day) in 20 children aged 3 to 7 years, with autistic disorder. Ten children had developmental quotients below 70, with the remainder scoring higher. ABC Irritability subscale scores, completed by parents, were significantly lower with naltroxone than with placebo ($p<.009$). Parent ratings on the Matson Evaluation of Social Skills with Youngsters (MESSY) showed no changes. Parents’ ratings of five most significant target symptoms, tailored for each child, were significantly reduced with naltroxone ($p<.02$). Three of ten observational categories collected in a playroom sitting indicated improvements with naltroxone, and actometer readings showed improvements with naltroxone. Several variables were examined for their ability to predict outcome. The ABC Hyperactivity subscale was the only variable that predicted response to medication.


Twenty-six of 30 former participants of a medication study, initially identified for ADHD and mental retardation, were followed up approximately four years later. The ABC was used to assess behavior at initial contact and at follow-up. Other measures of outcome included (a) educational placement, (b) use of psychotropic medications, (c) hospitalizations since initial contact, (d) extensiveness of friendships, (e) disciplinary problems at school, and (f) parent ratings on the Child Symptom Inventory (CSI). At follow-up, the following were found: (a) educational placements were slightly more restrictive overall, (b) 69% of the subjects were taking psychotropic drugs, (c) a significant minority (35%) were hospitalized in the follow-up interval, (d) friendships were extremely limited, and (e) a high proportion of children had clinically
significant scores on the anxiety subscales (n=8) and acting-out subscales (n=6) of the CSI.

Several parent and teacher rating instruments were used to predict ABC scores (I, Irritability; II, Lethargy/Withdrawal; IV, Hyperactivity) and CSI scores (Conduct/Oppositional and Avoidant/Separation Anxiety) at follow-up. ABC subscale I (Irritability) was the most robust predictor of outcome on these measures. Other prominent predictors included ABC II (Lethargy/Withdrawal), ABC III (Stereotypic Behavior), Revised Behavior Problem Checklist (RBPC) I (Conduct Problem), and RBPC 5 (Psychotic Behavior).


This report describes the development of the Nisonger Child Behavior Rating Form (N-CBRF), an instrument designed for assessing children with developmental disabilities. Some 300 children were rated by their parents and teachers on a preliminary version of the N-CBRF. Factor analysis of the ratings produced two social competence subscales and five problem behavior subscales on both a parent and a teacher version of the N-CBRF. Approximately 60 children were rated on both the ABC and the N-CBRF by their parents and teachers to assess concurrent validity. Strong associations were found between subscales expected to be related on a priori clinical grounds. The median correlation for similarly named subscales on the parent rating was .72 (range .49 to .80). The median correlation between scales for teacher ratings was .69 (range .55 to .85). The authors concluded that the strong association with the ABC provided evidence of good concurrent validity for the N-CBRF.


The aim of the present study was to replicate earlier findings of beneficial effects of ORG 2766, an ACTH-(4-9) analog, in autistic children. Fifty children with autism, 7-15 years old and with a Performance IQ of more than 60, participated in a double-blind placebo controlled parallel trial. Active treatment was 40 mg ORG 2766 for 6 weeks. The outcome was assessed on the basis of the Aberrant Behavior Checklist completed by parents and teachers, and by means of a detailed behavioral observation (30 subjects). ORG 2766 failed to improve social and communicative behavior at a group level. The rate of individual response, defined as a reliable change in social withdrawal at home and at school, to ORG 2766 (10 out of 30) and placebo (4 out of 20) was not significant either. The children who responded to ORG 2766, but not those who responded to placebo, manifested significant improvements outside the changes in the defining variables, including a decrease in hyperactivity at school. The responders to ORG 2766 were characterized mainly by a relatively lower PIQ; further by more initial hyperactivity, stereotypies and abnormal speech, and less initial eye contact. The responders to placebo could not be differentiated from the non-responders to placebo. [The authors argued that] Future studies should examine whether ORG 2766 differentially affects various subtypes of autism.


“Assessed the need for specialized services for adults with challenging behavior in a pilot study in a hospital setting. The nature of the challenge to services was evaluated for 31 residents (aged 17-69 yrs) receiving psychiatric treatment and rehabilitation living in 4 residential units. Behavior problems were assessed using the Aberrant Behavior Checklist and the Psychopathology Inventory for Mentally Retarded Adults. Functional disability was rated using
the Disability Assessment Schedule. Information from these measures, together with case note data and interviews with key workers and residents, were used to make multiaxial diagnoses. Methodological issues concerning the evaluation of challenging behavior are discussed. Results found that challenging behavior was associated with a lack of self-help and communication skills.


This study was conducted to assess the prevalence of challenging behavior among 98 clients (49 males, 49 females) with mental retardation in an English health district. Subjects were aged 18 to 76 years (mean age, 39 years), living in either community-based residential homes, with families, or in hospitals (developmental centers). Caregivers completed the Disability Assessment Schedule, the Aberrant Behavior Checklist (ABC), and the Psychopathology Instrument for Mentally Retarded Adults (PIMRA). Eighty-six percent of the subjects required significant supervision or assistance in their daily lives, with the most prevalent difficulties being incontinence and lack of communication. As assessed by the ABC, the percentage of subjects with moderately serious to severe problems on the subscales were as follows: Irritability (50%), Lethargy (37%), Stereotypy (approximately 25%), Hyperactivity (50%), and Inappropriate Speech (28%). The most common disorders on the PIMRA were anxiety, affective disorders, and adjustment disorders.


This study attempted to examine changes in communication skills and challenging
behavior in subjects with mental retardation after they moved from large-scale (e.g., hospital) to small-scale (e.g., foster homes and small residential units) accommodations. A total of 15 subjects (mean age, 39 years) were randomly chosen and assessed 6 months and 1 year following their moves. Speech therapists completed the Preverbal Communication Schedule to measure communication skills at baseline, 6 months, and 1 year. At baseline, subjects were then assigned to one of three groups: Profound Multiple Learning Difficulty (n=6), Preverbal (n=5), and Verbal (n=4). Psychologists and home staff were also asked to rate the clients' behavior as a team at each time point. T-tests for matched groups revealed no overall significant change in challenging behavior as assessed by the Aberrant Behavior Checklist (ABC). However, there was a significant increase in Lethargy/Social Withdrawal from baseline to 1 year follow-up. There was no overall significant change in communication skills. Subjects in the Preverbal and Verbal groups showed significant increases in communication skills but no change in problem behavior. The researchers suggested that the change in environment from large to small-scale accommodations may not always have a positive impact upon behavior, as evidenced by increased social withdrawal in this group of individuals.


This was a study of 30 adults with Prader-Willi syndrome and 30 control subjects living in community residential services. Caregivers rated all subjects on the ABC. The Prader-Willi group was rated significantly higher on the Irritability/Agitation and the Inappropriate Speech subscales of the ABC. At the item level, the Prader-Willi group was found to have significantly higher scores on 17 items measuring excessive activity, self injury, lethargy, tantrums, repetitive
speech, depressed mood, inattention, and demandingness. Within the Prader-Willi group, the ten subjects with the highest body mass indices were compared with the ten subjects with the lowest body mass indices. The heavier subjects had significantly higher scores on the Irritability/Agitation and the Hyperactivity/Noncompliance subscales.


This is a description of outcome in 20 consecutive children and adolescents with developmental disorders who received risperidone treatment for a multitude of behavior disorders. Five subjects had autistic disorder, six had PDD-NOS, and the remainder were mentally retarded without a pervasive developmental disorder. Most of the patients were being treated for ADHD and/or oppositional behavior, although two had psychotic features combined with aggression. In eight subjects, treatment was monitored with the ABC, Conners=Abbreviated Symptom Questionnaire (ASQ), and frequency counts of problem behavior. ABC profiles and Conners=ASQ scores were presented for two risperidone responders. Irritability and Lethargy/Social Withdrawal subscale scores were dramatically reduced for one patient; Irritability, Lethargy/Social Withdrawal, and Hyperactivity/Noncompliance scores declined markedly for the other. The authors reported that, after 8 to 15 months, 13 children continued to receive risperidone with apparently good response.


This was an attempt to assess the factor structure and psychometric characteristics of the
Japanese version of the ABC-C. In all, 322 institutional residents with moderate to severe mental retardation were rated by staff members. Samples of 43 and 33 subjects, respectively, were used to assess test-retest and interrater reliability. Using the same statistical procedures as employed in the original study (Aman, Singh, Stewart, & Field, 1985), it was found that 48 of the 58 items (83%) loaded on the same respective factors. Coefficient alpha ranged from .85 to .95 across subscales (median .92). Test-retest reliability over 4 weeks ranged from .84 (subscale III) to .90 (subscale I) (Spearman rank correlations). Interrater reliability ranged from .58 (subscales IV) to .78 (subscale I) (median $r_s$ = .68). The author concluded that there was a high similarity in factor structure between the Japanese and the English versions of the ABC.


This was a comparison of placebo and three doses of methylphenidate (0.15, 0.30, and 0.60 mg/kg) in children with mental retardation and ADHD. Parents rated the children on the ABC-Community, Conners= Parent Rating Scale, Revised Behavior Problem Checklist, and Personality Inventory for children. Only the Hyperactivity subscale of the ABC approached significance ($p = .12$) on the parent rating scales. Relevant subscales from the other rating scales were essentially unchanged as a function of medication condition ($p_s = .41$ to .93). Teacher ratings were sensitive to medication effects, but the ABC was not completed by teachers. Classroom ratings indicated that improvement only occurred with the high dose (0.60 mg/kg).

This was a study of the architectural features of group homes and their relationship to resident behaviors. Some 20 group homes in Tennessee were selected, because they covered a wide range of scores on a scale of homeliness (i.e., how similar or different they were to classical institutional environments). Eighty residents (59% men, 31% women) were observed for 40 minutes using direct observations of resident and staff behavior (approximately 22 behavioral categories were recorded). In addition, the supervisor of each home rated the residents in that home with the ABC. Hierarchical regression analyses were used to partial out confounding effects of resident characteristics (e.g., IQ, gender) and program philosophy (e.g., array of choices available). Rated homeliness was significantly (inversely) correlated with the following direct observation categories: stereotypies, aggression, and staff-to-resident positive interaction. After controlling for a multitude of possible confounds, the following ABC subscales were still correlated with homeliness: II. Lethargy/Social Withdrawal ($r=.61$) and IV. Hyperactivity/Noncompliance ($r=.60$). If only resident characteristics were controlled, then II. Lethargy/Withdrawal, III. Stereotypic Behavior, and IV. Hyperactivity/Noncompliance were all correlated with homeliness ratings. A median split (contrasting more homelike and institutional residences) revealed differences on the Lethargy/Social Withdrawal ($p<.001$) and the Stereotypic Behavior ($p<.001$) subscales. The differences on the Irritability ($p<.06$) and the Hyperactivity subscale ($p<.07$) also approached statistical significance.

This double-blinded, placebo-controlled crossover study examined the safety and efficacy of naltrexone in children with autism. Twenty subjects (mean age=5.5, 16 boys, 4 girls) were randomly assigned to a treatment sequence of either naltrexone-placebo or placebo-naltrexone. Subjects were administered 1.0 mg/kg of the drug once a day in the morning. The ABC was completed after 2 and 4 weeks of each treatment condition, for a total of four times per subject during the study. A semi-structured playroom session was also used as an outcome measure to rate behaviors in the subjects. Parent ratings failed to differentiate between the placebo and naltrexone conditions. Teacher ratings on the ABC showed significant reductions with naltrexone on ABC Hyperactivity subscale scores ([F(1,18)=12.11], \( p = .003 \)) and ABC Irritability subscale scores([F(1,18)=4.50], \( p = .048 \)). The Total ABC score, as rated by parents, was used to identify individual responders to naltrexone. Subjects, who were considered “responders” to naltrexone, had higher ABC baseline scores on the Lethargy/Social Withdrawal subscale of the ABC (parent ratings: \( t = 3.58 \), df, 18, \( p = .002 \) and teacher ratings: \( t = -4.52 \), df 18, \( p = .00 \)). The investigators concluded that naltrexone did not have a significant effect on social or stereotypic behavior in children with autism; however, there was tendency towards a decrease in hyperactivity and irritability.


The investigators compiled three groups of subjects with mental retardation in a developmental center as follows: (a) self injurious, nonautistic, (b) self injurious and autistic, and (c) autism, with no self injury. Blood samples were collected in the morning, before breakfast. Subjects with self injury (groups a and b) had significantly lower B-endorphin concentrations
than the group with autistic disorder and no self-injury (group c). There was no relationship between group and biochemical stress, as measured by plasma cortisol levels. No significant correlations were found between β-endorphin levels and ABC subscale scores. A second blood sample was taken 11 weeks later, and the same group differences were observed.


This was a double blind, placebo controlled study of fenfluramine (Pondimin) and methylphenidate (Ritalin) in children with mental retardation and ADHD. Fenfluramine was given in three doses (1.0, 1.5, and 2.0 mg/kg/day), whereas one dose of methylphenidate (0.4 mg/kg/day) was given. Drug phases lasted two weeks. Measures of drug change included the following: (a) parent ratings of behavior on the ABC, the Revised Behavior Problem Checklist (RBPC), and Conners' Abbreviated Symptom Questionnaire (CASQ); (b) teacher ratings of behavior on the ABC and the Conners Teacher Rating Scale (TRS); (c) psychometrician ratings on dimensional scales of attention span, activity level, compliance, and mood; and (d) assessment of heart rate, blood pressure, and weight.

Only ABC findings are summarized in any detail. Over all five conditions (placebo, 3 fenfluramine doses, and methylphenidate) there were very few main drug effects. When each individual's best fenfluramine dose was compared with placebo and methylphenidate, there were numerous significant changes. Parents rated fenfluramine superior to placebo (and sometimes methylphenidate) on ABC subscale I (Irritability), IV (Hyperactivity), and V (Inappropriate speech). However, scores on ABC II (Lethargy, social withdrawal) were significantly worse on fenfluramine than on placebo. Teachers rated the children as significantly improved on ABC I
(Irritability) with fenfluramine and on ABC IV (Hyperactivity) with fenfluramine and methylphenidate. When the data were analyzed for the effect of the three fenfluramine doses only, parents rated the children as somewhat better on the high dose than on the low dose, but teacher ratings indicated higher scores on the Lethargy/Social withdrawal subscale with both the medium and high doses than with the low dose. The other rating scales generally showed similar patterns. Fenfluramine caused reductions in blood pressure which were significantly lower than with placebo or methylphenidate. The authors concluded that both medications produced clinical benefit in these children, but that the apparent superiority of high-dose fenfluramine was an artifact of the design used. Lower doses of fenfluramine, achieved by a gradual step-up of dosage, were recommended.


Ninety-eight individuals with mental retardation (mean age, 39 years) were randomly chosen to participate from the Disability Register of an English health district. Subjects lived in either institutional or non-institutional settings. Parents or key workers were asked to complete the Aberrant Behavior Checklist (ABC), the Disability Assessment Schedule (DAS), and the Psychopathology Inventory for Mentally Retarded Adults (PIMRA). Results from the DAS indicated that most individuals were mobile, continent, and could feed themselves independently. Overall, skills were adequate for the group. Fewer than 10% of the sample scored in the severe range of challenging behavior for each subscale of the ABC. Ratings on the PIMRA suggested that subjects could only be diagnosed in significant numbers with adjustment disorders. Correlation coefficients were obtained between challenging behavior, specific disability, and
psychopathology. Subscale scores on the ABC Irritability and Hyperactivity/Noncompliance subscales were negatively correlated with occupational skills ($r=-0.25$, $p=.012$ for each).

Furthermore, Hyperactivity/Noncompliance scores were negatively correlated with communication skills ($r=.25$, $p=.011$). Lethargy/Social scores were also correlated ($r=-0.36$, $p=.001$). Adjustment disorder was negatively correlated with Hyperactivity/Noncompliance scores ($r=-.22$, $p=.030$) and Lethargy/Social Withdrawal scores ($r=-.33$, $p=.001$).


In this study, 50 adults living in 18 older hospital wards were compared with 54 adults living in new hospital-based bungalows. Hospital wards typically housed about 20 residents, whereas the bungalows housed about six. Nursing staff members were interviewed using the Disability Assessment Schedule (which has 17 domains of adaptive behavior) and with the ABC. The DAS showed significantly superior adaptive behavior on six domains for residents living in the bungalows in the following six skills: mobility, toileting habits, washing, domestic work, handicraft, and occupational skills. In contrast, all five subscales of the ABC indicated that the residents in the bungalows had significantly worse problem behaviors (all $p$s <.001). The authors speculated that this unexpected finding may have been due to increased stress experienced by the staff who had only recently moved into the bungalow settings.


This was a study of 11 children with attention problems and mental retardation and 9
children with normal attention and with mental retardation. Children were assigned to attention problem and control groups based on parent ratings on Conners= (1990) Parent Rating Scale (i.e., with T scores of ≥70 and #62, respectively). The children were also rated on Conners= Teacher Rating Scale (teacher ratings) and on the ABC-Community (parent and teacher ratings). After assignment based on parent ratings with the Conners scale, the following significant group differences (attention problem control) were found. Teachers rated the children with attention problems significantly higher than the control group on the following Conners scale subscores: Hyperactivity (p<.007), Conduct Problem (p<.009), and Hyperactivity Index (p<.004). Teachers also rated the index group higher on the following ABC subscales: Irritability (p<.023), Lethargy (p<.019), and Hyperactivity (p<.032). Parent ratings indicated that the index group had higher scores on ABC Hyperativity (p<.001). This provides evidence of convergent validity, across raters and settings, for the Conners scales and for the ABC. The investigators were looking for group differences in response to type of reinforcement schedule (continuous and partial reinforcement) during a cognitive task. No effect of schedule was found.

A total of 146 individuals with 5p- syndrome were assessed on the ABC. A subset of 102 subjects was also evaluated with the Vineland Adaptive Behavior Scales-Screener Version. Parents also supplied demographic information regarding the subjects, who varied in age from 2 to 40 years (mean=12 years). Using mean ABC item scores, the authors found that Hyperactivity/Noncompliance subscale scores were significantly higher than all other subscale scores. Irritability was significantly higher than the Lethargy/Social Withdrawal, Stereotypic
Behavior, and Inappropriate Speech subscales. When compared with published norms, the 5p-subjects had significantly higher Hyperactivity/Noncompliance scores. Within the Cri-du-Chat subjects, lower Vineland Adaptive Behavior scores were associated with higher scores on the Irritability ($r=-.35$) and Stereotypic Behavior ($r=-.39$) subscales.


The subjects were a group of 50 parent-bereaved adults with mental retardation and another group of non-bereaved adults matched for age, sex, and degree of mental retardation. To qualify for the bereaved group, subjects had to have a parent die within two years prior to the study. Staff members at the subjects’ day program and a subgroup of caregivers at home completed a structured interview and the following questionnaires for each subject: (a) the Aberrant Behavior Checklist (ABC); (b) the Psychopathology Instrument for Mentally Retarded Adults (PIMRA); and (c) the Life Events Checklist. Mean ABC subscale scores (as rated by day workers) were significantly higher for the bereaved group on the Irritability ($p<.01$), Lethargy/Social Withdrawal ($p<.001$), Inappropriate Speech ($p<.05$), and Hyperactivity ($p<.01$) subscales. All five ABC subscales were rated significantly higher by the caregivers of the bereaved group. Significantly more adults in the bereaved group scored as cases for depression and anxiety on the PIMRA, with adjustment disorder also approaching significance. The bereaved group also experienced significantly more life events in the month before and after the interview than did the control group. Most staff members (72%) did not attribute behavior problems to the bereavement. Implications for the grieving process of patients with mental retardation were discussed. S.A

This letter to the editor commented upon the effectiveness of Auditory Integration Training (AIT) in the treatment of autistic children in the United Kingdom. The author questioned the findings by Rimland and Edelson (1995), who stated that their experimental group performed significantly better on the Aberrant Behavior Checklist (ABC) and the Fishers Auditory Problems Checklist (FAPC) than their control group. Howlin criticized the authors' use of t-tests for a small group of subjects (8 experimental, 9 control) and stated that the mean decline (less than 0.4 points) from baseline to 3-month follow-up was not of clinical significance.

S.A.


In this study, the ABC-Community was used to rate four groups of geriatric patients, grouped as follows: (a) having mental retardation and a psychiatric disorder (n=35), (b) having a psychiatric diagnosis only (n=59), (c) having mental retardation but no psychiatric disorder (n=20), and (d) having neither mental retardation nor psychiatric disorder (n=58). The most common dual diagnoses included schizophrenia, bipolar disorder, obsessive compulsive disorder, and adjustment disorder. The data were analyzed as a function of group and medication condition (i.e., taking psychotropic medication vs. none). The group variable had a significant effect on the following three subscales: (I) Irritability, (IV) Hyperactivity, and (V) Inappropriate Speech. In all cases, the group with dual diagnoses scored significantly higher than the remainder, which did not differ from one another. Subjects taking psychotropic medication were scored significantly higher than those not receiving medication on the following subscales: (I)
Irritability, (III) Stereotypic behavior, (IV) Hyperactivity/ Noncompliance, and (V) Inappropriate speech.


This is a report of famotidine (Pepcid) treatment (2 mg/kg/day) given to three children with autism spectrum disorders. The protocol used a 10-week, double blind, placebo controlled crossover design. Outcome measures included a daily diary, visual analogue scales of affection, ABC ratings, and clinical global impressions. Two of three subjects had statistically significant improvements in affection as reported by their mothers. Outcome with the ABC was not reported.


This was a study of 355 residents of four residential facilities in Japan. The subjects, aged 7 to 64 years, were rated by staff members using the Japanese version of the ABC (ABC-J). Subscale scores were analyzed as a function of age, gender, level of mental retardation, presence of physical conditions, and type of psychotropic medication. In general, younger age (<15 years) was associated with higher scores on the Irritability, Hyperactivity, and Inappropriate Speech subscales. Males generally had higher subscale scores than females, especially among subjects with moderate and severe retardation. More severe mental retardation was associated with worse ABC subscale scores, with highest scores occurring among subjects with profound mental retardation. Subjects with epilepsy and those with cerebral palsy had significantly higher scores
on the Irritability subscale than subjects without physical complications. Individuals taking antipsychotic, antiepileptic, and sedative-hypnotic drugs tended to have significantly higher scores than unmedicated subjects on most ABC subscales, whereas those taking antianxiety and antidepressant drugs had subscale scores that did not differ. These findings were compared with those of Aman, Richmond, Stewart, Bell, and Kissell (1987)


This study looked at the concurrent validity of the Diagnostic Assessment for the Severely Handicapped-II (DASH-II) by comparing its subscale scores with ABC scores. Direct care staff rated 233 residents, aged 4 to 86 years, of a developmental center on the DASH-II and the ABC-R. The following ABC and DASH subscales were found to be moderately or strongly correlated: (a) ABC Irritability and DASH Depression, Mania, Organic Disorders, and Impulse Control Disorders; (b) ABC Stereotypic Behavior and DASH PDD/Autsim and Stereotypies; (c) ABC Hyperactivity and DASH Mania, Organic Disorders, and Impulse Control Disorders. Internal consistency ranged from .79 to .94 (median .89) for the ABC and from .28 to .84 (median .52) for the DASH. The authors concluded that there was a high degree of convergent validity for DASH and ABC total scores and moderate convergent validity for several subscales across the two instruments. The authors felt that low base rates of some DASH disorders may have prevented strong associations from emerging.

This was a study of five rating scales and three side effects checklists. The rating scales included the ABC, the Self-Injurious Behavior Questionnaire (SIBQ), the Maladaptive Behavior Rating Scale (MABS), and the Resident Behavior Rating Scale (RBRS). There were 30 subjects: 15 adult residents in an index group selected for the presence of self injury and 15 residents in a control group selected for the absence of self injury. Direct care staff rated the subjects at monthly intervals, and independent ratings were collected from a second set of caregivers. Interrater reliability for the ABC, as determined by Pearson correlations, ranged from .12 (Lethargy/Social Withdrawal) to .53 (Irritability) across subscales (r=.95 for ABC Total score). Test-retest reliability for the ABC ranged from .52 (Hyperactivity) to .76 (Lethargy/Social Withdrawal) across subscales (r=.99 for ABC Total score). Both the Lethargy/Social Withdrawal and the Stereotypic Behavior subscales distinguished between the index group and the control group. Evidence for concurrent validity was also found for the ABC. ABC Irritability was correlated with the SIBQ Self-Injury (r=.68), Antisocial subscale (r=.78), and the Emotion/Mood subscale (r=.46). The authors concluded that the ABC and the SIBQ were the most reliable and valid instruments in this study.


Participants were 32 preschool children (mean age=51 months) with developmental delays. All attended center-based early intervention programs and had severe deficits in adaptive behavior and language development. Parents and teachers were asked to rate each child=s behavior using the Aberrant Behavior Checklist (ABC). Paired t-tests revealed no significant
differences between parent and teacher ratings on the subscales of the ABC. Spearman’s rank correlation coefficients between parent and teacher ratings ranged from .50 to .83 for the subscales (mean correlation=.62; p<.01 for each subscale). The original factor structure of the ABC was confirmed by factor analysis of both parent and teacher ratings. Coefficients of congruence (between parent and teacher ratings) for each of the five subscales ranged from .98 to .99. The authors concluded that the ABC is a reliable instrument for assessing challenging behavior in young children with developmental delays. S.A.


This study attempted to investigate burnout in nursing staff members of two different settings (hospital-based bungalows and community units). Additionally, the relationship between staff burnout and residents’ challenging behavior was assessed. Nursing staff members (N=38) in either setting rated the behavior of 51 residents. Clients residing in hospital-based bungalows showed significantly more challenging behavior on each subscale of the Aberrant Behavior Checklist (ABC) than clients in community units (p=.001 for all ABC subscales). Sixty-eight percent of the subjects in the hospital-based bungalows and 100% of the individuals in the community home were also diagnosed with pervasive developmental disorder. Nurses were interviewed using a Staff Questionnaire (SQ) and asked to complete the Maslach Burnout Inventory (MBI). Overall, hospital-based bungalow staff members were less satisfied with their salaries, had more complaints about their jobs, felt more emotionally exhausted, and experienced more depersonalization towards residents than staff in community units. Staff in both settings had similar levels of personal accomplishment. No significant correlations were found between
ABC subscale scores and burnout (MBI) scores for nursing staff in either setting. The researchers concluded that, although bungalow staff members experienced a higher level of burnout and job dissatisfaction, the challenging behavior of the residents did not influence that burnout.


This was a study of 38 subjects with Cri-du-chat, 55 with Prader-Willi, and 21 subjects with Smith-Magenis syndromes. All subjects were rated by their caregivers, usually their parents, on the ABC-Community. These ratings were compared to norms provided by Aman, Singh, Stewart, and Field (1985) and Marshburn and Aman (1992) [summarized earlier in this Bibliography]. All comparisons were presented by Z scores relative to the normative groups. Visual inspection of Z scores suggested the following: (a) The Cri-du-chat group had elevated scores on (I) Irritability and (IV) Hyperactivity subscales of the ABC-C. (b) The Prader-Willi group had inflated scores on (I) Irritability and (V) Innappropriate Speech. (c) The Smith-Magenis group had high scores on (I) Irritability, (III) Stereotypic Behavior, (IV) Hyperactivity, and (V) Inappropriate Speech. The authors felt that subscale (II) Lethargy/Social Withrawal, might mask differences between syndrome groups; for example, Prader-Willi syndrome was associated with lethargy but not social withdrawal.


A total of 146 individuals with 5p-syndrome were assessed on the ABC. A subset of 102
was evaluated with the Vineland Adaptive Behavior Scales–Screener Version as well. Parents also supplied demographic information regarding the subjects, who varied in age from 2 to 40 years (mean = 12 years). Using mean ABC item scores, the authors found that Hyperactivity/Noncompliance subscale scores were significantly higher than all other subscale scores. Irritability scores were significantly higher than the Lethargy/Social Withdrawl, Stereotypic Behavior, and Inappropriate Speech subscales. When compared with published norms, 5p- subjects had significantly higher Hyperactivity/Noncompliance scores. Within the Cri-du-Chat subjects, lower Vineland Adaptive Behavior scores were associated with higher scores on the Irritability ($r = -0.35$) and Stereotypic Behavior ($r = -0.39$) subscales.


This was a report of 8 patients (9 to 20 years old) with autistic disorder who received fluoxetine (Prozac) treatment. The participants received fluoxetine treatment for 5 weeks to 32 months (mean = 18 months). Two patients received additional pharmacotherapy (clomipramine for one and lithium and lamotrigine for the other). ABC ratings were obtained from the primary caregiver at baseline (before fluoxetine) and on discontinuation of fluoxetine. Four of the ABC subscales showed substantial declines, as follows: Irritability, 21%; Lethargy/Social Withdrawal, 37%; Stereotypic Behavior, 27%; and Inappropriate Speech, 21%. The reduction in Lethargy/Withdrawal was statistically significant ($p<0.03$). Scores on the Hyperactivity/Noncompliance subscale were found to increase by 14%, although this was not statistically significant.
The goal of this project was to evaluate the current service practices for individuals with severe intellectual disability and the most challenging severe behaviors in the United Kingdom. Forty-one individuals with severe intellectual disability and severe behavior disturbances were included in the study. This sample included 5 participants living in a family home, 17 in community housing, 17 in hospitals, and 2 in hostels. The average age of the participants was 32 years old, 59% were male, and 77% displayed the required symptoms for a diagnosis of autism. The Adaptive Behavior Scale and the ABC (Irritability and Hyperactivity subscales) were used as exclusion criteria. ABC scores were comparable across service settings, with mean total ABC score of 94, and an average of 18 behaviors rated at a level 3 severity. [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] Scores across the ABC subscales were also similar across settings. Data were collected from primary care givers and a two-hour direct observation of the participant. Data relevant to personal characteristics, setting characteristics, quality of care, quality of life, and resource integration and cost were collected. The ABC was used to evaluate the challenging behaviors of the participants. Inter-respondent reliability was assessed for the ABC using eight repeated interviews for previously-evaluated subjects. The authors found 43% inter-respondent reliability for exact agreement, and 75% reliability when behaviors were rated on a dichotomous scale (occurred versus did not occur). The results of the study showed that a family setting was associated with the highest quality of life for the participants, and that a specialist community group model outperformed a traditional service model in most areas. CAF
This is a report of clozapine and risperidone replacement therapy in 8 adults with mental retardation who had severe self injury and/or aggressive behavior. Two subjects who had received risperidone were given clozapine as a replacement, whereas six subjects who had received a multitude of neuroleptics had their treatment changed to risperidone. A dose escalation design was used in which a variable length baseline (3, 4, 5, or 6 weeks) was followed by the new drug, for periods lasting 29 to 62 weeks. Medication was double blind and drug identity was known only to the pharmacist and consultant psychiatrist. Dosage of the replacement therapy was increased until complete elimination of the target behavior occurred, significant side effects appeared, or the maximum dose was reached. Clinical changes were measured by direct observation of target behaviors, staff ratings on the ABC, and nurse or physician ratings on the Clinical Global Impressions (CGI) Scale. Six of the eight subjects showed clinically significant reductions in self injury or aggression with clozapine and risperidone treatment. The authors noted that there was good correspondence between direct observations and ABC changes for 7 of 8 subjects, whereas CGI ratings correlated poorly with the other measures. The Irritability and Hyperactivity subscales of the ABC were almost always sensitive to the new treatments.

This was a double-blind, placebo-controlled, crossover study of the effects of wearing ambient transitional lenses in individuals (aged 7 to 18 years) with autism. This treatment
approach posits that these lenses could correct a possible visual distortion that may be present in autistic people. Participants wore ambient and control lenses for 3 to 4 months each, and assessments were administered prior to, mid-way, and immediately following each phase. Assessments included the ABC-Community (completed by parents) and four performance tasks (a ball catch task, watching TV while seated, watching TV while on a balance board, and an eye pursuit task). The ABC-Community data were not analyzed by subscale score; rather, mean item scores were used as a “summary score.” Results indicated that there were significant decreases in problem behavior at the mid-way assessments (1 ½ or 2 months), and that these improvements decreased somewhat at the 3 or 4-month assessments. No significant changes were noted on any of the performance tasks at any point of the study. The authors concluded that wearing ambient lenses may have short-term beneficial effects in individuals with autism. Notably, this study did not have a control group of non-autistic individuals, so it is difficult to conclude that this improvement would be exclusive to those with autism. Also, the ABC was scored in a manner inconsistent with the ABC Manual’s instructions.


This study examined the characteristics of individuals with severe intellectual disability (ID) and challenging behavior, and how this was related to residential arrangements and service support. Forty-one subjects (mean age 33 years) were selected for low levels of adaptive behavior (as measured by the Adaptive Behavior Scale [ABS] Part I), and high levels of challenging behaviors within the Irritability and Hyperactivity subscales of the ABC (total mean ABC score of 94, with an average of 19 behaviors reported at level 3 severity). Of the 41
participants, five were living in family homes, 17 were living in community housing, and 19 were living in traditional hospitals/hostels. Assessments included (a) demographic information, (b) the Social and Physical Incapacity scale, (c) the Speech, Self-Help and Literacy scale, (d) the Disability Assessment Schedule (DAS), (e) the ABS, and (f) the ABC-Community. Results indicated that individuals living in family homes had slightly higher adaptive behavior scores. However, no differences in problem behavior were found among different living situations. Analysis of ABC subscale scores showed similar profiles across the various living situations, which were notable for high scores on the Irritability and Hyperactivity subscales. These findings were similar to those found on the DAS, which also indicated high levels of problem behaviors (aggression, temper tantrums, self-injury, screaming, and overactivity).


[This article will be summarized in a future edition of this manuscript.]


This study investigated the efficacy and safety of gamalate B6 (GB6) on the behavior, cognition, and social age of 65 school-age children (62% males; mean age, 10.6 years) with mild to moderate mental retardation and comorbid behavior disorders. At baseline and at the end of a 3-month open trial with GB6, parents of the children completed the Spanish translation of the Aberrant Behavior Checklist (ABC) and were interviewed with the Vineland Social Maturity
Scale. The children were also administered a variety of direct cognitive measures including the Wechsler Intelligence Scale for Children-Revised (WISC-R), the Benton digit learning test, the Trail-Making test, and the Labyrinth test. All mean subscale scores of the ABC decreased at statistically significant levels at follow-up; the greatest mean reductions were seen on the Hyperactivity (5.9 points) and Irritability/Agitation subscale (3.6 points) scores. Social age, as measured by the Vineland, increased 0.8 years on average. Scores on general intelligence as well as specific cognitive tasks also increased significantly from baseline to follow-up. Tolerance to treatment was excellent in 93% of the cases. The authors suggested that GB6 could be especially useful in the treatment of hyperactivity and irritability in children with mild to moderate mental retardation.


Behavior problems of three groups of subjects aged 7 to 64 years were assessed using the Japanese version of the Aberrant Behavior Checklist (ABCCJ). The three groups were as follows: (a) participants prescribed only antipsychotics (n=54); (b) subjects receiving anticonvulsant drugs only (n=52); and (c) individuals prescribed no medication (n=222). Each subject was rated by a direct care staff member on the ABCCJ. Mean scores were significantly higher for subjects prescribed antipsychotics than for the other groups. The investigator also compared the mean daily dose of chlorpromazine (CPZ) by gender, age (under and over 30 years old), and level of mental retardation (mild/moderate and severe/profound). The effect of level of mental retardation was significant; the mean daily dose for subjects with severe/profound mental retardation was significantly higher than that for individuals with mild/moderate retardation.
Mean CPZ equivalent dose was also significantly correlated with the Hyperactivity subscale score on the ABC. S.A.


This was a psychometric study of the Informant Questionnaire on Cognitive Decline (IQCODE) (Jorm, 1994). The IQCODE is an informant questionnaire that quantifies cognitive decline over ten years. The modified version used here employed 16 items and asked raters to report decline over two years. Forty elderly subjects with mental retardation were assessed on the IQCODE as well as a short form of the Wechsler Adult Intelligence Scale (WAIS) (Wechsler, 1981), the Short Portable Mental Status Questionnaire (SPMSQ) (Pfeiffer, 1975), and the ABC. Test-retest reliability of the IQCODE, obtained on 24 subjects over 4 weeks, was .55 (Pearson correlation). Interrater reliability, obtained on 17 subjects, was not significant (\( r = -.21 \)). IQCODE scores were not significantly related to the short WAIS, SPMSQ, age, gender, or ABC scores. Failure of the IQCODE to correlate with the SPMSQ and WAIS raises serious questions about the instrument's concurrent validity. The lack of correlation between the IQCODE and ABC suggests that the IQCODE is not assessing behavior problems (discriminant validity). Overall, the psychometric characteristics of the adapted IQCODE do not appear well suited for elderly people with mental retardation.

Investigated the occurrence of daytime behavior problems (DBPs) and maternal stress in a group of children (aged 4-19 yrs) with Down’s syndrome (DS) compared with a group of their non-intellectually disabled siblings, a group of non-intellectually disabled children from the general population, and a group of children with an intellectual disability other than DS. The Aberrant Behavior Checklist (ABC) and the Malaise Inventory were completed by the mothers. Overall, the children with DS and the children with other intellectual disabilities showed significantly higher rates of behavioral disturbance on all 5 of the ABC subscales and on the Total ABC score. However, the children with other intellectual disabilities also showed significantly higher scores than the children with DS on 4 of the ABC subscales, as well as the Total ABC score. The siblings and children from the general populations showed very similar behavior scores. A number of significant age and sex differences were found in the occurrence of DBPs. Maternal stress was significantly higher in the group with other forms of intellectual disability than the other 3 groups, and a number of significant associations were found between parental ratings of DBPs and maternal stress in all 4 samples. The implications of the findings are discussed, including the need for early assessment to minimize adverse effects on the child’s development and on family life.


The purpose of this study was to examine the relationship between subject characteristics and maladaptive behavior in residents of the Chalfont Centre, a sheltered housing and workplace for individuals with epilepsy. Participants included 116 adults with various levels of intellectual disability. Basic demographic information (such as age, sex, handedness, age at onset of
epilepsy, duration of epilepsy, seizure frequency, number of currently-prescribed antiepileptic
drugs, presumed etiology (if known), IQ, and past psychiatric history) was collected. An ABC
was filled out for each resident by the caregivers at the Centre. Each resident also had an MRI
scan upon admission assessment, and these images were used in this study as well. Results
indicated that the Chalfont population had lower ABC subscale scores compared to normative
values when matched for level of intellectual disability; and the authors noted that this was likely
due to selection biases in the Chalfont sample. Certain subscales of the ABC were related to
subject characteristics, such as (a) significantly higher Hyperactivity/Noncompliance and
Inappropriate Speech subscale scores in subjects with moderate mental retardation than in those
with mild mental retardation; (b) significantly higher Irritability scores occurred in the subjects
with a past history of febrile convulsions; and (c) significantly higher Hyperactivity/
Noncompliance scores were observed in subjects with generalized epilepsy syndromes and an
absence of focal lesions on brain MRI. Among the most intriguing of these findings was the
finding that higher scores on the Irritability subscale were associated with history of febrile
seizures. The authors suggested that this may be related to damage to the amygdala and/or
hippocampus, and they suggested that further imaging studies are warranted.

99. Bonell-Pascual, E., Huline-Dickens, S., Hollins, S., Esterhuyzen, A., Sedgwick, P,

AReports on the follow-up of a cohort of parentally bereaved 20-59 yr old adults with
learning disabilities [mental retardation]. Whether significant psychopathology, present up to 2.1
yrs after the death, had resolved 5 yrs later was investigated. Forty-one subjects were
reassessed. The Aberrant Behavior Checklist and the Psychopathology Instrument for Mentally
Retarded Adults were re-administered to subjects’ carers. Results at follow-up showed that there was a small increase in the measures of aberrant behavior. Measures of psychopathology showed improvement, and in particular there was a reduction in anxiety. It was concluded that the response to bereavement by adults with learning disabilities is similar in type, though not in expression, to that of the general population. Learning disability [mental retardation] is a significant predictor of mental health problems following bereavement. Participants adapted more easily when basic emotional needs had been constructively met by carers.


This study was done to determine any relationship between sleep problems and challenging behavior in adults with intellectual disability. A total sample of 205 adults in community housing in the United Kingdom (39% female, mean age 46.8 years) was divided into two groups, based on scores from a modified version of the Simonds and Parraga (1982) sleep questionnaire. The two groups, “sleep problem” and “no sleep problem,” were rated with the ABC to assess behavioral difficulties. The authors also used a Principal Components method (Varimax rotation) of the ABC to analyze 18 items referring to particular types of challenging behavior they were interested in. Items were retained on a factor if they had a loading of 0.55 or more; 17 retained items ranged in loadings from 0.57 to 0.91. Four factors with eigenvalues greater than 1.0 were found: 1) Aggression/Temper Tantrums (items 4, 10, 21, 29, 47, and 57); 2) Non-compliance (items 18, 24, 31, 51, and 56); 3) Self-injury (items 2, 50, and 52); and 4) Screaming (items 8, 19, and 41). T-tests were used to determine if the “sleep problem” group differed from the “no sleep problem” group on both general behavioral difficulties and the
newly-created challenging behavior factors. The group with sleep problems scored significantly higher on original factors I) Irritability ($t = -3.76, p < 0.001$); III) Stereotypic Behavior ($t = -2.62, p = 0.01$); and IV) Hyperactivity ($t = -2.62, p = 0.01$). Additionally, this group was significantly higher on the authors’ newly created factors 1) Aggression/Temper ($t = -3.12, p < 0.01$); 3) Self-Injury ($t = -2.83, p < 0.01$); and 4) Screaming ($t = -3.26, p = 0.001$). The authors concluded that these data provide evidence for an association between sleep problems and problematic behavior in adults with intellectual disability.


This study compared the level of client disabilities and challenging behavior in hospital wards (i.e., developmental centers) and hospital-based bungalows (largely equivalent to community-based residential units). Fifty clients from hospital wards (mean age 36 years) and 54 clients from hospital-based bungalows (mean age 38 years) were randomly selected. The majority of clients in each group had mental retardation. Key workers completed the Disability Assessment Schedule (DAS) and the Aberrant Behavior Checklist (ABC) for each client. Over 60% of the subjects in each group were mobile, continent, and able to feed themselves. Deficits for most individuals included self-help, academic, and communication skills. Chi-square tests between the two groups indicated that clients in the hospital-based bungalows were significantly more capable in most adaptive skills than subjects in the developmental center wards. Subjects from the bungalows, however, were rated as having significantly more severe problems on all five subscales of the ABC than subjects from the wards. On the wards, problem behavior was correlated with age, skills, mobility, incontinence, and repetitive symbolic activities. In the
bungalows, aberrant behavior was correlated with skills, stereotyped behavior, delayed echolalia, and repetitive speech. These results conflict with previous findings that clients in environments with large populations exhibit more problem behavior than those in environments with smaller populations.

S.A.


This article summarized a series of studies examining the quality and costs of residential services in the United Kingdom provided to individuals with mental retardation. Overall, the authors determined that there was little evidence to imply that support resources in the UK are allocated based on need. They studied the relationship between proposed indicators of need (e.g., ability, challenging behavior) and resource allocation (e.g., cost of care, staff-to-resident ratios). In a study of 44 people with intellectual disabilities and severe aberrant behavior, the researchers found no significant relationship between severity of problem behavior and costs of care or ratios between staff members and patients. However, challenging behavior as measured by the Aberrant Behavior Checklist was weakly associated with ratios between staff members and residents ($r=.17, p<.01$) in another study of 271 people with intellectual disabilities residing in small (8 or less) community-based supported houses. Challenging behavior scores accounted for only 3% of the variance in total costs for this latter group.

S.A.


The authors developed a checklist for assessing major depressive episode as specified in
the DSM-III-R. The checklist, which also contained criteria commonly seen in children and adolescents, comprised 38 items. Independent pairs of nurses rated 87 residents on the depression checklist, and different raters from each pair rated the resident on the ABC and on the Developmental Behaviour Checklist (DBC). Overall, the nurse pairs were found to be reliable in rating depressive behaviors with the 38-item checklist [e.g., 73 of 87 pairs (82%) had agreements over 70%]. Four ABC subscales were found to correlate positively with depression ratings, as follows: (a) Irritability, .50; (b) Lethargy/Social Withdrawal, .44; (c) Stereotypic Behavior, .40; (d) Hyperactivity/Noncompliance, .41. ABC items common to the depression subscale were then removed and the correlations were re-calculated. The following significant associations were found: (a) Irritability, .49; (b) Lethargy, .43; (c) Stereotypic Behavior, .40; and (d) Hyperactivity, .37. Thus, association between the ABC and the depression checklist were not due to the fact that they contained some common items. DCB subscales were also correlated, although at slightly lower levels, with depression ratings. The authors suggest that depression may present differently in people having severe mental retardation as compared with the general population.


Five community houses in the United Kingdom were provided with active support, a package of procedures including (a) activity planning, (b) support planning, and (c) training. The goal was to understand how active support might affect individuals with severe intellectual disability. Nineteen residents participated (63% male; mean age = 48 years). Mean total ABC scores were reported as a way of characterizing the challenging behavior of the participants, and
these varied widely across houses (range 7-24). [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] The one-month intervention was provided for each of the five houses in turn; two subsequent follow-up visits were performed at 6 months and 8-12 months. The authors were not interested in change in challenging behaviors per se, so no ABC scores were reported other than the baseline values. Based on the other data collected, the authors concluded that active support was a useful tool for improving the quality of support received by the residents.

CAF


Some 39 children with autistic disorder were selected for high scores (>75%ile) on the ABC Irritability of Hyperactivity/Noncompliance subscales as rated by their parents. These was a one-week single-blind placebo lead-in followed by 4 weeks of either placebo or amantadine hydrochloride treatment. Amantadine was given in doses of 2.5 mg/kg/day during the first week and raised to 5.00 mg/kg/day by the fourth week of randomization. All children were videotaped at entry and during the last week on medication while being evaluated with the Autism Diagnostic Observation Schedule (ADOS). Dependent variables included weekly parent ratings on the ABC, investigator ratings with the ABC of ADOS sessions, and Clinical Global Improvement (CGI) ratings. Parent ratings on the ABC did not reveal significant drug-related changes. However, investigator ratings indicated significant reductions on the Hyperactivity/Noncompliance and Inappropriate Speech subscales of the ABC. Some 53% of
mantadine subjects were rated on the CGI as responders, as compared with 25% of placebo subjects (.05<p<.10).


This was a 16-week, open-label trial of quetiapine in 6 boys with autistic disorder (mean age = 10.9 years, SD = 3.3). All subjects functioned in the mentally retarded range (mild, n = 2; moderate n = 3; severe, n = 1). One subject was concurrently taking fluvoxamine (25 mg/day); all other subjects were on no other medications. Quetiapine was started at 25 mg orally every night, and was increased by as much as 100 mg per week based on clinical response. Ratings were conducted at baseline and every 4 weeks thereafter, and included (a) the ABC–Community, (b) improvement on the Clinical Global Impressions (CGI) scale, (c) the Ritvo-Freeman Real Life Rating Scale (RLRS), and (d) the compulsion scale from the Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS). The primary outcome measures were the Irritability subscale of the ABC and the CGI–Improvement score (with subjects having ratings of “much improved” or “very much improved” considered responders). Only 2 of the 6 subjects completed the 16 weeks of quetiapine treatment. Subjects dropped out due to (a) insufficient clinical response and concurrent inability to increase quetiapine dose due to sedation (n = 3), (b) behavioral activation and akathisia (n = 1), or (c) probable seizure (n =1). Each subject’s last rating on quetiapine was used as an endpoint. No statistically-significant improvements between mean baseline and exit scores were noted on any of the outcome measures. Only the 2 subjects who completed the 16 weeks of treatment were considered to be “responders,” although only one of these children maintained these improvements at follow-up. Overall, quetiapine was poorly
tolerated and ineffective for most subjects in this sample. (Journal Abstract)


   [This article will be summarized in a future edition of this manuscript.]


   This was a study to determine whether subjects with Angelman syndrome present with a unique behavioral profile. Some 27 young people with Angelman syndrome were compared with a community comparison group (n=23) and a clinic comparison group (n=24). Ages ranged from 2 to 25 years (mean 9 years) across groups. The groups were matched on age, gender, and functional level. All participants were rated by their parents on the Aberrant Behavior Checklist. The Angelman group had significantly lower scores (i.e., they had more manageable behavior) than both comparison groups on the Irritability subscale and on the Lethargy/Social Withdrawal subscale. In addition, the Angelman subjects had significantly lower scores than the clinic comparison group on all of the remaining subscales (Stereotypic behavior, Hyperactivity/Noncompliance, and Inappropriate Speech). Individual items from the Irritability and Lethargy/Withdrawal subscales were also compared across groups. Subjects in the Angelman group scored significantly lower than both comparison groups on two items related to temper outbursts. They also scored lower than the clinic comparison group on seven additional items, mostly from the Irritability subscale. The study provides for the clinical impression that individuals with Angelman syndrome often have a happy demeanor and social disposition.
This article reviewed current practice parameters in treating individuals with mental retardation and comorbid mental disorders and was intended as an aid to clinicians who work with this population. The authors discussed the epidemiology of mental retardation and the prevalence and types of mental illness that can be present in these individuals. The authors addressed assessment of mental disorders, the use of psychiatric diagnostic evaluation, obtaining medical history, patient interview techniques, and the use of rating scales. Two rating scales were identified: the Reiss Screen for Maladaptive Behavior, and the Aberrant Behavior Checklist. The authors stated that the Reiss Screen’s total score may be useful for discriminating between people with and without a psychiatric diagnosis. They also reported that the ABC is particularly useful for tracking the effects of psychopharmacologic agents and for measuring a person’s treatment progress over time.


This was a psychometric study of the ABC, the Reiss Screen for Maladaptive Behavior, and the AAMD Adaptive Behavior Scale Part II. Of 475 patients assessed, 269 (57%) were assessed on the ABC. The subscales from each of the three instruments were correlated by means of Spearman coefficients to assess concurrent validity. Subscales from the ABC were consistently and substantially correlated with analogous subscales of the other two instruments. For example, the following relationships were found with the Reiss Screen: (1) Irritability and
Aggressive Behavior ($r=.74$); Irritability and Paranoia ($r=.60$); Irritability and Dependent Personality ($r=.51$); (2) Lethargy and Avoidant Disorder ($r=.61$); (3) Stereotypic Behavior and Autism ($r=.49$); (4) Hyperactivity and Aggressive Behavior ($r=.64$); Hyperactivity and Paranoia ($r=.51$); and (5) Inappropriate Speech and Psychosis ($r=.33$). Strong correlations were also found for all five ABC subscales and analogous subscales on the AAMR Adaptive Behavior Scale. Examples include the following: (1) Irritability and Social Behavior ($r=.67$); (2) Lethargy and Social Engagement ($r=.66$); (3) Stereotypic Behavior and Stereotyped/ Hyperactive Behavior ($r=.48$); (4) Hyperactivity and Conformity ($r=.63$), and (5) Inappropriate Speech and Stereotyped/Hyperactive Behavior ($r=.47$). The data support the concurrent validity of all three instruments.


An investigated a group of children with severe [mental retardation], challenging daytime behavior, and severe sleep problems to see if successful behavioral treatment of the children=s sleep problems resulted in reduced daytime challenging behavior as reported by mothers and teachers. A randomized controlled trial of behavioral interventions for 30 children=s sleep problems was conducted. The intervention group (mean age 8.21 yrs) received an individually tailored behavioral program and were supported by telephone calls from the therapist. Baseline assessments of the children=s behavior were made using the Aberrant Behavior Checklist and were repeated 1 month and 3 months after the start of intervention. There were no behavioral changes that were specific to children in the treatment group. However, improvements in some
behaviors were seen in both the intervention and the control group at many of these changes. Results suggest that nonspecific effects of participating in the study (including an increased sleep duration, which was seen in both groups), rather than resolution of sleep problems per se, may have a beneficial effect on child behavior, and less factors need to be identified for therapeutic use.


This was a study of six autistic children who had previously been shown to be responsive to naltrexone in a controlled study. All participants received 20 mg/day of naltrexone for 6 months following the controlled study. These children were rated by their parents on the ABC at baseline (no drug) and after 1, 3, and 6 months of treatment. In addition, the subjects and six controls were tested on a psychoeducational profile at baseline and 6 months. Paired tests showed significant reductions on the Hyperactivity subscale of the ABC at 1 and 3 months (p<.05) but not at 6 months (p<.07). As in other studies, other subscales of the ABC were not affected by naltrexone. There were no differences on the psychoeducational profile between naltrexone-treated subjects and controls.


The parents of 601 young people, aged 6 to 22 years, rated them on the Aberrant Behavior Checklist-Community. All subjects were in special educational settings in central Ohio, and all were classified as having mental retardation. The sample was randomly divided
into two subgroups and clusters were derived independently using Ward’s hierarchical method of cluster analysis. Both analyses produced the same set of eight clusters, which were designated as follows: (a) Problem Free, (b) Within Normal Limits, (c) Conduct Problem, (d) Shy/Inactive, (e) Hyperactive, (f) Social Withdrawal with Agitation, (g) Undifferentiated Behavior Disturbance, and (h) Autistic-Like Behavior. The authors examined the school records of 228 subjects and used this information to appraise the external validity of the obtained clusters. There was a predominance of boys in the Hyperactive and Autistic-Like clusters. Children in the Problem Free group had a low rate of DSM diagnoses, whereas children within the Hyperactive and Conduct Problem groups had a high percentage formally diagnosed with ADHD. The authors concluded that the external data provided moderate support for all clusters except (f) Social Withdrawal with Agitation and (g) Undifferentiated Behavior Disturbance.


This is a review of the literature surrounding the development of behavioral phenotypes for individuals with Down syndrome. Among other categories, adaptive behavior was discussed. The findings of several studies, using the ABC and scales sampling adaptive behavior, indicated that parents reported fewer behavior concerns in groups with Down syndrome as compared to age-matched groups with intellectual disability and groups with Prader Willi syndrome. However, no specific use of the ABC is mentioned. The authors concluded that the behavioral phenotype is consistent across the literature. They suggested that it should include mental retardation accompanied by deficits in language development, intelligibility, and short term memory. Adaptive skills appear to be what should be expected, given the level of cognitive
disability associated with Down syndrome. Challenging behavior, however, appears to be of lower frequency than in other groups with similar cognitive disturbances.


In this study, caregivers of 73 individuals with Angelman syndrome completed the Aberrant Behavior Checklist (ABC) and the Reiss Screen for Maladaptive Behavior. Subjects were 5 years or older and had a documented deletion within chromosome 15 at 15q11.2q13. Caregivers also supplied demographic information on the subjects. Most subjects (n=58) were severely-to-profoundly retarded and living at home (n=66). The researchers compared mean ABC subscale scores for the 15q-group to Marshburn and Aman=’s (1992) published norms. Although no scores were over one standard deviation away from published norms, the subscale scores for the 15q-group suggested a characteristic pattern of abnormal behavior. Furthermore, the magnitude of the difference in scores from the reference group was much lower than that for other disorders such as Prader-Willi syndrome and Smith-Magenis syndrome. On the ABC and the Reiss Screen, items rated highest (i.e., most problematic) included those dealing with overactivity, lack of speech, sleep problems, impulsivity, and eating difficulties. Inappropriate laughter, considered a central feature of the syndrome, was reported for 57% of the total sample. ABC subscale IV (Hyperactivity/Noncompliance) scores were negatively correlated with age (r=-.36), suggesting that overactivity was more of a problem for younger members of the 15q-group.

S.A.

The costs, nature, and benefits of residential supports were examined for 20 adults with severe and complex disabilities living in residential campuses and 20 adults living in small community-based housing. Results indicated that participants living in housing schemes enjoyed a significantly greater quality of care and quality of life than participants living in residential campuses. Total ABC scores were higher (worse) for subjects in the residential setting than for those in the smaller housing units. The total costs of housing were significantly greater than the total costs of provision in residential campuses. (Journal abstract used)


This is a companion paper to Jones *et al.*, 1999 (reviewed above, #98). The ABC was used as a way of characterizing participants. The goal of the study was to evaluate the effectiveness of training in Active Support, a package of procedures used in residential settings. The portion of the report referencing the ABC is identical to that of Jones *et al.*, 1999 (summary above). CAF


A survey of people with severe mental retardation and severe abnormal behavior identified 17 adults living in new community housing and 19 in traditional services. This study explored relationships between resident characteristics, service characteristics, service process, quality of life outcome, and costs in a series of multivariate regression analyses. Higher
accommodation costs were associated with lower residential ability and community services. Costs were inversely associated with setting size. Resident autonomy was associated with higher resident ability, community services or smaller setting size, and lower staff-resident ratios. Participation in domestic life was associated with higher resident ability and availability of community services, or smaller scale. More frequent community involvement was associated with higher resident ability and smaller setting size, with lower levels of abnormal behavior assessed on the ABC. Higher resident engagement in activity was associated with higher resident ability and the extent of interaction between staff and residents. (Journal abstract used)


This was a study of 13 children with autism or PDD-NOS and with high scores (≥15) as rated by teachers on Conners= Abbreviated Symptom Questionnaire (CASQ). All participants received placebo and methylphenidate (0.3 and 0.6 mg/kg), twice or thrice daily. The three drug conditions lasted one week each. Outcome measures included the ABC, CASQ, IOWA Conners Teacher Rating Scale, Conners Teacher Rating Scale (28 item), the Childhood Autism Rating Scale (CARS), and a standardized Side Effects Checklist. Three children were unable to tolerate the high dose because of side effects, and one of the three could not tolerate the low dose of methylphenidate. Eight of the 13 children were regarded as clinical responders as defined by at least a 50% decrease on the CASQ. Analysis of variance indicated significant drug-related changes on the following subscales of the ABC: I. Irritability, III. Stereotypic Behavior, IV. Hyperactivity/Noncompliance, and V. Inappropriate Speech. Teacher ratings on the CASQ and IOWA Conners= Scale (overactivity portion) also showed significant changes. The main side
effects reported included sadness and dullness (lack of alertness) with methyphenidate.


Forty-one boys (aged 3-6 years) with fragile X syndrome were compared with 16 age- and IQ-matched control boys who had general mental retardation. Three areas of fragile-X phenotypes were assessed: (1) social avoidance, (2) hyperactivity and attention deficit, and (3) difficulty with change and irritability. Measures included (a) The Revised Dimensions of Temperament Survey, (b) the Achenbach Child Behavior Checklist, (c) the ABC–Community, (d) cognitive measures, (e) language measures, and (f) the Vineland Adaptive Behavior Scales–Interview Edition. In order to assess the three areas of fragile-X phenotypes, various subscales from measures a-c were used (e.g., ABC-C subscales which were used were the Lethargy/Social Withdrawal subscale to assess social avoidance; the Hyperactivity subscale to assess hyperactivity; and the Irritability subscale to assess difficulty with change and irritability).

Results indicated that when compared with controls, the fragile-X group showed more deficits in motor skills, increased initial avoidance of novel things, decreased social withdrawal, and more positive mood. No differences were noted in hyperactivity and inattentiveness. These findings conflicted with previous reports. Limitations of this study included the source of the control group and the use of clinic-referred participants (likely not representative of youngsters having mental retardation in general).

[This article will be summarized in a future edition of this manuscript.]


Sixteen children with autism (mean age, 9.4 years) completed participation in this balanced crossover experimental study of Auditory Interpretation Training. In the experimental phase of Auditory Integration Training (AIT) subjects received 10 hours of specially modified music across 10 consecutive working days (2 x 30-minute sessions per day, at least 32 hours apart). The control phase of the study was identical, except that subjects wore nonfunctional headphones and the music was played in the training room rather than through the headphones. After a 3 to 5 month pretreatment baseline phase, subjects were randomly allocated to treatment order. Four months of no treatment occurred between treatment phases. Blinded examiners collected IQ, language, and adaptive behavior measures on the children prior to and at the end of treatment. Measures obtained monthly included parent and teacher ratings of the children=s behavior on the Aberrant Behavior Checklist (ABC) and the Nisonger Child Behavior Rating Form (N-CBRF). Children=s problem behavior was also assessed in the classroom by direct observations one day per month. Significant differences, favoring better behavior in the control condition, were noted on parent ratings on the Hyperactivity subscale of the ABC and on the Hyperactive subscale of the NCCBRF. No significant differences were found in teacher ratings, IQ, or language comprehension. Although overall language did not change, expressive language (measured by the Reynell Language Developmental Scales-III) increased significantly over the course of the study. Mean adaptive behavior scores decreased from pre- to post-treatment on the Vineland Adaptive Behavior Scales. The authors concluded that the children did not benefit
Specific stress responses may be responsible for the relatively high mortality rate in individuals with severe and profound mental retardation, following changes in living situations. This study explored the effects of educational stress (activities such as sorting or stacking blocks, or tearing paper) on several aspects of the subjects’ hematological and immunological profiles. Twenty-eight residents with severe or profound mental retardation (mean age 49 years, 54% female, 92% Caucasian) participated in the study. ABC scores no older than one year were collected from the subjects’ files; it is not clear who completed the ratings. Participants had the following mean subscale scores: Irritability, 10.5; Lethargy, 8.5; Stereotypy, 3.6; Hyperactivity, 9.5; and Inappropriate Speech, 2.0. The ABC was not used as a dependent variable in this study, and no more results relevant to the ABC were presented. Results of a 2-tailed $t$-test comparing pre-stress blood characteristics to post-stress blood characteristics showed significant differences in several areas. Red blood cell levels ($t = 2.82, p = 0.01$), hematocrit levels ($t = 1.80, p = 0.08$), and plasma protein levels ($t = 4.91, p< 0.001$) were higher post-stress. The authors concluded that the elevated health risk associated with stress may be due to these variables, which have been correlated with thrombosis, ischemia, and increased blood pressure. However, they cautioned that the results were not generalizeable, because it is difficult to tell how stressful the activities were (measuring subjective stress is difficult in severe and profoundly mentally retarded populations), and it is possible that diagnostic subgroups may yield different stress response patterns. CAF

[This article will be summarized in a future edition of this manuscript.]


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This was a psychometric study of the Stereotyped Behavior Scale (SBS), a 24-item scale developed by Rojahn, Tassé, and Sturmey (1997). The SBS has both a frequency score and a severity score. A total of 45 residents in a developmental center were rated by 8 caregivers. Fifteen subjects were rated by a second group of independent raters to assess interrater reliability. In addition, all subjects were re-rated after a mean of 29 days (range 17 to 46) by the initial raters. Some 16 subjects were assessed by direct observations for 15 minutes each. The Stereotypic Behavior subscale of the ABC was also used for comparison and validity purposes.

Test-retest reliability was .75 for both SBS frequency and severity (Spearman=s rho). For the ABC Stereotypic Behavior it was .81. Interrater reliabilities for SBS frequency and severity ratings were .86 and .81, respectively; this was not examined for the ABC. Alpha coefficients were as follows: (a) SBS frequency, .92; (b) SBS severity, .90; (c )ABC Stereotypic Behavior, .86. Using the Spearman-Brown prophecy formula, internal consistency was
estimated at .95 if ABC Stereotypic Behavior were extended (for comparability) from 7 items to 24 items, as in the case of the SBS. Congruent validity scores (Pearson=r) between SBS frequency and ABC Stereotypic Behavior and SBS severity and ABC Stereotypic Behavior were .79 and .83, respectively. Correlations with direct observations of stereotypic behavior were as follows: (a) SBS frequency, r = .44 (NS); (b) SBS severity (r= 55, p<.05); and (c) ABC Stereotypic Behavior (r=.66, p<.05). Prior to rating by caregivers, all subjects were classified by a senior psychologist as low, moderate, or high on stereotypic behavior. One-way ANOVAs indicated that all three rating indices were sensitive to this classification: (a) SBS Frequency F (2,42) = 7.68, p<.01; (b) SBS Severity, F (2,42) = 12.14, p<.01; (c) ABC Stereotypic Behavior, F (2,42)=11.73, p<01. The ABC Stereotypic Behavior subscale performed at least as well psychometrically as the substantially longer SBS scale.


In this report, the authors translated the ABC into French. They then used it to evaluate the behavior of eight moderately and severely retarded adults. The participants were described as having problems with communication, adaptive behavior, and emotional management. The authors developed a structured verbal activity in which the participants discussed aspects of behavior that they wished to change in their work environment. ABC changes were tracked for 5 of the 8 residents. Using the ABC the authors found median declines of 20.0% (Stereotypic Behavior) to 55.6% (Inappropriate Speech) after one year of intervention. At two years, the median reductions ranged from 40.5% (Stereotypic Behavior) to 60.9% (Hyperactivity/Noncompliance). The authors concluded that the ABC was helpful for
monitoring therapeutic interventions.


   [This article will be summarized in a future edition of this manuscript.]


   In this study, a professional translator re-wrote the ABC instructions and items in Chinese. Ten bilingual experts rated the adequacy of the translation, and another translator modified selected items from the Chinese ABC after the bilingual expert ratings were made. Subsequently, 306 adults attending hostels, sheltered workshops, and day activity centers were rated on the Chinese ABC by 72 staff members having 8 months to 13 years= work experience with this population. The data were analyzed by factor analysis using principal axis factoring followed by varimax and promax rotation. The findings indicated that the Chinese ABC comprised five factors that explained 57.6% of the variance. In all, 49 of the 58 items (84.5%) loaded on the original factors that were derived when the ABC was developed (Aman et al. 1985).

   In order to study interrater reliability, 90 subjects (30 in 3 settings) were each rated by 2 to 4 staff members. The range of intraclass correlations (ICC) extended from .76 to .90 across subscales in the first location, .61 to .75 in the second, and .68 to .88 in the third (median ICC = .73). Test-retest reliability was assessed by having (a) 3 raters assess 20 subjects in one center, (b) 3 raters assess 22 subjects in another, and (c) 9 raters assess 16 subjects in a third setting.
Ratings were repeated after four weeks. The ICC correlations ranged from .84 to .92, .89 to .96, and .88 to .98 across settings and across subscales. The median test-retest ICC was .94. The author concluded that the AABC [Chinese version] was a valid and reliable instrument in the assessment of challenging behavior of people with moderate to severe . . . mental handicaps.


The goal of this study was to determine if deficits in communication ability are related to problem behaviors. Thirteen children with diagnoses of severe intellectual disability, autism, or other severe developmental disability, plus severe communication impairment, were selected from preschool classrooms in the Brisbane, Australia, area. The participants were mainly boys (77%) with a mean age of 47 months (range = 35-55 months). The children were rated by their teachers on the ABC and the Receptive-Expressive Emergent Language Scale (REEL-2) at six-month intervals over three years. For the first two assessments, the original ABC (1986) was used. The Community version, which is more appropriate for preschool-aged children, was used in subsequent assessments. Mean total ABC scores were reported for each assessment, but they showed no apparent developmental trend. [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] To determine a relationship between behavior and communication, total raw scores were correlated with several scores from the REEL-2. Significant negative correlations between the ABC and the Combined Language Age (CLA) from the REEL-2 ranged between -0.51 and -0.64 (each $p \leq 0.03$) for all 6 assessments. Similarly strong correlations were found with the Receptive Language Age (RLA) scale (range = -0.52 to -0.69; each $p \leq 0.03$). However, the correlations with the Expressive
Language Age (ELA) scale were significant for only assessments 2, 3, 5, and 6. These correlations were also less strong (range -0.46 to 0.54). Finally, CLA, RLA, and ELA scores were correlated with scores from the ABC. A deficit in communication ability was found to be most strongly associated with higher scores on the Hyperactivity and Lethargy subscales ($r$ range = -0.50 to -0.74). With the exception of Inappropriate Speech, which generally produced low and positive correlations, the other subscales were moderately associated with communication problems. Based on these data, the authors concluded that some relationship between communication deficits and problem behaviors exist, supporting similar findings in adult and adolescent populations. CAF


This paper explored the types of reinforcement involved in problem behavior (i.e., positive, negative, or automatic), and three treatments for ameliorating the behavior. This set of studies used the ABC only to characterize the participant; a total score of 78 was reported for a 19-year-old male with severe intellectual disability and autism. [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] The paper reported two studies; the first was a set of three analyses of six conditions, utilizing an ABAB design. The researchers found conditions during which the subject was required to be on task, was being ignored, or was forced to wait for tangibles to be more likely to produce challenging behavior. The second study evaluated three treatments: a) replacing attention-seeking behavior using non-contingent attention; b) providing the opportunity to request tangibles during tasks; and c) providing leisure items to avoid behavior during alone time. Treatments (a) and (b) produced clear-cut reduction of challenging behavior. The third treatment
also appeared to allow the participant to obtain reinforcement through alternative behaviors, although the effect was not as clear. CAF


This was a single-subject (AB) study of the effectiveness of naltrexone in a 38-year-old Caucasian man with severe mental retardation resulting from an alcohol overdose 10 years previously. This overdose led to a prolonged coma with residual organic brain damage, which also led to cortical blindness. The subject was a resident at an extended-care nursing facility, and had significant problems with self-injurious behavior, including biting, hitting, and scratching. Prior to treatment, this subject was taking benztropine, valproate, and risperidone, and these medications were not adjusted prior to or 6 months following data collection. Baseline data were collected for 15 days, followed by 30 days of treatment with naltrexone. Assessments included (a) assessment of the subject’s self injury during five 15-minute time samples per day, (b) assessment of subject’s social interactions during the five time samples, and (c) the ABC-Community, which was filled out by the subject’s direct care provider at baseline and after 15 and 30 days of treatment. During treatment with naltrexone, self injury decreased, and social interactions increased. On the ABC, clinically significant improvements occurred on all five subscales. At baseline, this subject’s ratings on the Irritability, Lethargy, and Stereotypic Behaviors were particularly high and exceeded the 90th percentile levels. After treatment with naltrexone, these ratings dropped to between the 48-63rd percentiles. The authors noted that these decreases in problematic behaviors appeared to improve the quality of life significantly for this subject, although they noted that the AB design of the study does not allow one to conclude that these improvements were caused exclusively by treatment with naltrexone.

This was a double blind, placebo controlled, parallel groups study of lamotrigine (Lamictal) in children with autistic disorder. Some 28 children completed the trial (14 per drug group). The children were aged 3 to 11 years, with a mean age of 5.8 years. The participants were not chosen for the presence of any problems other than those required to the diagnosis of autism. The time line for the study was as follows: (a) first 2 weeks, 0.5 mg/kg of lamotrigine, (b) 1.0 mg/kg for 2 weeks, (c) 2.0 mg/kg/day for 1 week, (d) 3.5 mg/kg/day for 1 week, (e) 5.0 mg/kg/day for 6 weeks, (f) taper off of drug for 2 weeks, and (g) drug-free for 4 weeks. Dependent variables included the ABC, the Autism Behavior Checklist, the Vineland Adaptive Behavior Scales, the Childhood Autism Rating Scale, and the Pre-Linguistic Autism Diagnostic Observation Schedule. Large placebo effects were seen over time both with lamotrigine and placebo treatments. However, none of the outcome measures, including the ABC, showed significant improvements for lamotrigine relative to placebo.


This was a double-blind, placebo-controlled, parallel-groups study of risperidone monotherapy in 38 adolescents with a disruptive behaviour disorder (Conduct Disorder or Oppositional Defiant Disorder) and severe aggression. The participants were 12 to 18-year-olds with mild mental retardation or borderline IQ, who were in a hospitalized treatment setting
because of severe aggressive behaviour. The trial entailed a 2-week baseline period followed by 6 weeks of risperidone or placebo, which in turn was followed by a final 2-week washout phase. Outcome measures included the Clinical Global Impressions Severity scale (CGI), ABC, Overt Aggression Scale (OAS), and the Extrapyramidal Symptom Rating Scale (ESRS). As assessed by the Wilcoxon 2-sample test, the CGI showed significant improvements for the participants in the risperidone group ($p < .001$). Both ward staff members and teachers rated the participants on the ABC. Ward staff rated the risperidone-treated subjects as significantly improved on the Irritability, Hyperactivity/Noncompliance, and Inappropriate Speech subscales. Teachers also rated the participants as improved on the same dimensions. Ratings done on the ward indicated significant improvement with risperidone on the OAS overall score and on the Physical Aggression domain (one of 4 domains). Teacher ratings failed to show changes on the OAS.


This was a double-blind, placebo-controlled study of dimethylglycine (DMG) in 37 children (ages 3 to 11 years) diagnosed with a pervasive developmental disorder using DSM-IV criteria. Participants were age and gender matched and randomly assigned to receive either placebo or DMG for 4 weeks. The dosage of DMG used was as follows: 125 mg for children weighing less than 40 lbs, 250 mg for 41 to 70 lbs, 375 mg for 71 to 100 lbs, 500 mg for 101 to 130 lbs, and 625 for greater than 131 lbs and greater. Behavioral measures included the ABC-Community, completed by a blinded examiner with input from the parent/guardian; and the Vineland Maladaptive Behavior Domain (a section of the Vineland Adaptive Behavior Scales Survey Form), completed by interviewing the parent or guardian. Standardized neurologic
examinations were also performed on participants pre- and post-treatment. After four weeks of treatment, significant improvements on all behavioral measures (each subscale of the ABC, as well as the Vineland Maladaptive Behavior domain) were observed for both the placebo and DMG groups, though these improvements were modest in size. There were no statistically-significant differences between treatment with DMG or placebo.


This study was a double-blind, placebo-controlled study of 39 children with autism (intent to treat; 5-19 years old; IQ > 35). After a one-week, single-blinded placebo run-in, subjects were randomly assigned to receive either amantadine (titrated to an eventual 5.0 mg/kg/day) or placebo for 4 weeks. Outcome measures included the ABC–C (as rated by parents and as rated by blinded clinicians) and the Clinical Global Impressions (CGI) scale. The primary outcome variable was a binary outcome derivative of the parent-rated ABC–C, which compared the percentage of “responders” in the amantadine and placebo groups. A “responder” was defined as a subject with at least a 25% reduction in the parent-rated Irritability or Hyperactivity subscales. After 4 weeks of treatment, 47% of subjects treated with amantadine were responders, compared to 37% of those treated with placebo (NS). Parent-rated ABC–C subscale scores showed no significant differences between the amantadine and placebo groups. However, analysis of the clinician-rated ABC–C scores, revealed significant decreases on the Hyperactivity ($p = .05$) and Inappropriate Speech ($p = .008$) subscales. Although CGI ratings
were higher in the amantadine group (53% improved versus 25%), these differences were not statistically significant ($p = .08$). The authors suggested that drug studies in this population must take into account the possibility of a large placebo response. The investigators concluded that future studies may benefit from larger sample sizes, longer treatment phases, and perhaps using a crossover (rather than parallel-groups) design.


This study examined the effect of the fragile X premutation (pM) on behavior and cognition. (In contrast to the full mutation that is characteristic of fragile-X syndrome, the pM is unmethylated.) Participants included 14 children with the fragile-X pM and 14 control children without the pM (or the full mutation) who were matched for sex and age to the pM group. Subjects ranged in age from 3 to 17 years. Each participant was administered a tests of (a) academic achievement (Woodcock Johnson Test of Academic Achievement–Revised), (b) visual motor integration (The Beery-Buktenica Developmental Test of Visual-Motor Integration), and (c) intellectual functioning (the Wechsler Intelligence Scale for Children, 3rd Edition; the Stanford-Binet, 4th Edition, or the Wechsler Adult Intelligence Scale–Revised). The mother of each participant was also administered the Wechsler Adult Intelligence Scale–Revised. Parents were also asked to complete the Achenbach Child Behavior Checklist (CBCL), the ABC–Community (from which a total raw score was used), and the Hollingshead Four Factor Index (used to calculate family socioeconomic status). No statistically significant group differences were found for any of the measures used in this study, suggesting that the pM has no effects on a child’s cognitive or behavioral development.
This was a randomized, double-blind, placebo-controlled, crossover study of 56 children (aged 3 to 12 years) with autism. All participants met criteria for autistic disorder using the Autism Diagnostic Interview—Revised (ADI—R), the Autism Diagnostic Observation Schedule (ADOS), and DSM-IV criteria. All subjects were required to have an IQ greater than 20 and have an overall age equivalent of 24 months or greater on the Vineland Adaptive Behavior Scales. The use of psychotropic medications was permitted as long as the dosage remained stable throughout the study. Porcine secretin was administered either at baseline (secretin-placebo group) or at the end of Week 4 (placebo-secretin group). The primary outcome measure of the study was change in ADOS social-communication scores. Other outcome measures included fine motor skills using the Developmental Test of Visual Perception, Second Edition (DTVP-2) or the Fine Motor Scale of the Mullen Scales of Early Learning; receptive language using the Peabody Picture Vocabulary Test—III or the Receptive Language scale of the Mullen; development using the Vineland Adaptive Behavior Scales–Interview Edition; severity of autism using the Gilliam Autism Rating Scale (GARS); problem behavior using the ABC–Community; and overall severity of illness using the Clinical Global Impressions scale (CGI). Most measures were completed at baseline and at the end of weeks 4 and 8, except for the GARS and the ABC, which were completed every two weeks. Analysis of results using independent t-tests showed no significant differences between the secretin and placebo treatments on any outcome measure. A repeated-measure ANOVA also revealed no significant differences between treatment groups for
any subscales or total scores of any of the repeated measures. The findings suggested that secretin may not have a role in the treatment of autistic disorder.


Mirtazapine is a tricyclic antidepressant with noradrenergic and serotonergic effects. The investigators in this study were interested in any effects mirtazapine may have on selected symptoms of autism, including aggression, irritability, self-injury, anxiety, depression, insomnia, and repetitive behavior. The first twenty-six consecutive children (81% male; mean age 10.1 years, range = 3.8-23.5) to be prescribed mirtazapine in a clinic specializing in pharmacological treatment of pervasive developmental disorders were included in this naturalistic study. Twenty of the enrolled subjects had autism, four with PDD-NOS, and one each had a diagnosis of Asperger’s syndrome and Rett’s disorder. As the study was naturalistic, 17 participants were taking concomitant medications. Dosing of mirtazapine began at 7.5 mg daily, and was increased in 7.5 mg increments to a maximum of 45 mg daily (divided dose), dependent on clinical response. Clinical Global Impressions (CGI) were recorded by two psychiatrists at baseline and endpoint. In addition to the conventional CGI, a separate “Sleep CGI” was included. Responder status was determined by a score of 1 or 2 (much or very much improved, respectively) on the CGI. The ABC was also used as an outcome measure; parent ratings were taken at the time of mirtazapine discontinuation. However, baseline ratings on the ABC were done retrospectively at the endpoint. Paired t-tests were used to determine significant differences on CGI and ABC scores between baseline and endpoint.

The mean duration of treatment was 150 days (range = 11-368). Nine out of the 26
(34.6%) participants were responders. For the entire group, there was a statistically significant improvement in CGI ratings ($t = 11.29, p < 0.04$). However, there were no significant changes in ABC ratings. The authors reported trends towards significant change in Total Score ($t = 9.18, p < 0.09$; please note that the ABC manual does not recommend the use of Total Score, as it lacks construct validity), the Irritability subscale ($t = 9.34, p < 0.08$), and the Hyperactivity subscale ($t = 9.10, p < 0.09$). The authors concluded that mirtazapine is a viable treatment option for symptoms associated with autism and other pervasive developmental disorders.

CAF


[This article will be summarized in a future edition of this manuscript.]


This was a study of risperidone in 13 children with conduct disorder and borderline IQ or mild mental retardation in residential treatment. Seven children were assigned to placebo and six to risperidone for this 4-week trial. Assessments were done double blind. As determined by the ABC, risperidone (mean dose 1.2 mg/day) caused significant reductions on the Irritability subscale (71% drug reduction compared with 1% for placebo). Ratings on the Hyperactivity/Noncompliance subscale were also reduced with risperidone (61% decline vs. 5% for placebo). Visual Analogue Scale ratings of most troublesome symptom and Clinical Global Impression ratings also favored the risperidone condition over placebo. There were no
significant extrapyramidal symptoms, but heart rate increased significantly for risperidone-treated subjects.


[This article will be summarized in a future edition of this manuscript.]


This was a double-blind, placebo-controlled crossover study of risperidone in 20 children, adolescents, and adults with mental retardation. Ages ranged from 6 to 65 years, with 5 children, 6 adolescents, and 9 adults participating. Subjects were selected for high levels of aggression, property destruction, self injury, or stereotypic behavior. Following a 2-to-4 week baseline, subjects received an initial placebo (3, 4, or 5 weeks long), risperidone first dose, risperidone second dose (4 weeks each), and finally a second placebo. This acute phase lasted 22 weeks and was followed by 6 months of open treatment. Half of the participants received a high dose first, followed by a low dose; and the procedure was reversed for the remainder. The low dose was 1mg/d for children and adolescents, and 2 mg/d for adults. The high dose was 1.8 mg/d for children and 3.5 mg/d for adults. The ABC–Community, the Nisonger Child Behavior Rating Form (NCBRF), and the Self-Injurious Behavior Questionnaire (SIBQ) were completed by subjects’ caregivers and the Clinical Global Impression (CGI) scale was completed by the physician.
Findings are difficult to summarize because pairwise comparisons were not presented. Two subjects did not complete the trial, and were excluded from the analysis. Some 50% of subjects were classified as responders using a criterion of 50% reduction on the ABC total score from first placebo condition to the better dose (high or low). Using a criterion of 25% reduction, 95% of subjects were responders. Lawful improvements with risperidone were apparent on the Irritability and Hyperactivity subscales of the ABC. Lawful improvements also occurred on the following subscales of the NCBRF: A. Positive/Social Component: (a) Compliant/Calm and (b) Adaptive Social; B. Problem Behavior subscales: (c) Conduct Problem and (d) Self Injury/Stereotypy. Thus, the ABC and NCBRF findings tended to be mutually reinforcing and indicated a beneficial effect of active medication.


This was a follow-up of 20 children who had participated in a study of methylphenidate (Ritalin) and fenfluramine (Pondimin) for ADHD 4 ½ years earlier. The children were rated on the ABC, the Revised Behavior Problem Checklist (RBPC), the Conner’s Teacher Rating Scale (TRS), and the Child Symptom Inventory (CSI), which assessed DSM-IV disorders. At the time of the follow-up, both parent and teacher ratings of ABC Irritability and Hyperactivity subscale scores declined, and teacher ratings on the Inappropriate Speech subscale also declined significantly. Predictors of parent-rated ABC Hyperactivity subscale scores at outcome included parent ratings on the ABC Irritability, Hyperactivity, and Inappropriate Speech subscales at initial contact, 4 ½ years earlier. Predictors of teacher-rated ABC Hyperactivity subscale scores at outcome included teacher ratings on the ABC Irritability subscale and Conner’s TRS Global...
score (inverse relationship for the latter). At time of follow-up, these children had high rates of ADHD, as well as conduct or oppositional defiant disorder (55%), anxiety spectrum disorder (50%), motor or vocal tics (25%), enuresis (40%), and encopresis (35%). This is one of only four follow-up studies published in English of children originally identified for joint presence of mental retardation and ADHD.


This was a 6-week double-blind, placebo-controlled, parallel-group study of 118 children. The participants were aged 5-12 years, had diagnoses of disruptive behavior disorders (either Conduct Disorder or Oppositional Defiant Disorder), and had mental retardation or borderline IQ. Outcome measures included the Aberrant Behavior Checklist, the Nisonger Child Behavior Rating Form (NCBRF), Behavior Problems Inventory, parent rating of “most troublesome symptom,” and clinician rating on the Clinical Global Impressions Scale. The Conduct Problem subscale on the NCBRF served as the primary outcome measure. Results indicated that risperidone produced significant improvement on all problem behavior subscales of the NCBRF, including the Conduct Problem and Hyperactive subscales. The NCBRF’s two Social Competence subscales were also improved with risperidone. The findings with the Aberrant Behavior Checklist indicated significant improvement on the following subscales: (a) Irritability; (b) Lethargy/Social Withdrawal; (c) Hyperactivity/Noncompliance. The findings of improved Lethargy/Social Withdrawal were consistent with improved outcome on the Social Competence subscales of the NCBRF and improved scores on the Irritability subscale and the Hyperactivity/Noncompliance subscales were congruent with analogous subscales on the
Clinicians’ CGI ratings were also highly significant, indicating improvement with risperidone.

The parents and guardians of 601 children and adolescents in special educational placements in central Ohio rated them on the ABC Community. Factor analysis of the ABC-C ratings revealed a factor structure that was largely the same as for the original ABC but without the fifth factor (Inappropriate Speech). Coefficients of congruence between the original and this factor solution ranged from .62 (Stereotypic Behavior) to .91 (Hyperactivity/Noncompliance); the median coefficient of congruence was .85. Using the original item assignment, the alpha coefficients (α) for these ratings ranged from .77 (Inappropriate Speech) to .95 (Hyperactivity/Noncompliance); the median was .90. Analyses were also conducted to assess the effects of sex, age, and class placement (Developmentally Handicapped Class [DH], Multiple Handicapped Class [MH], and Other). Boys scored higher (i.e., worse) on the Stereotypic Behavior and Hyperactivity subscales. Younger subjects (6-14 years) were rated higher on the Irritability and Hyperactivity subscales; and children in MH classes scored higher than those in DH classes on the Stereotypic Behavior subscale. Normative data for parent ratings were presented by age and sex combined, sex alone, and age alone.

This study was a double-blind, placebo-controlled, crossover study of secretin in 8 boys.
(aged 3 to 8 years) diagnosed with a pervasive developmental disorder using DSM-IV criteria. Subjects were randomized to receive either (a) an infusion of placebo, followed 4 weeks later by an infusion of secretin, or (b) an infusion of secretin, followed 4 weeks later by an infusion of placebo. Dosage of synthetic secretin was 2 CU per kilogram of body weight. The ABC was used as the sole behavioral measure in this study, and was completed before each infusion, and weekly thereafter by each participant’s parent and teacher. In the ABCs completed by the parents, there were 20 significant changes in ABC subscale scores pre- and post-treatment across subjects. However, only 23% of these significant changes reflected behavioral improvement subsequent to secretin infusion. The remaining 77% of significant changes in ABC subscale scores were either behavioral improvement after placebo (23%), or deterioration following secretin (31%) or placebo (23%). There were no patterns of deterioration or improvement in ABC subscales across subjects. By teacher report, there were 27 significant changes in ABC subscale scores across subjects: 15% improved after secretin, 37% improved after placebo, 37% deteriorated after secretin, and 11% deteriorated after placebo. Further analyses using MANOVA assessed effects of drug (placebo vs. secretin), order (first, second injection), and drug by-drug order interaction. No significant findings were found for parent report; in teacher report, the only significant change occurred on the Hyperactivity subscale of the ABC, with subjects receiving secretin followed by placebo worsening. The authors suggested that many of the dramatic anecdotes reported in case studies without a placebo control may not be a result of secretin, and that secretin may not be an effective treatment option.

This was a 4-week open-label study of risperidone in children with a diagnosis of autism. Seven children participated (4 male; mean age 7.6 years, range 3-14 years). Six of these children also had a diagnosis of intellectual disability, and 2 had epilepsy. The children were assessed weekly, following the baseline visit. Scores on the ABC were assessed with Wilcoxon matched-pairs signed rank tests and paired t-tests. Page tests were used to detect trends. Week 4 (endpoint) ratings were significantly lower ($p = 0.05$) from baseline on the following two subscales: (a) Irritability, 11.3 vs. 21.3 (Week 4 vs. Baseline); (b) Hyperactivity, 16.9 vs. 28.3; and also for the Total Score, 53.7 vs. 87.3. [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] The Page test was significant for all ABC subscales (except Inappropriate Speech) and for the Total Score: (a) Irritability, $p = 0.001$, (b) Lethargy/Social Withdrawal, $p = 0.005$; (c) Stereotypic Behavior, $p = 0.006$; (d) Hyperactivity, $p < 0.0007$; and (e) Total Score, $p < 0.0007$. Behavior was also scored as significantly better on the Affectual Reactions domain of the Ritvo-Freeman Real Life Rating Scale (i.e., one of five subscales). The authors concluded that risperidone appears to be safe and efficacious in children with autism.  


Caregivers (N = 466) of individuals with Angelman syndrome due to a deletion within 15q11q13 were contacted to participate in this study of problem behaviors associated with Angelman syndrome. Seventy-three of these caregivers decided to complete the three-part questionnaire consisting of (a) basic information regarding the participant with Angelman syndrome, (b) the ABC--Community version, and (c) the Reiss Screen for Maladaptive Behavior
(this was only completed for individuals aged 12 years and above). Over half of the participants (64%) were classified with severe intellectual disability, and the mean age was 11.0 years (gender not reported). Mean factor scores from the ABC were reported: (I) Irritability, 8.74; (II) Lethargy/Withdrawal, 4.93; (III) Stereotypic Behavior, 4.34; (IV) Hyperactivity, 20.08; and (V) Inappropriate Speech, 0.43. These data were compared to two standardization samples of individuals with mental retardation collected by (a) Aman and Singh (1986; n = 688, age range 5-50 years) and (b) Marshburn and Aman (1992; n = 539, age range 6-21 years). Z-scores were reported for the difference between the standardization samples and the Angelman syndrome group. The Z-scores for the comparison to the Aman and Singh (1986) sample were: (I) -0.034, (II) -0.410, (III) -0.177, (IV) 0.782, (V) -0.406; and for the Marshburn and Aman (1992) sample: (I) 0.191, (II) -0.034, (III) 0.536, (IV) 0.651, (V) -0.440. These data showed that the group with Angelman syndrome had average scores that were higher than both comparison groups on Hyperactivity (IV), and lower scores on Inappropriate Speech (V), although none of the differences were statistically significant or differed by one standard deviation. The authors noted that the problem behaviors most commonly reported for individuals with Angelman syndrome are related to overactivity and impulsivity. CAF


The goal of this survey of 286 children with intellectual disability was to determine the relationship between severe sleep problems and daytime problem behaviors. Participants had intellectual disability ranging from mild to profound. In all, 55% were male, and the age ranged from 1 to 19 years (mean = 8 years). They all lived at home and were located in three provinces
in the Netherlands. Parents of these participants completed a sleep questionnaire, and either a
teacher or psychologist who was familiar with the participant completed an ABC and a
demographic questionnaire. The data showed that 16.1% had at least one severe sleep problem
and 99.4% had at least one mild sleep problem. The internal consistency of the ABC was
assessed; Cronbach’s alpha for each subscale was as follows: (I) Irritability, 0.90; (II)
Lethargy/Social Withdrawal, 0.92; (III) Stereotypic Behavior, 0.92; (IV) Hyperactivity, 0.94; and
(V) Inappropriate Speech, 0.85. A Kolmogorov-Smirnov test showed that the scores were not
normally distributed, so a Mann-Whitney U-test was used to test differences between categories.
It was found that individuals with severe sleep problems scored significantly higher on the
following subscales: (I) Irritability ($z = -3.93, p < 0.001$); (II) Lethargy/Social Withdrawal ($z = -
2.10, p < 0.05$); (III) Stereotypic Behavior ($z = -3.60, p < 0.001$); and (IV) Hyperactivity ($z = -
3.73, p < 0.001$). The authors concluded that children with intellectual disability commonly
exhibit sleep problems, and these problems are related to problem behaviors during the day. CAF
Tags: sleep disturbance, problem behavior, intellectual disability

children and adolescents with Down's syndrome. *Journal of Intellectual Disability
Research, 46*(6), 484-492.

   [This article will be summarized in a future edition of this manuscript.]

in children and adolescents with autistic disorder. *Journal of Child and Adolescent

   A systematic chart review was conducted to reveal autistic patients who were treated with
donepezil. Eight patients (mean age 11.0, SD = 4.1 years) were identified. All subjects were on
concomitant psychoactive medications, but these other medications were held constant during the titration period. Donezepil was started at 2.5 mg for the first week and was increased by 2.5 mg weekly until 10 mg/day was reached or until the subjects exhibited significant behavioral improvements or intolerable side effects. Measures included the ABC–Community, which was completed by the parent prior to initiating donepezil and at the end of titration period (after 2 months of treatment). In addition, Clinical Global Impression (CGI) scores (both Improvement and Severity ratings) were determined retrospectively by the investigators after a review of the patients’ medical records. Responder status was determined by a reduction of 25% or more on the total score of the ABC and a CGI-Improvement score of 2 or 1 (much or very much improved). Paired t-tests compared data from subjects pre- and post-treatment, and the ABC scores were analyzed by subscale. Four of 8 subjects (50%) were judged to be responders. Statistically significant improvements were also noted on CGI–Severity ratings and on the ABC Irritability, Lethargy, and Hyperactivity subscales. The authors concluded that the results provide preliminary evidence that donepezil may be useful in individuals with autism, although controlled studies are needed.


The effects of olanzapine on the behavior of 25 children (aged 6-16 years) with autism or PDD-NOS were investigated in a 3-month, open-label, open-dosage study. Dose range by the end of the study was between 2.5 and 20 mg/day (mean 10.7 mg/day). Subjects were seen every other week for the first 2 months, and they were seen once at the end of the 3rd month of the study. Assessments included (a) the ABC–C, (b) the TARGET (a checklist of target symptoms
that is tailored to each child’s behavioral problems), and (c) the Clinical Global Impressions (CGI) subscales of Improvement and Severity. Other measures included (d) behavioral observations to assess communication skills and (e) safety measures. Only children who finished the trial (n=22) were included in the statistical analysis. Paired t-tests were used to compare ABC subscale scores from baseline to after 3 months of treatment; significant improvements were noted on the Irritability, Hyperactivity, and Excessive Speech subscales. Significant improvement was also noted on the TARGET scale. Analysis of observation data revealed that treatment with olanzapine allowed the children to be more attuned to the topic of conversation. Though only 3 children were deemed to be responders via the CGI-Improvement measures (much improved or very much improved), a significant improvement was found in the CGI-Severity scores after treatment with olanzapine (9 children improved by 1 point, 3 children by 2 points, 9 children unchanged, and 1 child worsened by 1 point). It is unclear as to how the CGI Severity and Improvement measures could differ in this way; one possibility is the fact that the children in this study did not have high rates of problem behaviors to begin with (e.g., mean Irritability subscale score at baseline was only 11.1). Controlled trials are warranted.


This was a double-blind, placebo-controlled, crossover study examining the efficacy of porcine secretin in children diagnosed with either autism or PDD–NOS using DSM-IV criteria. There were 19 children aged between 3-10 years participating in this study. However, only 15 were included in the analyses. These 15 subjects were selected due to either presence of chronic diarrhea (n = 5, defined as having diarrhea every day for at least the past year), or absence of any
significant gastrointestinal problems (n = 10). This study was 6 weeks long and involved three visits: (a) baseline (followed by infusion of placebo or secretin [2 CU/kg]), (b) week 3 (followed by infusion of secretin [2 CU/kg] or placebo), (c) and week 6 (endpoint assessment). Subjects were randomized to either the placebo-secretin group or the secretin-placebo group. All assessments were administered at every visit, and included (a) the ABC–Community, completed by the examiner by observing the child and by parent interview; (b) the MacArthur Communicative Development Inventory: Words and Sentences: Part I; (c) a global assessment score based on a 7-point scale; and (d) a gastrointestinal assessment rated by a 7-point scale. No improvements on ABC subscale scores were noted in the group as a whole or in subjects without gastrointestinal disturbance. A sizable number of subgroup analyses were undertaken. In the children with chronic diarrhea, statistically-significant improvements on the ABC Hyperactivity, Irritability, and Lethargy/Social Withdrawal subscales were noted after treatment with secretin (and not with placebo). There were similar (nonsignificant) trends towards significance observed in the Stereotypic Behavior and Inappropriate Speech subscales for children with chronic diarrhea. On the language assessment, there was a trend towards improvement in the children with chronic diarrhea only, with language improving after secretin (and not placebo) infusion. No significant differences were found on the global assessment measure. The results suggested that secretin may reduce aberrant behavior in children with autism/PDD–NOS if they have chronic diarrhea, but may not be helpful in children without such gastrointestinal disturbance. The number of post-hoc subgroup analyses may have inflated any positive findings.


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The purpose of this study was to compare behavior problems as rated by the ABC in women with Rett syndrome (RS) against the ABC’s normative data. Data were gathered on 50 women with RS, aged between 19 and 33 years, via a mail survey. The primary caregivers of the women with RS completed the ABC–Community, as well as a demographic questionnaire. The ABC manual contains normative data on three groups that the authors felt would be good comparisons: (a) 202 females with intellectual disability of varying levels, (b) 233 adults with severe mental retardation, and (c) 404 adults with profound mental retardation. The mean scores of the RS women were compared to the mean scores of these three samples using a series of tests. Results showed that women with RS scored consistently lower on the Irritability.
Hyperactivity, and Inappropriate Speech subscales compared to all 3 normative samples. On the Lethargy and Stereotyped Behavior subscales, the RS group was rated no differently than the sample with profound mental retardation, but higher than the normative samples of females with mental retardation and males and females with severe mental retardation. The authors stated that the lower Irritability subscale scores in RS women was somewhat surprising, but they thought that the lower Hyperactivity and Inappropriate Speech scores in RS were likely due to the significant physical and communication impairments found in the disorder. The similarities between the RS group and the group with profound mental retardation on the Stereotyped Behavior and Lethargy/Social Withdrawal subscales (despite RS’s association with hand stereotypies and specific deficits in social interaction) may indicate that future studies in RS need to focus on measures that address more syndrome-specific problems. Findings from this study could be used to develop measures that are more sensitive to the RS behavioral phenotype.


This case report involves the re-assessment of a woman originally described in a 1968 report of syndromes associated with trichothiodystrophy (i.e. hair that is brittle as a result of sulphur deficiency). Born in 1961, this person (known as L.H.) was described as having brittle, sparse hair; spoon-like nails; white plaques on her tongue; poor peripheral circulation; eye and skin problems; and moderate mental retardation. Over her lifetime, L.H. has developed destructive behaviors such as tearing apart objects, aggression towards others, and compulsive behaviors. This report re-assessed L.H. at the age of 38 years to shed light on the characteristics of individuals with Pollitt syndrome. L.H. was given a thorough medical evaluation, and her
caregivers were asked to fill the ABC. Though L.H.’s subscale scores were all higher than the typical mean values, she had particularly high ratings on the Lethargy/Social Withdrawal, Hyperactivity/Noncompliance, and Inappropriate Speech subscales. The authors state that this pattern of behaviors is akin to those found in autism; the authors also note that L.H. fulfills ICD-10 criteria for autistic disorder. It is discussed whether Pollitt syndrome and other disorders characterized by trichothiodystrophy may predispose individuals to autism spectrum disorders.


This was a double-blind, placebo-controlled crossover study of 12 male children diagnosed with autistic disorder who also presented with significant hyperactivity, distractability, and impulsivity. In the first phase of the study, lofexidine or placebo was tapered up over a period of 2 weeks to a dose of 0.8-1.2 mg/day. Participants were then maintained on that dose for weeks 3-6 (inclusive) and then blindly tapered down during week 7. Subjects were then crossed over to placebo or lofexidine, again tapered up to the appropriate dose over two weeks, and then maintained on the dose for weeks 10-13 (inclusive). Measures were gathered weekly, and included parent ratings on the Conners Abbreviated Parent-Teacher Questionnaire, and teacher ratings on the ABC-C and the Symptom Checklist. In addition, a 15-minute videotape paradigm was collected at baseline, 6 weeks, and 13 weeks to determine clinician ratings on hyperactivity, impulsiveness, and attention. Paired, two-tailed t tests were used to compare ratings during placebo and lofexidine: statistically significant (yet clinically modest) improvements were shown in the Hyperactivity subscale of the ABC as well as on the Conner scale; these findings are mutually reinforcing and suggest consistent decreases in hyperactivity. Significant decreases
were also noted in all other subscales of the ABC, though it was noted that these improvements were modest at best and were not a sizable as the decreases seen in hyperactivity. No differences were found when clinicians rated the 15-minute videotaped sessions, though they noted that the measure was not sensitive enough to detect the relatively modest effects of lofexidine on hyperactivity. The authors conclude that controlled, longer-term studies are needed.


The goal of this study was to examine the effects of risperidone in children with severe behavioral problems who met DSM-IV criteria for autism. This was a multi-site, 8-week randomized, double-blind, placebo controlled trial. One hundred and one children (82 boys and 19 girls with a mean age of 8.8 years (+/- 2.72) participated in the study, where 49 subjects received risperidone and 52 received placebo. The ABC Irritability subscale (as rated by the primary caregiver) and the Clinical Global Impressions-Improvement scale (as rated by the clinician) were used as the primary outcome measures. The ABC Irritability subscale scores showed a significant effect between the study group and time ($p<0.001$; effect size, $\delta$, = 1.20). Risperidone caused a 56.9% reduction (from 26.2 +/- 7.9 at baseline to 11.3 +/- 7.4 at eight weeks) on the ABC Irritability subscale, compared with a 14.1% reduction (25.5 +/- 6.6 at baseline to 21.9 +/- 9.5 at eight weeks) in the placebo group. Significant drug effects were also found on the Stereotypic Behavior subscale (drug group 10.6 +/- 4.9 at baseline and 5.8 +/- 6.4 at eight weeks, $p<0.001$ [\(\delta=0.8\)] and placebo group 9.0 +/- 4.4 at baseline and 7.3 +/- 4.8 at eight weeks.
weeks) and on the Hyperactivity subscale (drug group 31.8+-9.6 at baseline and 17.0+-9.7 at eight weeks, $p<0.001 \ (\delta=1.0)$) and placebo group 32.3+-8.5 at baseline and 27.6+-10.6 at eight weeks). Subjects who received risperidone had significantly more weight gain ($p<0.001$) of 2.7 kg compared to 0.8 kg in the placebo group. The researchers concluded that risperidone was medically well tolerated and considered effective in reducing severe behavioral problems in subjects with autism. KL


The authors of this paper felt that there was a need for an easy-to-use clinical instrument that may be used on a day-to-day basis to measure the changes in level of functioning for individuals with learning disabilities (in the United Kingdom, where this study was completed, “learning disabilities” refers to intellectual disability). As part of the larger study to describe the development of the Health of the Nation Outcome Scales for People with Learning Disabilities (HoNOS-LD) and report its psychometric characteristics, the authors obtained data on the convergent validity of the HoNOS-LD with the ABC. Two raters evaluated 31 individuals from the larger study, completing both the HoNOS-LD and the ABC at two time points. One person died in the time between evaluations, so the sample for Time 2 was 30. Demographic data were not provided for the participants or the raters. For Time 1, the Pearson correlation between raters for the ABC Total Score was 0.87 (please note that the ABC manual discourages use of a Total Score, as it lacks construct validity), and was 0.93 for the HoNOS-LD Total Score. The correlations between the ABC and the HoNOS-LD Total Scores for raters 1 and 2 were 0.66 and 0.76, respectively. At Time 2, the intrarater reliabilities were found to be 0.81 for the ABC Total
Score, and 0.76 for the HoNOS-LD Total Score. The correlations between the ABC and the HoNOS-LD for Time 2 were 0.71 (Rater 1) and 0.76 (Rater 2). The authors concluded that the HoNOS-LD demonstrated good convergent validity and is a viable scale for the measuring of day-to-day change in level of functioning of individuals with intellectual disability.


This study of withdrawal of long-term antipsychotic medication in individuals with intellectual disability used the ABC to characterize patients at several points. Fifty-six participants, split into experimental (n = 36) and control (n = 20) groups were evaluated with the ABC at baseline, and monthly for 6 months. The groups did not differ on ABC scores at baseline; however, no other data from the ABC were reported with respect to change from drug discontinuation. Sequential analysis of the effects of drug reduction on sedation showed no difference between groups in terms of interaction with the staff. The authors concluded that previous data indicating increased responsiveness related to drug reduction was not supported by their work.


This was a double-blind, placebo-controlled trial of secretin in children with autistic disorder or PDD—NOS and having various gastrointestinal problems. Treatment was given in random sequences three times, at 4-weekly intervals, for both drug conditions (i.e., 12 weeks total with each condition). Outcome measures included the visual analogue scale (VAS) of
autism symptoms and the ABC. Three of the children were rated as improved on the VAS with placebo and one with secretin. The authors concluded that any changes were small and lacked clinical significance. The ABC was used inconsistently and showed no treatment effect.


This study used a double-blind, placebo-controlled parallel groups design to assess risperidone. The participants were 110 children aged 5-12 years inclusive, with IQ’s ranging from 36-84. Each child had a diagnosis of disruptive behavior disorder (Conduct Disorder, Oppositional Defiant Disorder, or Disruptive Behavior Disorder–NOS) and high scores on the Nisonger Child Behavior Rating Form (NCBRF) Conduct Problem subscale, indicating severe hostile or aggressive behavior. Each child received either placebo or risperidone (in doses of 0.02 mg/kg/d to 0.06 mg/kg/d) for 6 weeks. Outcome measures included the ABC, the NCBRF, the Behavior Problems Inventory, parent ratings of “most significant problem,” and clinician ratings on the Clinical Global Impressions Scale. Results indicated major reductions in problem behavior as assessed by the Conduct Problem subscale of the NCBRF, which served as the primary outcome measure. Other changes on the NCBRF included improvements on the Social Competence subscales and improvements on Insecure/Anxious, Hyperactive, and Self Isolated/Ritualistic subscales of the NCBRF. Parent ratings on the ABC indicated improvements on all five subscales, with Irritability, Lethargy/Social Withdrawal, Stereotypic Behavior, and Hyperactivity/Noncompliance significant at p less than .001 level and improvements on Inappropriate Speech significant at p less than .01 level. Clinician ratings on the CGI improvement scale indicated highly significant improvements for the risperidone group as
compared with placebo. *The changes observed on the ABC were consistent with those recorded for the NCBRF* and indicated consistent improvements with risperidone treatment for children with serious disruptive behavior disorders and subaverage IQ.


This study compared the effects of a single dose of either biologic or synthetic secretin to placebo in 85 children with autism (aged between 3 and 12 years, mean IQ = 55). Infusions were performed according to a double-blind procedure. All children received a single infusion of extracted porcine secretin (2 CU/kg), synthetic porcine secretin (0.4 μg/kg), or placebo. Dependent measures were obtained 1 week before infusion, and again 4 weeks after infusion. The assessments completed by both parents and teachers included the Secretin Outcome Survey (SOS; developed by B. Rimland to measure salient autism symptoms) and the ABC-Community. Linguistic ability was assessed using the Expressive One Word Picture Vocabulary Test-Revised and the MacArthur Communicative Development Inventory (Words and Sentences Version). Efficacy was examined using a repeated-measures analysis of variance. There was a significant overall reduction of symptom severity at 4 weeks post-infusion on the parent-report total scores of the ABC and the SOS, regardless of treatment group (this decrease did not differ as a function of type of secretin or placebo). Examination of the subscales of the ABC showed significant reductions in the Irritability, Social Withdrawal, and Hyperactivity, regardless of treatment group. The SOS subscale scores of Social Behavior, Communication, Digestive Functioning, Sensory Problems, and Sleep Problems all improved significantly among all treatment groups. The teacher-report total ABC score was the only significant time by treatment finding, in which
treatment with synthetic secretin or placebo showed a decrease in problem behaviors while the biologic secretin did not. To examine whether secretin is only effective in a “narrower population” findings were then analyzed by clinical subgroups. Four subgroups were created: (1) children with low adaptive behavior; (2) children younger than 72 months, (3) children with reported gastrointestinal problems, and (4) children with no reported gastrointestinal problems. Analyses using these subgroups found no differences in efficacy between the two types of secretin and placebo. Collectively, these findings suggest that secretin may not be effective treatment for autism; it also provides further evidence that high placebo response rates are frequent in studies of children with autism.


[This article will be summarized in a future edition of this manuscript.]


The Research Units on Pediatric Psychopharmacology Autism Network conducted a double-blinded, 8-week study of risperidone (n=49) versus placebo (n=52) in subjects with autism. During this study, parents’ concerns about “target problem symptoms” were recorded in narrative form at baseline, Week 4 and Week 8. The ABC Irritability subscale and the Clinical Global Impressions scale were both used as the primary outcome measures of the study. On the
ABC Irritability subscale, at Week 4, the risperidone group improved by 44.06%, and at Week 8 by 53.20% when compared to baseline. For the placebo group, ABC Irritability subscale scores were 22.71% better at Week 4 and 14.91% better at Week 8 when compared to baseline. The effect size (Cohen’s delta) for risperidone on ABC Irritability was 1.22. Interrater reliability for judges’ ratings of the target symptom narratives was very high (ICC=0.89). The most common target symptoms were tantrums, aggression, and hyperactivity. The first nominated target symptoms correlated with ABC Irritability at r_p=0.64 and the second target symptoms was correlated at 0.55 with Irritability. The effect size for these custom-made target symptoms was 1.39, which was nominally larger than the effect size for ABC Irritability, the primary outcome variable.


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This was an open-label study of lamotrigine (an antiepileptic and antimanic medicine) as
an adjunct treatment in patients with refractory epilepsy and mental retardation. The study involved four phases: (a) 8-week baseline, (b) 8-week drug escalation, (c) 8-week drug maintenance, and (d) 12-week drug optimization. Of the 95 individuals who entered the baseline phase, 67 entered the escalation phase (57% male, 81% white, mean age 28.5 years, 58% profound MR). Fifty-four completed the study. In addition to the ABC, seizure counts, investigator-rated clinical status, Habilitive Improvement Scale scores, and adverse events were collected at each stage of the study. For the 54 completers, mean ABC Lethargy/Social Withdrawal subscale scores were significantly improved upon baseline (score = 7.0) at the end of the maintenance phase (score = 4.9, \( p < 0.041 \)) and optimization phase (score = 3.9, \( p < 0.004 \)). The mean ABC Stereotypy subscale scores were also significantly improved over baseline (score = 2.8) at the end of the optimization phase (score = 1.8, \( p < 0.008 \)). No other significant changes in ABC scores were found. Lamotrigine treatment was related to an improvement in seizure frequency; at the end of the optimization phase, 61% had experienced at least a 25% improvement, 39% experienced at least a 50% improvement, 28% had at least a 75% improvement, and 11% experienced total amelioration of seizures. The authors concluded that lamotrigine is a useful adjunctive therapy for refractory epilepsy in patients with intellectual disability, although a double-blind study needs to be done.


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The goal of this study was to look at the similarities and differences between subscales on the ABC and the Behavior Problems Inventory (BPI). The BPI has three subscales: (a) Self Injurious Behavior (SIB), (b) Stereotyped Behavior and (c) Aggressive/Destructive Behavior. Staff members rated 226 institutionalized adults with mostly severe or profound mental retardation (126 male, 100 female, ages 20-91) on the ABC and the BPI. A little over 45% of the sample had at least one clinically diagnosed psychiatric disorder. Results from the study showed that subjects with higher BPI scores most often had higher scores on the ABC. The SIB and Aggressive/Destructive subscales of the BPI weakly, but significantly predicted scores on the ABC Irritability subscale ($R^2 = 0.12$). The SIB and Stereotyped Behavior subscales of the BPI also significantly predicted the ABC Lethargy/Social Withdrawal and Stereotypy subscales ($R^2 = 0.31$ and 0.40 respectively). The researchers concluded that the BPI and the ABC cross-validated each other in a rational manner. A composite of Self Injury and Stereotypy on the BPI had stronger predictive power to identify DSM-IV Stereotyped Movement Disorder, but the ABC Stereotypic Behavior subscale had higher negative predictive power and greater overall diagnostic efficiency.

[This article will be summarized in a future edition of this manuscript.]


An impetus for creating the Mood, Interest, & Pleasure Questionnaire (MIPQ) was a chronic lack of attention towards emotional constructs in adults with severe and profound intellectual disability. Their goal was to evaluate some of the psychometric properties of this informant-based instrument: test-retest reliability, interrater reliability, and construct validity. The authors obtained caregiver ratings of 53 partially- or non-verbal individuals with intellectual disability (60.4% male; mean age = 39.36 years, range = 22.0-58.0). Caregivers rated the individuals using the MPIQ and the ABC. The MPIQ has 25 items on 2 subscales: Mood (n = 12) and Interest and Pleasure (n = 13). As predicted, the ABC Lethargy/Social Withdrawal subscale was correlated with the MPIQ Total Score ($r = -0.59$, $p< 0.01$), the MPIQ Mood subscale ($r = -0.40$, $p< 0.01$), and the MPIQ Interest and Pleasure subscale ($r = -0.63$, $p< 0.001$). The ABC Stereotypic Behavior subscale was also correlated with the MPIQ Total score ($r = -0.50$, $p< 0.01$), the MPIQ Mood subscale ($r = -0.46$, $p< 0.01$), and the MPIQ Interest and Pleasure subscale ($r = -0.42$, $p< 0.01$). ABC Irritability subscale scores were correlated with MPIQ Mood scores ($r = -0.30$, $p< 0.05$). No other correlations were significant. The 1-week test-retest reliabilities of the Total Score and subscales ranged between 0.84 and 0.90. The interrater reliability ranged between 0.69 and 0.76. The authors concluded that the MPIQ demonstrated good preliminary psychometric data, and further research should be done. CAF

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The researchers in this study looked at the safety and effectiveness of risperidone in children with oppositional defiant disorder, disruptive behavior disorder-not otherwise specified, conduct disorder, and comorbid attention-deficit hyperactivity disorder (ADHD). Subjects were randomized to risperidone (n= 78) or placebo (n=77) groups and then were grouped again according to the subject’s use of concomitant psychostimulants (prescribed or not prescribed). The Nisonger Child Behavior Rating Form and the ABC were used as primary outcome measures. The percent change on the ABC Irritability subscale for the risperidone-treated group with no concomitant psychostimulents (NoSTIM) was 11.3%, and with the use of psychostimulents (STIM) it was 9.8% and for the placebo group with NoSTIM there was a 4.9%
change and there was a 3.2% change for the placebo group with STIM. Percent change on the ABC Hyperactivity subscale for the risperidone group was 16.5% with NoSTIM and 14.4% with STIM, and for the placebo group it was 7.0% with NoSTIM and 4.1% with STIM. ABC scores for the risperidone-treated group were significant when compared to the placebo group at 0.0004 for Irritability and at \( p=0.0001 \) for Hyperactivity. However, previously-established treatment with psychostimulants or not, did not affect clinical response to risperidone. Of the 155 subjects, 128 experienced at least one adverse event, with the main adverse events being somnolence and headaches. The researchers concluded that risperidone was safe and that it effectively treated problem behaviors and comorbid ADHD in those who used and who did not use psychostimulents.


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This study compared various measures for ADHD in typically-developing children against one another, in a sample of children with intellectual disability. The subjects were 48 children with mild-to-moderate intellectual disability (28 boys; mean age = 9.0 years). Parent, teacher, and teaching assistant’s ratings of the children were obtained. Parents completed the Child Behavior Checklist (CBCL), the Conners’ Parent Rating Scale (CPRS), the Werry-Weiss-Peters Activity Rating Scale, the ADHD Test (ADHDT), and the Swanson, Nolan and Pelham (SNAP) Checklist. Teachers and assistants filled out the CBCL-Teacher Report Form, the CTRS, the ADHDT, the SNAP, the ADD-H Comprehensive Teacher’s Rating Scale (ACTeRS), and the ABC Community. The internal consistency for the subscales of the ABC ranged from $\alpha = 0.76$ (Inappropriate Speech) to $\alpha = 0.94$ (Hyperactivity) (median = 0.81). The test-retest reliabilities (all significant, $p < 0.01$) for the subscales of the ABC ranged from $r = 0.74$ (Inappropriate Speech) to $r = 1.00$ (Stereotypic Behavior). Overall, the authors reported that the teacher-rated scales had better psychometric properties than the parent-rated scales. The only hyperactivity scale with significant interrater reliability for teaching assistants belonged to the ABC. In fact, all subscales of the ABC were found to have adequate to very good psychometric
properties for clinical purposes. The authors concluded that there was some support for the reliability of the CTRS Hyperactivity subscale, the ADHDT Hyperactivity and Inattention subscales, and the ACTeRS Attention subscale; but the ABC was the most reliable instrument for assessing ADHD in children with intellectual disability. CAF


This study sought to validate the ADHD measures used in the Miller, Fee, and Netterville (2004a) study with the same participants and measures. The study tested concurrent validity of parent-completed and teacher- and teacher-assistant-completed ADHD measures, including the Aberrant Behavior Checklist–Community against each other and against direct observations of the children using the Abikoff Classroom Observation Code, which has 10 categories – 9 of which measure inappropriate behavior. Each child was observed for 24 minutes total. Other standardized rating scales assessed included the Child Behavior Checklist, Conners’ Parent Rating Scale–48, the SNAP Checklist, Attention Deficit/Hyperactivity Disorder Test, Werry-Weiss-Peters Activity Rating Scale, Teacher’s Report Form, Conners’ Teacher Rating Scale–39, and ADHD Comprehensive Teacher’s rating scale.

All same-rater comparisons (parent-parent or teacher-teacher) between scales measuring ADHD symptoms were significantly correlated with one another (p < 0.01), but few cross-informant comparisons reached statistical significance. The teacher-completed ABC Hyperactivity subscale was only correlated to the parent-completed SNAP total score (p < 0.05).

Comparisons of teacher-teacher concurrent ratings showed generally high correlations between ADHD subscales (range = r of 0.35 to 0.87). The ABC Hyperactivity subscale was
found to correlate with all other scales (range = 0.51 to 0.81; median = 0.65).

The researchers also compared the ADHD measures to the Classroom Observation Code (direct observation) results. In general, few parent-completed measures correlated significantly with classroom observations. Teacher-completed measures correlated best with the “Noncompliance” direct observation category. All subscales of the ABC excluding Lethargy/Social Withdrawal correlated robustly with the Noncompliance category ($p < 0.01$). The Irritability subscale also correlated with the Interference category ($p < 0.05$) and both the Irritability and Hyperactivity subscales correlated with the Off-task category ($p < 0.05$). Ratings by teacher assistants had similar results to those completed by teachers, but with slightly weaker correlations with the direct observations.

The researchers concluded that teacher-completed measures are best able to detect symptoms of ADHD in children with intellectual disabilities. Among the measures studied, the ABC performed the best, and the authors stated that “as hypothesized, the results of this study provided the most support for the ABC-C. The ABC-C possessed moderate concurrent validity with other teacher scales measuring ADHD and was the only scale to demonstrate significant correlations with classroom observations on all factors. Additionally, the ABC-C Hyperactivity subscale was the only ADHD factor to show significant correlations between the most relevant ADHD target behaviors observed among teacher and teaching assistant ratings.” The authors also stated that they were “able to pinpoint a specific measure that would be best utilized in this population (ABC-C).”

D-cycloserine is a partial NMDA agonist used to treat the negative symptoms of schizophrenia in adults. The authors of this paper stated that parallels have been drawn between the core symptoms of autism and the negative symptoms of schizophrenia (i.e., social and communication impairment). The goal of this study was preliminarily to examine the effects of D-cycloserine on the core symptoms of autism. Twelve individuals were initially enrolled in the single-blind study, but two dropped after the two-week placebo lead-in. The remaining 10 subjects (8 male, mean age = 10.0 years, range 5-27 years) were given ascending doses of approximately 0.7, 1.4, and 2.8 mg/kg/day, each for two weeks. Ratings on the CGI scale, the Social Responsiveness Scale (SRS), a modified Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS), and the ABC were obtained over two week intervals. D-cycloserine was associated with statistically-significant improvement in the CGI Severity scores ($F = 4.58, p = 0.007$). Scores on the ABC Social Withdrawal subscale were also related to the drug; post-hoc analyses showed that scores following the highest dose of D-cycloserine were reduced from those at baseline by 60% ($p = 0.02$). No significant differences were found related to the medication were found for the CY-BOCS, the SRS, or the other subscales of the ABC. The authors concluded that a double-blind, placebo-controlled study of D-cycloserine in people with autism is warranted. CAF

This study of the efficacy of electroconvulsive therapy (ECT) was a chart review of 20 intellectually and developmentally disabled inpatients (55% male). Based on the charts, the subjects were categorized into three groups of comorbid disorder: (a) Mood disorders (n = 12), (b) psychotic disorders (n = 6), and (c) Intermittent Explosive Disorder (n = 2). A psychologist used chart notes to rate each patient on the ABC for the time periods before and after receiving ECT. For the mood disordered group, significant differences between mean pre-ECT and post-ECT scores were found on the Irritability subscale (17.08 vs. 6.92, \( p < 0.03 \)) and the Hyperactivity subscale (22.17 vs. 10.75, \( p < 0.01 \)). For the psychotic disordered group, significant differences were also found on the Irritability subscale (10.5 vs. 6.17, \( p < 0.03 \)) and the Hyperactivity subscale (23.83 vs. 13.67, \( p < 0.01 \)). The only significant difference for the Intermittent Explosive Disorder group was an increase on the Hyperactivity subscale (27.5 vs. 34, \( p < 0.01 \)). Electroconvulsive therapy appeared to be effective for some symptoms of comorbid disorders (i.e., irritability and hyperactivity) in patients with intellectual and developmental disabilities. However, the authors concluded that the data did not show ECT to be useful in patients with comorbid Intermittent Explosive Disorder, although the small population may not have given the study enough power.

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In this study, the Diagnostic Assessment for the Severely Handicapped (DASH-II) was evaluated in comparison to the ABC as a measure of change in a risperidone trial. This study was done in the context of a larger, double-blind, placebo-controlled trial of risperidone. Twenty-one participants from the larger trial were used in this study; the mean age was 25 years (Range = 8-56 years), 11 (52%) were female, and all had a diagnosis of intellectual disability. DASH ratings were collected once at baseline and once during the maintenance phase; ABC ratings were collected weekly in the larger trial, but only the mean baseline ratings and the mean maintenance ratings were used in this study. Significant differences were found between the mean baseline and mean maintenance scores for all subscales of the ABC; *t*-scores (all *p* < 0.05) ranged between 2.71 (Inappropriate Speech) and 7.30 (Irritability). Significant differences were
found for most subscales of the DASH-II; no differences were found for the Anxiety and Stereotypy. To evaluate the convergent and divergent validity of the DASH-II with the ABC, subscale scores were correlated with one another. Several significant (at least $p = 0.05$) correlations with ABC subscales were found at baseline. ABC Irritability was associated with DASH-II Impulse Control ($r = 0.49$), Mood ($r = 0.49$), and Mania ($r = 0.47$). ABC Stereotypic Behavior subscale scores were correlated with DASH-II PDD/Autism ($r = 0.66$) and Stereotypy ($r = 0.65$); ABC Hyperactivity with DASH-II Impulse Control ($r = 0.63$); and ABC Inappropriate Speech subscale scores with DASH-II Organic Syndromes ($r = 0.53$), Mood ($r = 0.51$), Mania ($r = 0.64$), PDD/Autism ($r = 0.50$), and Stereotypy (0.47). Far fewer significant ($p = 0.05$) correlations were found for maintenance phase ratings. ABC Irritability was associated with DASH-II Impulse Control ($r = 0.46$); ABC Stereotypic Behavior with DASH-II Stereotypy ($r = 0.51$); ABC Hyperactivity with DASH-II Impulse Control ($r = 0.52$); and ABC Inappropriate Speech with DASH-II PDD/Autism ($r = 0.60$) and Stereotypy ($r = 0.51$). The authors concluded that “the DASH-II…did not track changes in problem behaviour as a result of medication use as well as the ABC—C.”

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In this study, the ABC was used to characterize the subgroup of children who had Down syndrome and comorbid autism-spectrum disorder. A group of 131 children (72.7% male, mean age = 8.6) were divided into three groups: (a) autism-spectrum disorders and Down syndrome (n = 61), (b) atypical comparison group: stereotypic movement disorders (SMD) and (c) Down syndrome (n = 26), and typical comparison group: Down syndrome only (n = 44). The authors found that ABC scores on the Irritability, Lethargy/Social Withdrawal, Stereotypic Behavior, and Hyperactivity subscales were elevated \( p < 0.0001 \) for the ASD group relative to the typical group. Only the Lethargy/Social Withdrawal and Stereotypic Behavior subscales were significantly higher for ASD vs. SMD. An analysis of the subgroup of children with moderate-to-severe intellectual disability was performed (n = 62). T-tests revealed significant differences on ABC Total Score between ASD and Typical, and SMD and Typical. [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] In the more intellectually-impaired subgroup, ASD was distinguished from Typical by all subscales of the ABC \( p \leq 0.0002 \), while ASD was distinguished from SMD only by the Lethargy/Social Withdrawal subscale \( p = 0.002 \). Ordered logistic regressions were done for the
total group, showing that each ABC subscale conferred an increased risk for SMD or ASD in the univariate model. Univariate odds ratios were: I) Irritability, 1.17, \( p < 0.001 \); II) Lethargy/Social Withdrawal, 1.33, \( p < 0.001 \); III) Stereotypic Behavior, 1.80, \( p < 0.001 \); IV) Hyperactivity, 1.14, \( p < 0.001 \); and V) Inappropriate Speech, 0.62, \( p < 0.05 \). A multivariate model including all ABC subscale scores accounted for 62% of the measured variance in predicting ASD. When age, sex, and IQ were added to this model, 68% of the variance was accounted for. The authors concluded that the ABC may be especially useful for subgrouping children with Down syndrome and comorbid disorders. CAF


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Risperidone was evaluated as a treatment for disruptive behavior disorders in a 1-year, open-label, multi-site (32 sites in 12 countries) trial. After a week-long single-blind placebo period, placebo responders were exited from the study, resulting in 504 participants (mean age = 9.7 years; 83.1% male, 23% DSM diagnosis of conduct disorder). DSM Axis II diagnoses were Borderline Intellectual Functioning (37.6%), Mild Mental Retardation (43.1%), and Moderate Mental Retardation (19.3%). Assessments of effectiveness were given weekly for the initial 4
weeks, and monthly for the remainder of the trial. The primary outcome measure was the Conduct Problem subscale from the Nisonger Child Behavior Report Form (NCBRF); secondary outcome measures were the remaining NCBRF subscales, ABC Total Score and subscale scores, and CGI. A significant improvement on the NCBRF Conduct Problem subscale, as well as the other NCBRF subscales, was found at each point after the baseline. Mean ABC Total Scores decreased from 64.3 to 37.4 ($p < 0.001$) between baseline and endpoint. No other data for the ABC were reported. The authors concluded that risperidone is generally safe and effective for children with disruptive behavior disorders and subaverage intelligence.


The goal of this study was to explore the relationship between repetitive behaviors and the clinical features of autism. Children with autism spectrum disorders ($N = 14$) were split into a high non-verbal IQ group ($\geq 97; n = 8$) and a low non-verbal IQ group ($\leq 56; n = 6$). The high non-verbal IQ group was 75% male and had a mean age of 10.6 years; the low nonverbal IQ group was 67% male and had a mean age of 10.8 years. Each child was rated on several measures, including the Vineland Adaptive Behavior Scale, the Child Sleep Questionnaire, the Repetitive Behavior Scale (RBS-R), and the ABC. For all the children ($N = 14$), significant positive correlations were found between the RBS-R and three ABC subscales: (a) Irritability ($r = 0.74, p = 0.003$); (b) Lethargy/Social Withdrawal ($r = 0.72, p = 0.004$); and (c) Hyperactivity ($r = 0.73, p = 0.003$). After controlling for non-verbal IQ, however, only the ABC Hyperactivity subscale was significantly associated with the RBS-R Total Score (partial $r = 0.58, p = 0.04$). The authors concluded that the findings supported other research showing that developmental
level moderates the effect of repetitive behaviors in autism spectrum disorders. They also recommended that some account be taken of hyperactivity, as it appears to contribute to repetitive behaviors in addition to the influence of developmental level. CAF


Seventy-seven individuals (61% male; average age, 30 years) with intellectual disability and disruptive behavior disorder participated in this study of risperidone. The study design was a 4-week double-blind, placebo-controlled period, plus 48 weeks of open-label administration. The ABC Total Score was the primary efficacy measure. [Please note: The manual for the ABC discourages against use of a Total Score, because the Total Score lacks construct validity.] The baseline ABC Total Scores for the risperidone and placebo groups were 51.7 and 47.6, respectively. At the double-blind endpoint, the decrease in ABC Total Score for the risperidone group was significantly higher than for the placebo group (52.8% versus 31.3%, p < 0.05). The mean point changes for the ABC Irritability and Lethargy/Social Withdrawal subscales were also significantly reduced by risperidone at the p < 0.05 level (10.4 vs. 5.8 and 4.2 vs. 3.2, respectively). Although the active treatment group experienced greater changes than the placebo group in the remaining ABC subscales, these differences did not reach statistical significance.

Over the course of the open-label portion of the study, the ABC Total Scores for the risperidone group decreased an additional 6.3 points, and the group initially treated with placebo decreased 11.3 points during the period of risperidone treatment. When the groups were pooled, mean point reductions over the open-label study were as follows: (a) Irritability, 10.7; (b) Lethargy/Social Withdrawal, 3.3; (c) Stereotypic Behavior, 0.8; (d) Hyperactivity, 10.4; and (e)
Inappropriate Speech, 2.4. The authors concluded that risperidone appears to be effective for a spectrum of behaviors in adults with intellectual disability and disruptive behavior disorder.


This article was a brief summary from a 3-month study of 29 adults with intellectual disabilities (ID) attending a day treatment program. Thirteen of the adults (45%) had pervasive developmental disorders. The program involved different groups and activities based on the person’s level of functioning. The Aberrant Behavior Checklist (ABC) was used to measure change in behavioral problems during the study. As early as the third week, the group with mild and moderate ID showed improvement on all of the subscales of the ABC except Inappropriate Speech. Scores on all subscales remained stable for individuals with severe and profound ID. For all 29 subjects, Friedman’s analysis showed “global” (presumably statistically significant) improvement on the Irritability, Stereotypic Behavior, and Hyperactivity subscales, and a “slight” decrease (presumably nonsignificant) on the Lethargy/Social Withdrawal subscale. The authors recommended that other day treatment programs for adults with ID also consider using different activity groups based on level of functioning.


Males with Hall-Hittner syndrome (n = 14; mean age = 12.4 years, range = 6-21) were compared to males with Williams syndrome, Prader-Willi syndrome, and Down syndrome on several behavioral features. The ABC was completed for the group with Hall-Hittner syndrome;
however, scores on the ABC were not collected for the other groups for comparison. Therefore, the authors presented a brief behavioral characterization of males with Hall-Hittner syndrome. Mean scores on the ABC subscales were: (I) Irritability, 9.00; (II) Lethargy/Social Withdrawal, 6.71; (III) Stereotypic Behavior, 5.21; (IV) Hyperactivity, 8.93; and (V) Inappropriate Speech, 2.00. No other data from the ABC was presented.  

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The goal of this study was to establish the presence and persistence of problem behaviors in preschool-aged children. Thirteen children (10 boys; mean age = 47 months, range = 35-55 months) were evaluated by their teachers at 6-month intervals over 3 years. Teachers completed the original version of the ABC for the first two rounds of evaluations; the ABC-Community version was used for later rounds. Three patterns of ABC Total Scores were found: (a) in nine children, high scores were maintained between round 1 (mean = 63, range = 32-95) and round 6 (mean = 57, range = 32-90); (b) three children exhibited lower initial scores (mean = 23) that steadily decreased to negligible (mean < 2); and (c) one child’s scores increased from round 1 (22) to round 6 (78). The authors concluded that aberrant behavior emerges early and should be dealt with in a preventative manner.  

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The Overt Aggression Scale (OAS) divides the recording of aggression into 4 types: (a)
verbal aggression, (b) physical aggression against others, (c) physical aggression against property or objects, and (d) physical aggression against self. The most severe behavior in each category is given a weighted score, and these are pooled to determine the OAS Aggression Score. Interventions used to deal with the behavior are also coded and added to the Aggression Score to obtain the OAS Total Aggression Score. The authors used ratings of 8 children with an autism diagnosis (75% male; mean age, 11.4; age range 7-19 years) to compare the OAS to the Irritability subscale of the ABC. The study was part of a larger medication study; children received 1 week placebo, followed by randomization to 8 weeks valproate or 8 weeks of placebo. Both parents and teachers completed OAS ratings daily; at the weekly visit, these ratings were combined into one score for each rater. The ABC Irritability subscale was completed on a weekly basis. The ABC and OAS had significant Pearson correlations for both parent ($r = 0.85$, $p = 0.007$) and teacher ($r = 0.78$, $p = 0.02$) ratings. The between-subjects correlation for parent-rated and teacher-rated ABC Irritability subscales was $0.72$ ($p = 0.05$); for the OAS, it was $0.85$ ($p = 0.007$). The within-subjects correlations were also significant: the ABC Irritability ratings had a correlation of $0.28$ ($p = 0.04$) and the OAS ratings had a correlation of $0.33$ ($p = 0.01$). The authors concluded that the OAS is promising for use in measuring aggression in youth with developmental disabilities.


This double-blind, placebo-controlled study examined the effects of valproate, typically used as an anticonvulsant and/or mood stabilizer, in youth with pervasive developmental
disorders. Participants were 10 females and 20 males between the ages of 6 years and 20 years (mean age = 11.2 years), all with significant aggression and a standing diagnosis of pervasive developmental disorder. Following a one-week placebo lead-in, participants were randomized to receive either valproate or placebo for 8 weeks. The ABC Irritability subscale (parent-rated) was the primary outcome measure; clinician CGI ratings and parent-rated Overt Aggression Scale scores were also collected at weekly visits. Baseline mean ABC Irritability scores for the placebo and valproate groups were 21.9 and 23.3, respectively. At endpoint, mean ABC Irritability scores dropped 29% for the placebo group and 22% for the valproate group, a difference that was not statistically significant ($p = 0.65$). The authors concluded that the data do not reveal significant differences between valproate and placebo control in the treatment of aggression in children with developmental disability, although they argued that more research in larger samples needs to be done. CAF


This was a double-blind, placebo-controlled trial of topiramate as an adjunctive treatment (added to 1-3 other antiepileptic drugs) for epilepsy in individuals with epilepsy and intellectual disabilities. Eighty-eight subjects were recruited, but only 74 were randomized to treatment and 57 completed the study, significantly fewer than the 120 subjects that the investigators aimed to recruit. Baseline consisted of 4 weeks, followed by an 18-week titration period to achieve optimal dose, which was then followed by a 12-week maintenance period. Subjects continued all other medications during the trial and were able to begin new medications, including other antiepileptic medications. Dependent measures included the Adaptive Behavioural Scale (ABS),
Epilepsy Outcome Scale (EOS), the Aberrant Behavior Checklist (ABC), the Epilepsy and Learning Disabilities Quality of Life (ELDQOL) scale, and a global assessment of present status as rated by patients, carers, and investigators.

There were no statistically-significant reductions in seizure activity or severity, and none of the other dependent measures showed a statistically-significant difference between the topiramate and placebo groups. The investigators used the ABC total score to assess behavioral change. This is inconsistent with instructions in the ABC Manual and is a practice to be discouraged because it lacks construct validity. Although there were no statistically-significant differences, the authors cautioned that their study was underpowered and that the participants had a highly-skewed distribution of seizure activity [1.1 to 1706.2 (median 18.0) seizures per month for the topiramate group and 2.1 to 1545.1 (median 17.2) per month for the placebo group at baseline]. Following additional post-hoc analyses, the authors concluded that topiramate showed a beneficial effect of reducing seizure frequency ($p = 0.052$).


This was a follow-up of a study of personality disorder in individuals with intellectual disability. Out of the 101 original participants, 75 participated (61% male). Twenty-one (28%) of the participants had a personality disorder (mean age = 41 years); the remainder did not (mean age = 44 years). Levels of intellectual disability for both groups were borderline (1%), mild (44%), moderate (37%), and severe (17%). ABC Total Scores were collected for each of the groups; the personality disorder group had a higher mean score (15.6) than the group without personality disorder (10.3; $\chi^2 = 8.65, p \leq 0.01$). [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] Individuals
with comorbid personality disorder were more likely to receive psychotropic medication, receive psychiatric services, engage in offending behavior, and visit the hospital. The authors concluded that personality disorder warrants more attention in the intellectual disability community, as it appears to impart increased risk for several important outcomes.  

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In order to determine any relationships between repetitive behaviors and executive functioning, 17 adults with autism (14 male; mean age = 29 years) and 17 adults without autism (11 male; mean age = 29 years) completed a battery of tests of executive functioning. This study included the Stereotypic Behavior subscale of the ABC as one of several measures used to generate a “Restricted Repetitive Behavior Composite” variable. The other measures that contributed repetitive behavior subscale scores to the Composite were the Autism Diagnostic Observation Schedule (ADOS), the Autism Diagnostic Interview—Revised (ADI-R), and the Gilliam Autism Rating Scales (GARS). Each of these scores were converted into a Z-score, and then averaged for each participant. The ABC Stereotypic Behavior subscale was significantly correlated with the Composite (Examiner-rated: \( r = 0.72, p < 0.001 \); Parent-rated: \( r = 0.77; p < 0.001 \)). Out of the other three instruments, the ABC was only significantly correlated with the ADOS Restricted Repetitive Behavior subscale (Examiner-rated: \( r = 0.63, p < 0.001 \); Parent-rated: \( r = 0.74; p < 0.001 \)). As the authors expected, the Composite variable was significantly correlated with cognitive flexibility (\( r = 0.63, p < 0.01 \)). Unexpectedly, it was also associated with working memory (\( r = -0.56, p < 0.05 \)) and response inhibition (\( r = 0.54, p < 0.05 \)). The authors suggested that the data show a relationship between both executive strengths and deficits
and restricted repetitive behavior. CAF


In this report, the researchers reported on symptoms *other* than the primary outcome measure, which was the Irritability subscale of the Aberrant Behavior Checklist. The participants were initially enrolled if they had autistic disorder, a clinician–CGI Severity score $\geq 4$, and a score $\geq 18$ on the ABC Irritability subscale. Thirty-four of 49 subjects (69%) responded to risperidone in the main trial, and 29 of 46 placebo-treated children (63%) responded in an 8-week open-label extension with risperidone therapy.

The remainder of this paper reported changes that occurred on other clinical scales. On the Ritvo-Freeman Real Life Rating Scale, completed by subjects’ parents, risperidone caused significant reduction on the Sensory Motor Behaviors subscale (effect size, $d = 0.45$), the Affectual Reactions subscale ($d = 1.10$), and on the Sensory Responses subscale ($d = 0.77$) (all $p < .004$). No effect was seen on the Social Relatedness or the Language subscales. On the Children’s Yale-Brown Obsessive Compulsive Scale, risperidone caused a significant reduction relative to placebo on compulsive behavior ($p = .005; d = 0.55$). On the Maladaptive Behavior Domain of the Vineland Adaptive Behavior Scale, significant reductions were found for risperidone on both Part 1 ($p < .001; d = 1.17$) and on Part 2 ($p = .02; d = 0.49$). The authors concluded that risperidone led to significant improvements in restrictive, stereotypic, and repetitive patterns of behavior but that it did not significantly change subjects’ deficits in social interaction or communication.
This open-label study of escitalopram included 28 participants (89% male) with a mean age of 10.4 years (range = 6-17). Participants had an autism spectrum disorder diagnosis (autism, n = 20; Asperger’s syndrome, n = 5; Pervasive Developmental Disorder-Not Otherwise Specified, n = 3), and a score on the ABC Irritability Subscale greater than 12. The protocol of the 10-week study called for forced titration, unless dose change was accompanied by either a sleep problem or at least a 10-point increase on either the ABC Hyperactivity or Irritability subscales. The authors used a paired t-test of baseline versus Week 10, and also included a responder analysis. Escitalopram was related to significant changes on all ABC subscales; baseline and end-point scores for each of the subscales were as follows: (a) Irritability, 20.5, 10.9 (p = 0.001); (b) Lethargy/Social Withdrawal, 11.3, 3.9 (p = 0.001); (c) Stereotypic Behavior, 5.4, 2.6 (p = 0.001); (d) Hyperactivity, 26.1, 16.9 (p = 0.001); (e) Inappropriate Speech, 4.8, 3.5 (p = 0.035); and (f) Total Score, 68.2, 37.8 (p = 0.001). [Please note: The manual for the ABC discourages against use of a Total score, because the Total lacks construct validity.] Responders were defined as those participants who achieved a 50% decrease on the ABC Irritability score; 25% of the sample responded at an optimal dose of less than 10 mg, while 36% responded at an optimal dose of greater than 10 mg of escitalopram. The authors reported that this response rate was similar to other open-label studies of SSRIs. 

CAF
The goal of this study was to determine the efficacy and safety of the drug, methylphenidate (MPH), in 72 children diagnosed with pervasive developmental disorders (PDDs), and hyperactivity. Researchers used a double blinded, placebo-controlled crossover trial conducted across five clinical sites. The acute trial was followed by an 8-week open-label trial. Before being randomized, subjects were given a placebo for a day, followed by 2 days of a “low” dose of MPH (approximately 0.125 mg/kg), 2 days of a “medium” dose (approximately 0.25 mg/kg) and 2 days of a “high” dose (0.50 mg/kg). Doses were based on the subject’s weight. Subjects (n=66, 59 boys, 7 girls) who tolerated the test doses then received placebo and the three MPH doses in random order for one week each. There were two exceptions to the randomization of the study drugs (a) subjects who could not tolerate the high dose of MPH were administered the medium dose twice during the crossover phase and (b) the high dose could not follow the placebo to avoid large dosage transitions. Subjects who responded to MPH were entered into an 8-week open-label extension. In the open-label trial, MPH dosage was based on individual needs.

The primary outcome measure was the teacher-rated Hyperactivity subscale of the ABC, whereas the secondary measure was the parent-rated Hyperactivity subscale. To be classified as a responder, subjects had to show a 30% improvement on either the parent- or teacher-rated ABC Hyperactivity subscale and be rated as “much improved” or “very much improved” based on the Clinical Global Impressions Improvement scale. MPH was found to be superior to placebo (effect size= 0.20-.054; depending on dosage amount and rater). The effect sizes were larger for the parent ratings than for the teacher ratings. Thirty-five (49% of 72) participants were categorized as MPH responders, while 13 (18%) experienced adverse effects requiring
discontinuance. The parent-rated Lethargy/Social Withdrawal subscale of the ABC indicated significant worsening with the high dose of MPH. The researchers concluded that MPH was effective in treating ADHD symptoms associated with PDD. However; the magnitude of response was less than that seen in typically-developing children with attention-deficit/hyperactivity disorder. Adverse effects were more prominent when using MPH to treat hyperactivity associated with PDD than in typically-developing children.


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This 8-week, randomized, double-blind, placebo-controlled study used the ABC
Irritability subscale as the primary outcome measure of the effects of risperidone. Seventy-seven children were enrolled, 39 in the risperidone group (72.5% male) and 38 in the placebo control group (82.1% male). The mean ages of the risperidone and placebo groups were 7.6 years (range = 5-12 years) and 7.3 years (range = 5-12 years), respectively. The change-from-baseline scores on all subscales for the two groups were significantly different at endpoint. Risperidone baseline and end-point scores, as well as significance levels for difference from placebo, for each of the subscales were as follows: (a) Irritability, 18.9, 6.8 ($p = 0.001$); (b) Lethargy/Social Withdrawal, 13.7, 5.1 ($p = 0.001$); (c) Stereotypic Behavior, 7.9, 3.6 ($p = 0.05$); (d) Hyperactivity, 27.3, 12.4 ($p = 0.01$); and (e) Inappropriate Speech, 4.6, 2.0 ($p = 0.05$). For a subset of children with an autism diagnosis (risperidone, $n = 26$; placebo, $n = 28$), there was a significant difference in the Irritability subscale change scores (risperidone, -13.5; placebo, -7.5; $p \leq 0.01$). The authors concluded that risperidone was well-tolerated, and the data confirmed findings of both open-label studies and the RUPP studies of risperidone in children with developmental disorders.}


This is a second paper from the Shedlack et al. (2005) study outlined previously. The demographics and methods, including diagnostic subgroups, were the same. Membership in the three following additional subgroups was determined: “no antipsychotic medication,” “typical antipsychotic medication/typical and atypical antipsychotic medication (mixed),” and “atypical antipsychotic medication only.” At baseline, the atypical antipsychotic group had significantly higher ABC Lethargy/Social Withdrawal scores than both the no medicine and mixed groups (10.9 versus 7.9 and 4.2, respectively; $p = 0.016$). The atypical antipsychotic group also
experienced greater change from baseline on this subscale, as compared with the no medicine and mixed groups (-5.8 versus -2.8 and -4.1, respectively; \( p = 0.001 \)). Only two ABC subscales showed significant differences between medication groups within diagnostic category. The “Major Depressive Disorder with Psychosis and Atypical Antipsychotic” subgroup showed a significantly greater change than other medication groups within the diagnostic category on the Lethargy/Social Withdrawal subscale \( (p = 0.021) \). The “Major Depressive Disorder without Psychosis and Atypical Antipsychotic” subgroup showed significantly greater change on the Hyperactivity subscale \( (p = 0.10) \) than did the other medication groups within this diagnostic category. Analysis also revealed a dose-response relationship between the atypical antipsychotic medication and the ABC Lethargy/Social Withdrawal subscale. The correlation between the change in this subscale and the endpoint drug level was \( r = -0.308 \) \( (p = 0.049) \). When this was broken down by diagnostic category, the relationship was entirely accounted for by the schizophrenia spectrum diagnostic category \( (r = -0.486, p = 0.30) \); all other correlations were negligible. The authors concluded that antipsychotics do appear to be effective for some symptoms in adult patients with intellectual disability and comorbid psychiatric disorders.

CAF


This study was a retrospective chart review of adults with both intellectual disability and DSM Axis I diagnoses, who had received treatment for these diagnoses in a hospital setting. Thirty-six out of the 72 participants (50%) were male and the mean age was 37.2 years (range = 19-62). Participants were divided into 4 diagnostic groups, (a) bipolar disorder (14%), (b) major
depressive disorder (37%), (c) schizophrenia spectrum disorders (schizophrenia, schizoaffective disorder, and schizophreniform disorder; 42%), and (d) impulse control disorders (7%). In addition to the ABC, the Global Assessment of Functioning (GAF) scores were collected for baseline (the period immediately preceding treatment) and endpoint (treatment termination). For the entire group, the mean change on all 5 subscales of the ABC was -4.58 points ($p < 0.001$). The mean GAF improvement was 8.4 points ($p < 0.001$). The change on the ABC Irritability subscale over time was significantly correlated with GAF ratings ($t = -2.01, p = 0.048$), but no other statistically-significant correlations were found. Although there were no significant differences between diagnostic groups on the GAF at baseline, significant differences were found for two ABC subscales. On Lethargy/Social Withdrawal, both the Major Depressive Disorder ($t = 3.07, p = 0.003$) and the Schizophrenia Spectrum ($t = 3.9, p < 0.001$) groups were significantly different from the other diagnostic groups; the Major Depressive Disorder group was significantly different on the Hyperactivity subscale from the other groups ($t = -3.16, p = 0.002$). The ABC was also sensitive to changes from baseline between diagnostic groups. Compared with the other diagnostic categories, the Bipolar Disorder and Impulse Control Disorder groups had less improvement in Lethargy/Social Withdrawal ($z = 3.23, p = 0.001$; $z = 3.66, p < 0.001$, respectively), and the Schizophrenia had significantly greater improvement ($z = -3.16, p = 0.002$). The Major Depressive Disorder group also had less improvement on the Hyperactivity subscale when compared to the other groups ($z = 2.97, p = 0.003$). The authors concluded that the ABC appears to be more sensitive than the GAF to clinical changes in people with intellectual disability and comorbid DSM Axis I disorders.

Studies have reported that contingent restraint has been effective in treatment severe aggression in adults with intellectual disabilities, specifically when other behavior management techniques have proven ineffective. Concerns surrounding unclear restraint guidelines and that restraint can in some cases act as positive reinforcers for behavior, or is used as an intervention without any previous functional assessments of behavior being conducted, warrant further research of how client behavioral characteristics predict restraint use. Sturmey (1999) found that extrapersonal maladaptive behaviors only marginally related to restrain use, while intrapersonal maladaptive behaviors did not correlate. Hurting self or others were the only factors found to predict a consistent period of restraint use. Therefore, authors hypothesize that factors outside of client behavior correlate with restraint use. This study sought to replicate the findings from Sturmey (1999), while including a second, independent population, to determine the relationship between client maladaptive behaviors and restraint use over a one-year period in an institutional setting for adults with severe to profound intellectual disabilities.

A sample of 52 individuals with intellectual disabilities who had been restrained due to behavior over the past year was collected. An additional control group, matched for gender, age, and severity of intellectual disability that had not been restrained was used. Records were taken from participants’ annual assessments, which include the ABC and the Diagnostic Assessment for the Severely Handicapped-II (DASH-II). Restraint data was collected from the facility database and from residential and vocational staff’s completion of restraint checklists, used to measure the types of and reasons for restraint use. Multiple t-test comparisons of the groups on each scale of the ABC and DASH-II showed that the restrained group had significantly higher scores on the
Irritability, Stereotypy and Hyperactivity scales of the ABC, as well as significantly higher scores on the Anxiety, Pervasive developmental disability, Schizophrenia, Stereotypy, Elimination disorder and Impulse control disorder scales. Performing discriminant function analysis with ABC scores, only Irritability scores predicted group membership. Likewise, performing discriminant functional analysis on the DASH-II, only Impulse Control and Elimination disorder also correctly predicted restraint group membership. This study supported findings from Sturmey (1999), that extra-personal maladaptive factors requiring staff interventions are likely to be associated with restraint use. Managing extra-personal maladaptive behaviors has therefore been concluded to be an important variable in reducing restraint use.

Limitations of this study include that the multivariate models used lacked predictive power due to the unreliability of measurement.

REAN


The primary goal of this study was to compare relapse rates during discontinuation of risperidone for children with autism spectrum disorders (ASD). Twenty-six (72%) of an initial 36 subjects were classified as responders [Clinical Global Impressions–Improvement (CGI-I) of “very much improved” or “much improved” and a 25% decrease in Aberrant Behavior Checklist (ABC) Irritability score] after 8 weeks of risperidone treatment. Responders continued to receive risperidone during a 16-week open-label continuation phase.

At Week 24, 24 responders remained in the trial; two participants discontinued because of unacceptable weight gain. The remaining participants entered a double-blind, placebo-
controlled discontinuation trial. There were 22 boys and two girls with an average age of 9 years. The majority had average or above average IQ (50% in the risperidone-continuation and 75% in the placebo-discontinuation groups). Subjects in the placebo-discontinuation group had their dose reduced by 25% each week over 3 weeks followed by 5 weeks on placebo alone, whereas the risperidone-continuation group received active medication throughout this period.

Eight of 12 subjects (67%) in the placebo-discontinuation group relapsed (CGI-I score of “much worse” or “very much worse” and a 25% increase in ABC Irritability score) as compared to three of 12 (25%) in the risperidone-continuation group (p = .049). Survival analysis also favored the risperidone-continuation group (p < .047), who took a longer time to relapse (7 ± 1 week versus 6 ± 1 week; Kaplan-Meier analysis). Relative to Week 24, subjects in the placebo-discontinuation group experienced a 60% increase in ABC Irritability score at study endpoint, whereas the risperidone-continuation group had only a 14% increase (p = .043). Change scores for the two groups did not differ on other ABC subscales. The authors concluded that this study supports the efficacy of risperidone among children with ASD over duration of six months’ treatment.


Although characterizing the executive function abilities of adults with Prader-Willi syndrome was the main goal of this study, the authors also compared the ABC subscale scores of the sample to a non-Prader-Willi control group. The Prader-Willi group (n = 18; 61% male) had a mean age of 23.5 years (range 16-49); the nonspecific comparison group (n = 15; 47% male) had a mean age of 24.5 years (range 18-49). The Prader-Willi group had significantly higher
mean scores than the comparison group on the following two subscales: (a) Stereotypic Behavior (4.56 vs. 1.79, \( p = 0.04 \)) and (b) Hyperactivity (4.72 vs. 2.43, \( p = 0.02 \)), as well as (c) the Total Score (48.83 vs. 29.86, \( p = 0.03 \)). The study group was also divided into two genetic subtypes: (a) deletion (n = 12) and (b) uniparental disomy (n = 6). These groups did not differ significantly on the ABC Total Score. [Please note: The manual for the ABC discourages use of a Total score, because the Total lacks construct validity.]

CAF


[This article will be summarized in a future edition of this manuscript.]


This was a double-blind, placebo-controlled, trial of CX516 in patients with fragile X syndrome. CX516 is an AMPA receptor-positive modulator, and it was hoped that it would normalize synaptic connectivity in these patients. The sample consisted of 49 patients with a mean age of 27.9 years (range = 18-49 years), 38 (78%) of whom were male. Following a one-week placebo lead-in, patients were randomized to either CX516 (n = 25) or placebo (n = 24) groups. The dosing schedule was as follows: 600 mg three times daily for the first week, and 900 mg three times daily for the following three weeks. The ABC was one of the secondary outcome measures; the scores from Week 5 were compared to the scores from Week 1 using a Wilcoxon Rank-Sum Test. No significant differences in improvement between groups were
observed with the ABC. All other outcome measures, including assessment of memory (the primary outcome measure), language, attention, behavior, and overall functioning failed to show any significant effect of CX516. The reliability of the ABC and several other outcome measures was assessed through intra-class correlations (ICC) of placebo patient ratings from weeks 1, 5, and 7. ICCs for the ABC subscales were as follows: (I) Irriability, 0.90; (II) Lethargy/Social Withdrawal, 0.90; (III) Stereotypic Behavior, 0.90; (IV) Hyperactivity, 0.80; (V) Inappropriate Speech, 0.60. The authors concluded that the ABC has “excellent reliability,” and that “validation of this measure for use in the FXS population [was] important because the ABC-C has already been shown to be sensitive to behavioral improvements in autistic spectrum disorder…” (pp. 537-538). CAF


This was an 8-week, open-label, uncontrolled trial of olanzapine in 16 adolescents (10 boys and 6 girls), aged 13 to 17 years, with disruptive behavior disorders and low IQ (range 36-79, mean 55). Outcome measures included the Aberrant Behavior Checklist (ABC), the Conners’ Parent Rating Scale Hyperactivity Index, and the Clinical Global Impressions–Severity (CGI-S) and Clinical Global Impressions–Improvement (CGI-I) subscales.

Subjects continued stably-dosed concomitant medications other than antipsychotics. Typical and atypical antipsychotics were discontinued 2 weeks before study entry. Olanzapine was started at 2.5 mg/day and then increased to 5.0 mg/day during Week 1. Titration continued each week by 5 mg/day until an optimal dose was achieved (ABC Irritability decrease ≥50%) or until the maximum dose of 20 mg/day was reached. Adverse events resulted in dosage decreases
or study exit. Eleven subjects (69%) completed all 8 weeks; four others were also included with an intent-to-treat model. One subject refused to take medication and never initiated medication.

Ten of the remaining 15 subjects (67%) were responders (CGI-I ratings of “very much improved” or “much improved”). At Week 8, significant improvement was noted on the CGI-S, CGI-I, Conners’ Hyperactivity Index, ABC Hyperactivity, and ABC Irritability subscales (all ps ≤ .002). The ABC Lethargy/Social Withdrawal showed no statistically-significant differences during the trial, suggesting to the researchers that sedation was not a concern. Other adverse events were monitored throughout the trial. The most common adverse event was weight gain (with one subject exiting early); 10 subjects (67%) gained 10 lbs or more during the trial. Prolactin levels also increased from baseline (from 9.7 to 24.81, p= .017), but no prolactin-related side effects were reported. Two subjects displayed increasing dangerous behavior and exited the study early. Another subject exited after Week 4 due to sedation and nausea, but this may have been due to antibiotic treatment as he was a responder to olanzapine and was re-treated with olanzapine after the study ceased.

The authors concluded that this study supports the use of olanzapine for the treatment of disruptive behavior disorders among adolescents with subaverage intelligence. Future double-blind, placebo-controlled trials are necessary. However, weight gain needs to be monitored and addressed more fully in future research.


The ABC Irritability subscale was used both as an entrance criterion and as the primary outcome measure in this crossover study of risperidone. The 40 subjects had a mean age of 22.0
years (range = 8-56 years), with 13 children (range 8-12 years), 8 adolescents (13-18 years), and 9 adults (22-56 years). Levels of intellectual disability in the sample were as follows: 11 mild, 9 moderate, 11 severe, and 9 profound disability. An ABC Irritability subscale score more than one standard deviation above age and gender norms was required for entry. Subjects were randomized to 3, 4, or 5 weeks of Placebo I phase, followed by randomization to either a low (1 mg/day for children and adolescents and 2 mg/day for adults) or high dose (0.05 mg/kg/day for all participants) of risperidone. This dose was titrated for 2 weeks, and held constant for 4 weeks (Acute Dose 1). Following Acute Dose 1, subjects were titrated to the alternative dose over 2 weeks, which was then held constant for 4 weeks (Acute Dose 2). Finally, subjects were then randomized to a Placebo II phase of either 3, 4, or 5 weeks. “Clinical response” was defined as a 50% decrease in the Irritability score, and a “partial response” was defined as a 25% decrease in the Irritability score. Across both acute dose phases, mean Irritability subscale scores declined from 19.16 to 11.15 (low dose group) and from 19.16 to 13.31 (high dose group). Twenty-three participants (57.5%) were considered to be responders to risperidone, and 35 (87.5%) were partial responders. ABC Irritability scores during both drug phases were significantly different from the Placebo II phase (F = 17.94, p = 0.0002). Level of intellectual disability and age moderated the effects of risperidone; subjects in the mild and profound intellectual disability subgroups had a greater decrease than the other subgroups on Irritability subscale scores (F = 3.94, p< 0.0086), and child participants had significantly higher Irritability scores than the adolescents and adults at the end of the study (F = 32.41, p< 0.0001).

This study evaluated 84 individuals, living in a residential placement, on the DASH-II to see if autistic impairment (as assessed on the DASH-II) would result in increased emotional or behavioral disturbance on the remaining DASH-II subscales. As assessed by the PDD/Autism subscale, there were 13 non-autistic individuals and 69 autistic individuals, of whom 34 were moderately and 35 were severely affected. The Aberrant Behavior Checklist was used to ensure that the three groups did not differ significantly on problem behavior. The researchers found no group differences on the ABC, age, or adaptive behavior, except that the autistic group scored higher on the ABC Inappropriate Speech subscale than the non-autistic group; in three-way comparisons, the moderately-affected and non-autistic groups did not differ significantly but the severely-affected autistic group scored significantly greater than the other two. On the remaining DASH-II subscales, the autistic group obtained higher scores than the non-autistic group on the Organic, Anxiety, Mania, PDD/Autism, and Stereotypies DASH-II subscales. In three-way comparisons (non-autistic vs. moderately autistic vs. severely autistic), the researchers found group differences on the Anxiety, Mood, Mania, PDD/Autism, Schizophrenia, and Stereotypies DASH-II subscales.


   [This article will be summarized in a future edition of this manuscript.]


This was an 8-week, open-label, uncontrolled trial of memantine in autism spectrum
disorders. Fourteen boys with a mean age of 7.8 years (S.D. 1.8, range 3-12) participated in the study, with 12 boys completing the full 8 weeks. Participants were able to continue psychotropic and other medications at stable doses during the study.

The primary outcome measure was the Children’s Memory Scale Dot Learning Subtest (CMS-DLS). Secondary outcome measures included the Expressive One Word Picture Vocabulary Test–R, the Peabody Picture Vocabulary Test–III, the Raven’s Matrices (Form board), the Aberrant Behavior Checklist (ABC), and the Clinical Global Impressions Scale–Severity (CGI-S) and –Improvement (CGI-I). The ABC was completed by parents at baseline and weekly thereafter; the CGI-S was completed by the investigators at baseline, Weeks 4 and 8; and the CGI-I was completed at Weeks 4 and 8. All other outcome measures were completed at baseline and Week 8.

Two boys withdrew from the study due to increased hyperactivity and restlessness. Their data were only included in an intent-to-treat manner for the ABC. Of the remaining 12 subjects, 3 failed to obtain a basal score on the CMS-DLS and were excluded from this analysis. The 9 subjects with a basal score showed a statistically-significant improvement on the CMS-DLS ($p = .021$). The ABC also showed statistically-significant improvements on all subscales and on the total score (all $ps < .03$). [Use of the total score is inconsistent with the instructions in the ABC Manual and is a practice to be discouraged because it lacks construct validity.] No other secondary outcome measures showed statistically-significant effects.

The CGI-S showed no statistically significant effects and no participant was rated as “much improved” or “very much improved” on the CGI-I. Thus, parents noted greater improvement (possibly due to expectancy effects) than the investigators. The investigators concluded that memantine may be effective for treating memory concerns for children with
autism spectrum disorders; however given the limitations of the study, larger placebo-controlled trials are necessary.


[This article will be summarized in a future edition of this manuscript.]


This was an 8-week, open-label, uncontrolled trial of atomoxetine in children with ADHD symptoms and an autism spectrum disorder. Sixteen subjects, 13 male and 3 female, participated with a mean age of 7.7 ± 2.2 years (range 6-14 years). Primary outcome measures included the Clinical Global Impressions-Improvement Scale (CGI), and the Aberrant Behavior Checklist (ABC), and the Swanson, Nolan, and Pelham Questionnaire (SNAP-IV) as completed by parents and teachers. Other outcome measures included the Social Responsiveness Scale (SRS) the Vineland Adaptive Behavior Scales (VABS), the Autism Diagnostic Observation Schedule (ADOS), and the Conners’ Continuous Performance Test (CPT). Alpha was set at 0.004, following Bonferroni correction for measures of symptoms other than ADHD. Subjects who did not complete all 8 weeks were included in analyses with an intent-to-treat model.

All subjects were medication free for 2 to 4 weeks prior to the baseline visit. During the study, medication was administered twice daily, starting at 0.5 mg/kg/day, which was increased to 0.8 mg/kg/day for the second week, and then to 1.2 mg/kg/day the third week and following.
Subjects showing less than “much improvement” on the CGI at week 4 were to have dosage increased to 1.4 mg/kg/day. Dosage decreases due to adverse events could occur at any time.

Thirteen subjects completed all 8 weeks of this trial. Twelve subjects responded to atomoxetine (CGI scores of “much improved” or “very much improved”). CGI scores for nonresponders were “minimally improved” (n=1), “unchanged” (n=1), and “much worse” (n=2). The researchers found statistically-significant effects from baseline for both the parent- and teacher-completed SNAP-IV (both \( p < 0.0001 \)). The parent-completed ABC showed statistically significant effects on the Social Withdrawal, Stereotypic Behavior, Hyperactivity, and Inappropriate Speech subscales (Social Withdrawal \( p = 0.003 \), all others \( p < 0.0001 \)). The only teacher-completed ABC subscale to show a statistically significant effect was Hyperactivity (\( p = 0.004 \)). The VABS Maladaptive Behavior Domains 1 and 2 also showed a statistically-significant effect (\( p = 0.0003 \) and \( p = 0.003 \), respectively). No other measures showed significant effects.

Two subjects withdrew due to adverse events: One could not tolerate the starting dose; the other showed initial improvement followed by increased irritability. Most adverse events were in the mild range. The three most commonly reported among all subjects were sedation, irritability, and decreased appetite. Overall, the authors report marked improvement with atomoxetine for ADHD symptoms as rated by parents and teachers. Atomoxetine was well tolerated in general and showed promise as a treatment for children with a PDD and ADHD symptoms.


[This article will be summarized in a future edition of this manuscript.]

This study of long-term use of risperidone began with a one-year open-label phase, followed by enrollment in a one-year extension phase. This paper reported the results from the extension phase of the study (i.e., out to 2 years of treatment). The change from baseline on the Conduct Problem subscale of the Nisonger Child Behavior Rating Form was the primary outcome measure, and the ABC subscales were secondary measures. Out of the 504 participants enrolled in the first phase of the study, 48 moved on to the 2-year extension phase. The mean age of these participants was 9.9 years, and 42 (88%) were boys. Axis I diagnoses were as follows: (a) Attention Deficit Hyperactivity Disorder (ADHD), n = 1; (b) ADHD + Disruptive Behavior Disorder (DBD)-NOS, n = 12; (c) ADHD + Conduct Disorder (CD), n = 10; (d) ADHD + Oppositional Defiant Disorder (ODD), n = 6; (d) DBD-NOS, n = 3; (e) CD, n = 14; (e) ODD, n = 2. Data from the ABC for Baseline 1 (entry into the first phase), Baseline 2 (entry into the second phase), and Endpoint (month 24), respectively, were as follows: (I) Irritability, 16.8, 9.8, 10.9; (II) Lethargy/Social Withdrawal, 6.2, 4.0, 4.0; (III) Stereotypic Behavior, 2.6, 1.2, 1.5; (IV) Hyperactivity, 29.8, 15.0, 16.0; (V) Inappropriate Speech, 3.6, 2.2, 2.4. No inferential statistics were presented. The authors concluded that there was good data for the long-term efficacy of risperidone in children with disruptive behavior disorders.


This was an open-label trial of aripiprazole in young people with PDD-NOS or Asperger’s syndrome. Dosage was titrated to a maximum level of 15 mg/d for the first 6 weeks and maintained consistent for another 8 weeks (total duration, 14 weeks). To qualify, subjects had to have a Clinical Global Impressions–Severity (CGI-S) score of $\geq 4$ and an ABC Irritability subscale score of $\geq 18$. Results indicated that 12 of the 13 subjects (92.3%) were clinical responders, based on a CGI-Improvement score of 1 or 2 and 25% improvement on the ABC Irritability score. Seven participants gained weight and two lost weight (range, -2.1 to +7.7 lbs.). Other adverse events included tiredness (n=11), vomiting (n=7), dyspepsia (n=6), excessive appetite (n=6), and dry mouth (n=5).


[This article will be summarized in a future edition of this manuscript.]
This was an open-label, uncontrolled trial of atomoxetine in children with ADHD symptoms and an autism spectrum disorder. Twelve subjects, 10 male and 2 female, participated with a mean age of 10.2 years ± 2.8 years (range 6-14 years). The primary outcome measure was the Attention Deficit Hyperactivity Disorder Rating Scale (ADHDRS). Secondary outcome measures include the Clinical Global Impression-Improvement Scale (CGI), the short form of the Conners’ Parent Rating Scale–Revised (CPRS-R), and the Aberrant Behavior Checklist (ABC).

There was an initial 3- to 28-day evaluation and medication wash-out period, followed by 10 weeks of atomoxetine treatment given either as a single morning dose or as a twice divided-daily dose. Atomoxetine was started at 0.5 mg/kg/day, increased to 0.8 mg/kg/day, and then titrated to a target dose of 1.2 mg/kg/day with an acceptable range from 0.5 mg/kg/day to 1.8 mg/kg/day if efficacy or side effects warranted. Patients who did not complete all 10 weeks were included with intent-to-treat analyses and the last observation carried forward model. Seven patients completed all 10 weeks. Five subjects withdrew due to side effects.

At the end of the study, the maximum total daily dose ranged from 0.49 mg/kg/day to 1.72 mg/kg/day with a mean of 1.19 ± 0.41 mg/kg/day. The researchers found a statistically significant difference from baseline for the ADHDRS ($p = 0.003$) and all but the Oppositional subscale of the CPRS-R (range $p$ from 0.023 to 0.030). No subscales of the ABC showed a statistically significant difference; the Hyperactivity subscale approached significance ($p = 0.071$). The authors reported nine subjects as “much improved” or “very much improved” on the
CGI and one each as “minimally improved,” “unchanged,” and “minimally worse.”

Five subjects withdrew due to side effects. The three most commonly reported side effects among all subjects were anorexia, irritability, and sleeping problems. No differences were observed in blood pressure, electrocardiograms, vital signs (excluding mean heart rate, which increased from 85 bpm at baseline to 93 bpm at end-point), or laboratory tests. The authors concluded that atomoxetine may assist in treatment of ADHD symptoms in children with PDD but that these children may be at higher risk for side effects.


The current study explored the safety and efficacy of levetiracetam as a treatment option for core autism symptoms in children. Levetiracetam has previously been approved for the use as an adjunctive therapy for the treatment of childhood seizures, and has shown favorable safety and side effect profiles. Since levetiracetam’s anticonvulsive properties appear to be unrelated to the pharmacokinetics of other antiepileptic drugs, it is being explored as a possible treatment for the behavioral symptoms of autism. A sample of 20 participants (mean = 8.72 years, 5-17 years) participated in a 10-week, placebo-controlled, double-blind trial of levetiracetam versus placebo. Baseline assessments consisted of comprehensive psychiatric and psychological testing to confirm an autism spectrum disorder diagnosis, using the Autism Diagnostic Interview-Revised (ADI-R) and the Autism Diagnostic Observation Schedule (ADOS), and to establish IQ scores, using the Leiter-Revised scale for non-verbal and the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-4) for verbal participants. Improvements in autism symptoms were measured using the Clinical Global Impression-Improvement (CGI-I). Improvements in aggression and mood instability were measured using the ABC Parent and Teacher versions. Restricted and repetitive behaviors were
measured using the Children’s Yale-Brown Obsessive-Compulsive Scale (CY-BOCS) score for impulsivity, while hyperactivity was measured using the Conners’ Rating Scale-Revised: Long Version, Parent and Teacher forms. The treating psychiatrist evaluated participants weekly for the first 4 weeks and biweekly for the following 6 weeks to allow for gradual medication titration and monitoring of side effects. The primary outcome measures were the ABC Parent and Teacher forms and the CGI-AD. Analyses yielded no significant differences between levetiracetam and placebo groups across any measures. Noted side effects included agitation and aggression. It was concluded that levetiracetam does not improve autism characteristic behaviors. Limitations of this study include its small sample size and a lack of sample stratification.


[This article will be summarized in a future edition of this manuscript.]


This 6-week, double-blind, placebo-controlled pilot study examined the effects of omega-3 fatty acids in 13 boys with autism. Criteria for participation included (a) a score greater than 17 on the Irritability subscale of the ABC, (b) absence of major medical conditions, and (c) no psychiatric diagnosis requiring medication. The experimental group (n=7) received seven doses daily of 1.5 grams omega-3 fatty acids prepared with vitamin E, while the placebo group (n = 6)
received vitamin E only. One participant in the placebo group exited the study at two weeks due to gastrointestinal complaints; this participant’s scores were not analyzed. The ABC was the only outcome measure and was completed by two clinicians at baseline and end point. Repeated-measure ANOVA procedures were used to analyze the change scores, but revealed no significant differences between groups. A trend towards significance on the Hyperactivity subscale (average omega-3 fatty acid change = -4.0, placebo change = +3.0; \( p = 0.098 \)) was noted by the authors. However, when “hot deck” imputation was used to include the participant who dropped out, this finding reached statistical significance (change scores not reported, \( p = 0.046 \)). The authors concluded that the use of omega-3 fatty acids is potentially useful in subjects with autism. They noted that side effects were mild and, although statistical significance was not reached, effect sizes ranged from medium to large on the Inappropriate-speech, Hyperactivity, and Stereotypy subscales of the ABC.


This study involved 275 subjects with autism spectrum disorders (ASD) to reanalyze the factor structure of the Aberrant Behavior Checklist. The investigators used Principle Components Analysis with promax and varimax rotations to determine factor structure and then used confirmatory factor analysis to compare their results to the original ABC structure.

The investigators found a five-factor solution, where the Irritability factor collapsed into the Hyperactivity factor for all but 3 items, which formed a new Self-Injury factor. The Stereotypic Behavior, Lethargy/Social Withdrawal, and Inappropriate Speech factors were largely unchanged. The researchers conducted another analysis with four-factors, but
Inappropriate Speech did not emerge. The five-factor solution accounted for 76% of the observed variance and compared to the original ABC structure with moderate fit. The 4-factor solution accounted for 71% of the variance.

The investigators then broke the subjects into two groups based on self-injury scores (<3 vs. ≥3; n=216 and 59, respectively), and they reanalyzed the data. A five-factor solution accounted for 70% of the variance in the low-self-injury group (n = 216), and the indices of fit improved to a level that is generally considered as acceptable. For the high-self-injury group (n = 59), the five-factor (possibly six-factor) solution accounted for 54% of the observed variance and the fit with the original structure was poor. A limitation of this analysis was the small sample size for the high-self-injury group. The researchers concluded that the factor structure for the low-self-injury group paralleled that originally reported for the ABC by Aman, Singh, Stewart, and Field (1985). They also raised the possibility that there may be a subgroup of people with ASDs and high self-injury whose behavior varies greatly from the larger population of those with ASDs on standardized behavior scales.

Although a self-injury factor emerged in this study, the authors did not recommend changing the scoring system for the ABC; rather they recommended further study of self-injury in ASD and noted that “use of the ABC in ASD shows potential value beyond clinical trials” and that “the factor structure is robust in an ASD sample.”


This study sought to revise the Epilepsy and Learning Disabilities Quality of Life (ELDQOL) scale and then to establish reliability and validity of the revised scale. Sixteen
parents and 17 health professionals participated in the two qualitative revision exercises intended to obtain user opinions on wording, content, and the layout of the ELDQOL. The revised ELDQOL contained 70 items and 4 subscales: Behaviour (9 items), Seizure Severity (14 items), Mood (16 items), and Side Effects (19 items). Additional items addressed seizure-related injuries, physical, cognitive, and social functioning, parental concern, communication, overall quality of life, and overall health.

Reliability and validity were established by mailing the scale to 47 parents or guardians and 21 professionals caring for children with epilepsy and intellectual disabilities. Cronbach’s coefficient alpha ranged from 0.74 to 0.95 for the ELDQOL subscales. Item-total correlations for the subscales varied. Intraclass correlation coefficients for test-retest reliability ranged from 0.80 to 0.96. The authors also correlated the ELDQOL with the Aberrant Behavior Checklist Irritability and Hyperactivity subscales. Correlations with the ABC Irritability and Hyperactivity subscales were significant for three of four subscales that were assessed. ABC Irritability was correlated with the ELDQOL Mood subscale \( r = 0.74 \), and the Side Effects subscale \( r = 0.38 \). Hyperactivity/Noncompliance was correlated with the Seizure Severity subscale \( r = 0.38 \), Mood subscale \( r = 0.56 \), and the Side Effects subscale \( r = 0.39 \). Irritability and Hyperactivity/Noncompliance were not correlated with the ELDQOL subscale called “Behaviour.”

The ELDQOL Behaviour and Mood subscales also showed a statistical relationship with overall health. No ABC subscales exhibited a relationship with overall quality of life. Seizure Severity and Behaviour subscales were also correlated with severity of intellectual disability. The authors concluded that the ELDQOL is reliable and valid and a promising instrument as an outcome measure in treatment trials for young people with epilepsy and intellectual disabilities.
and for assessing quality of life.


The Aberrant Behavior Checklist (ABC) was used as the primary outcome measure in this study that evaluated the efficacy of a residential program for adults with autism spectrum disorders (ASD). The residential program, PAMS (“Programme Autisme Méthode Structurée”), was a Swiss adaptation of the TEACCH approach for adults. Two cohorts were followed for 30 months, with the ABC collected every 3 months. Cohort 1 had 2 females and 8 males, with a mean age of 38.3 years; Cohort 2 had 2 females and 7 males, with a mean age of 39.7 years. There were no significant differences between the cohorts in gender composition, age, or ASD severity (as measured by the Childhood Autism Rating Scale [CARS]). The primary difference between groups was that Cohort 1 attended a workshop outside of PAMS, whereas Cohort 2 attended only PAMS.

Cohort 1 showed a statistically significant improvement from baseline to 30 months on the ABC Lethargy/Social Withdrawal subscale. Neither the CARS total score nor any other ABC subscale showed a change. Within Cohort 2, no statistically significant differences were found. The authors reanalyzed the cohorts and found that Cohort 2 started with a lower mean score on the Lethargy/Social Withdrawal subscale, which remained stable across time, whereas Cohort 1 had a higher initial score that decreased to a level similar to Cohort 2 by 30 months. The authors thought this might be related to the different workshop environment for Cohort 1.

The authors were also interested in whether the number of hours that staff spent with residents influenced behavior problems. The ABC subscales were compared for the time periods
with the fewest staff hours and the most staff hours, but no statistically-significant differences were found for either cohort.


The goal of this study was to compare repetitive behavior in individuals with Asperger's disorder (ASP) and high-functioning autism (HFA). There were 33 pairs of individuals with ASP/HFA matched on age (ASP mean age= 11.58, HFA mean age=10.67), sex (27 male pairs, 6 females pairs), and IQ (ASP mean IQ=100, HFA mean IQ=101) with a control group. The Repetitive Behavior Scale-Revised (RBS-R) and the Aberrant Behavior Checklist-Community (ABC-C) were used as outcome measures. Analysis of RBS-R scores showed no differences in intensity between ASP and HFA pairs (P-values ranged from 0.32-0.92). P-value scores on the ABC were as follows: I) Irritability, p=0.15; II) Lethargy/Social Withdrawal, p= 0.58; III) Stereotypic Behavior, p= 0.55; IV) Hyperactivity, p= 0.16; V) Inappropriate Speech, p= 0.80. The researchers concluded that there were no significant differences between ASP and HFA groups with respect to repetitive behaviors, which confirms previous research.


The goal of this study was to examine the effect of fever in children with autism spectrum disorders (ASDs). Thirty children with ASDs who eventually had a fever (mean age= 7.4, 24 boys, 6 girls) and 30 matched control subjects with ASDs with no fever (mean age= 8.8, 24 boys,
6 girls) entered the study. Fever was defined as having a temperature greater than or equal to 38 degrees Celsius (100.4 degrees Fahrenheit). Parents were asked to fill out a modified version of the ABC at three different times (a) 24 hours after the first sign of fever, (b) 24 hours after the child's fever abated, and (c) seven days after the child's fever was over. Repeated measures analyses of variance were conducted to check for differences between fever and control groups over time. Twenty-five of the 30 (83%) subjects with fever had lower scores on all subscales of the ABC other than the Lethargy/Social Withdrawal subscale. Twenty-two of the 25 (88%) subjects with lower ABC Lethargy/Social Withdrawal subscale scores showed less problem behavior on at least two other ABC subscales, while 16 of the 25 (64%) showed lower problem behavior scores on at least three other ABC subscales. As compared with children with PDD-NOS or Asperger's disorder, children with autistic disorder had lower scores on the ABC during fever periods. Time-by-group interactions were significant for all ABC subscales (Irritability, P=0.016; Lethargy/Social Withdrawal, P=0.02, Hyperactivity, P=0.001; Stereotypic Behavior, P=0.006; Inappropriate Speech, P=0.003). The researchers concluded that problem behaviors, other than Lethargy/Social Withdrawal, were reported less when subjects with ASDs had a fever compared to the control group.


This was a retrospective summary of open-label trials of memantine, a NMDA antagonist approved to treat dementia. Target symptoms were core social deficits of autism spectrum disorders (ASD) among 18 participating children and adolescents. There were 15 boys and 3 girls aged 6 to 19 years. Eleven (61%) were diagnosed with co-occurring intellectual disability.
The mean length of trial on memantine was 19.3 weeks (range 1.5-56 weeks), with an average
dose of 10.1 mg/day (range 2.5-20 mg/day).

All subjects had Clinical Global Impressions–Severity (CGI-S) and Improvement (CGI-I)
scores. Six patients (33.3%) also had pre- and post-trial Aberrant Behavior Checklist (ABC)
scores, which were completed by their parents. Eleven patients (61%) were considered
responders to memantine (CGI-I scores of “very much improved” or “much improved”). There
was a change from baseline on CGI-S scores, from 4.2 to 3.6 ($p = .008$). Among the six patients
with ABC scores available, significant changes from pre- to post-trial were found on the
Hyperactivity subscale from 23.17 to 16.33 ($p = .03$, effect size = .63). Seven patients exhibited
adverse effects, including irritability, rash, emesis (vomiting), and sedation. One patient with a
history of treatment-refractory epilepsy exhibited an increase in seizures; hence, a definite
relationship between seizures and memantine could not be determined.

The authors concluded that memantine was moderately effective and generally well
tolerated in children and adolescents with ASD. However, controlled prospective studies with
larger samples are warranted.

functioning predicts patterns of associated symptoms in school-age children with autism

This was part of a longitudinal study involving 57 participants, who were first diagnosed
with autism or PDD-NOS at recruitment (age 3 or 4 years). Follow-ups were conducted at age 6
years, when the investigators completed the Differential Ability Scales and Communication
domain of the Vineland Adaptive Behavior Scales, and at age 9 years, when informants
completed the Child Behavior Checklist (CBCL), Conners’ Parent Rating Scales-Revised Short
Version (Conners’ PRS), and the Aberrant Behavior Checklist (ABC).

The researchers hypothesized that higher-functioning individuals at age 6 would exhibit more internalizing behavior problems at age 9, and lower-functioning individuals would exhibit more externalizing behavior problems. Separate MANOVAs and univariate ANOVAs (when warranted) were conducted as a function of DAS Nonverbal IQ (<> 70), DAS Verbal IQ (<> 70), and Vineland Communication Standard Score (<> 70). Each subscale of each instrument (CBLC, Conners’ PRS, ABC) served as dependent measures.

Individuals in the lower-functioning group, as determined by DAS Nonverbal Scale, demonstrated increased externalizing behavior on the ABC I. Irritability, III. Stereotypic Behavior, and IV. Hyperactivity subscales. Thought Problems and Attention Problems on the CBCL, and Hyperactivity on Conners’ PRS were similarly affected. The analyses for Verbal DAS IQ showed higher scores for CBCL Anxious/Depressed and Thought Problems and for Conners’ PRS Hyperactivity (worse scores associated with lower IQ). Finally, the analyses for Vineland Communication showed differences for CBCL Thought Problems; Conners’ PRS Hyperactivity; and ABC I. Irritability, III. Stereotypic Behavior, and IV. Hyperactivity. In general, externalizing symptoms were associated with lower functional level. The researchers speculated that Verbal and Nonverbal IQ may be associated with different patterns of psychopathology.


This was an uncontrolled trial of a 16-week needs-led exercise program for 8 adults with a mean age of 41.3 years and profound intellectual disability (ID). The exercise program was
tailored to each individual based on his or her mobility, degree of independent movement, and posture at baseline. All programs included a portion of rebound therapy, which is a therapy involving the use of a trampoline for enhancing gross motor, posture, and balance skills.

Behavioral and psychological outcomes were measured at baseline, after the 16-week intervention, and at a 3-month follow-up. Physical functioning and health indicators were monitored, but no changes were observed. The British Institute of Learning Disabilities (BILD) Life Experiences Checklist showed an adaptive increase on the Freedom domain ($p = .008$), which assesses participants having more opportunity to express choice over time. The Aberrant Behavior Checklist (ABC) also showed reductions in Lethargy/Social Withdrawal across time ($p = .04$). The ABC total score approached a statistically-significant reduction in problem behavior ($p = .07$), and the ABC Hyperactivity subscale showed a positive trend post-intervention, but this did not reach statistical significance. [Use of the ABC total score is inconsistent with the *ABC Manual* and is a practice to be discouraged because it lacks construct validity.] Six of the 8 participants also had scores on the observational measure, the Alertness Scale. These 6 participants showed a statistically-significant reduction in the percentage of time unengaged ($p = .05$), with the reduction maintained at follow-up.

The authors concluded that the needs-led exercise program, including the rebound therapy portion, showed positive effects for the adults with ID. It may have been too short, though, to detect physiological effects. Additional controlled trials are necessary.


The goal of this 6-week, open-label, pilot study was to test the efficacy and safety of the
drug, ziprasidone, in adolescents diagnosed with autism. Researchers were also interested in examining the effects of ziprasidone on weight gain/loss and QTc scores. Twelve adolescents (mean age= 14.5 years) participated in the study, however; one dropped out due to previous medical complications (not due to ziprasidone). Subjects received anywhere from 40-160 mg/day of the drug \( M=98.3 \pm 40.4 \text{ mg/day} \), depending on the individual's weight and side effects. The Clinical Global Impressions–Improvement (CGI–I) scale was used as the primary outcome measure, and the Children’s Psychiatric Rating Scale (CPRS) and the ABC were used as secondary outcome measures. Seventy-five of subjects (9 out of 12) responded favorably to the drug. However, there was disagreement between parent ratings and clinician ratings 50% of the time. On the CGI—Severity scale, the change in scores was \(-0.64 (SD=1.03, p=0.07)\). The results from the CPRS showed that there was a trend for improvement; however, only the Autism subscale \( (p=0.009) \) of the CPRS reached significance \( (p=0.01) \). Using a paired \textit{t}-test to evaluate ABC changes, subject's scores on all subscales decreased over time. Change was significant for the Irritability subscale \( (p=0.05) \) and the Hyperactivity subscale \( (p=0.01) \). Significant improvements were also seen on one of four CPRS subscales, namely on the Autism subscale. Ziprasidone did not have an effect on weight, but QTc scores reached statistical significance, with a net increase of 14.7 msec \( (p=0.04) \). The researchers concluded that more research is needed, but that ziprasidone appears to have an overall positive effect on autism in adolescents.


This was an open-label drug trial of tacrine in three patients with autism. Tacrine hydrochloride (Cognex) is an anticholinesterase inhibitor used to treat Alzheimer’s disease; it has largely been displaced by newer, safer anti-Alzheimer medicines. Inclusionary criteria included
significant impairment in irritability, motor activity, eye contact, and expressive language.

Tacrine was given in a dose of 20 mg/day. The Aberrant Behavior Checklist (ABC) was completed by subjects’ parents and teachers. Lengths of the open-label trials were unspecified. Modest improvement in ABC scores was noted after the tacrine trial in domains characterized as irritability [presumably the Irritability subscale \((p = .04)\)], hyperactivity [presumably the Hyperactivity/Noncompliance subscale \((p = .04)\)], inadequate eye contact [presumably the Lethargy/Social Withdrawal subscale \((p = .05)\)] and inappropriate speech \((p = .05)\). No side effects or hepatotoxicity was reported in this short-term trial. The investigator concluded that although tacrine appears to benefit some patients with autism, it should not be recommended for all patients due to its proven risk of hepatotoxicity.


This was a subgroup analysis from a larger 8-week, randomized, placebo-controlled trial of risperidone in autism spectrum disorders (Shea et al., 2004). This subgroup analysis only involved the 55 children (43 boys, 12 girls) with a diagnosis of autism, to allow comparison with the Research Units in Pediatric Psychology (RUPP) study (McCracken et al., 2002). There were 27 subjects in the treatment group (mean age 7.4 ± 2.4 years) and 28 subjects in the placebo group (mean age 7.1 ± 2.1 years). Forty-nine of the 55 children completed the full 8-week trial. An intent-to-treat model was used for those who exited early. Reasons for early exit include extrapyramidal disorder, insufficient response, overdose, and withdrawal of consent.

The Aberrant Behavior Checklist (ABC) Irritability subscale was the primary outcome measure. Change scores on it were significantly greater for the risperidone group than the placebo group as early as Week 2 and at each subsequent evaluation point \((ps < .05)\). At Week
8, the Irritability change scores from baseline showed a statistically-significant difference favoring risperidone treatment \((p = .002, \text{ES} = -0.70)\). The other subscales of the ABC also favored risperidone treatment, though Stereotypic Behavior and Inappropriate Speech failed to reach statistical significance \((p = .053\) and \(.058\), respectively). Several subscales from other outcome measures also favored risperidone, including the Clinical Global Impressions–Improvement score \((\text{CGI-I}; p = .001)\).

Using a composite response criterion \((\geq 25\%\) reduction on ABC Irritability score and CGI-I score of “much improved” or “very much improved”), 14 children in the risperidone group \((58.3\%)\) and 6 in the placebo group \((21.4\%)\) were considered responders, with statistically-significantly more responders in the treatment group \((p = .008)\). The authors concluded that this subgroup analysis further supports the efficacy of risperidone for children with autism and irritable behavior, both as measured by the clinician and the caregiver.


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The Aberrant Behavior Checklist (ABC) was used as the primary outcome measure in this 12-week, uncontrolled, open-label trial of risperidone in adults with intellectual disability. Enrolled in this study were 19 males and 5 females, aged 16 to 65 years (mean 27.4 ± 13.0 years) with IQ scores less than 55. All analyses were conducted with an intent-to-treat model, with 21 participants taking risperidone for at least 57 days.

Statistically-significant improvement was evident on the ABC subscales, except Inappropriate Speech, and total score as early as Week 1 (all $p < .02$). The mean change at the final visit for the total score was $-32.9 \pm 30.1$ ($p < .001$), for the Irritability subscale $-8.9 \pm 8.3$ ($p < .001$), for the Lethargy/Social Withdrawal subscale $-7.4 \pm 9.2$ ($p < .001$), for the Stereotypic Behavior subscale $-3.7 \pm 3.8$ ($p < .001$), and for the Hyperactivity subscale $-12.3 \pm 12.9$ ($p < .001$). [Use of the total score is inconsistent with the instructions in the ABC Manual and is a practice to be discouraged because it lacks construct validity.]

Secondary outcome measures, including the Hostility Checklist, the Autism Scale, and quality of life subscales from the Composite Autonomic Symptom Scale also showed statistically-significant improvement at the final visit following risperidone treatment (all $p < .02$). Improvement was also noted on the Clinical Global Impressions–Severity scale, with 69.6% of participants rated as “very mildly ill” or “mildly ill” on the final visit, compared to 13% (all of whom were rated “mildly ill”) at baseline. The authors concluded that this study provides further evidence for the efficacy of risperidone in treating adults with aggression and other behavioral symptoms.

A 12-week social skills training program was formed for adolescents with Asperger’s disorder or high-functioning autism. The program taught specific social skills related to feelings, nonverbal communication, manners and etiquette, and conversation skills. The program was not manualized but still had target areas for therapists to address. Each week involved a review of the previous week’s skill acquisition, learning a new skill, and practicing it. At the beginning and end of the training program, parents completed the Social Responsiveness Scale (SRS), the Nisonger Child Behavior Rating Form (NCBRF), and the Aberrant Behavior Checklist (ABC).

Pre- and post-training scores on the SRS, NCBRF, and ABC were available for 32, 30, and 30 individuals, respectively, out of 46 total participants across six training sessions. Demographics information was not collected and thus was not available, reportedly because this was a pilot review of the training program and was not initially designed as a research study. Improvement in social skills was found on the SRS (effect size, range .34 to .46 for 4 of 8 domains that showed significant effects) and on the Compliant/Calm prosocial subscale of the NCBRF (effect size = .40). Problem behaviors also showed reductions on the NCBRF (effect size = .40).
size range .34 to .60 for 4 of 6 subscales showing statistically-significant effects). All subscales and the total score from the ABC showed significant effects from the beginning of the trial to the end (effect size, range .38 to .72, \( p = .03 \) to .001). [Use of the ABC Total score is inconsistent with instructions in the *ABC Manual* and is a practice to be discouraged because it lacks construct validity]. Children under age 14 years showed greater improvement on the ABC Irritability subscale than children 15 and older (\( p = .045 \)). Overall, the authors concluded that the training program was effective, but further research with a comparison group would be beneficial.


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   This study used an ABAB, double-blinded, placebo-controlled, 10-week trial design. The goal was to test the safety and efficacy of dextromethorphan as a treatment for problem behaviors and core symptoms of autistic disorder not otherwise specified symptoms in children diagnosed with autism or pervasive developmental disorder. Eight children (7 males, 1 female, mean age=13 years) with an ABC Irritability subscale score of 16 or greater (as rated by teacher
or parent) participated in the study. Subjects were allowed to remain on their previous doses of psychotropic medication, but dosages had to remain constant throughout the study. Depending on age, participants received either 30 mg of the drug or 60 mg of the drug twice a day and during the placebo phase participants received identical volumes of placebo. The ABC, the Clinical Global Impressions Scale (CGI), and the Treatment Emergent Side Effects Scale (TESS) were used to assess outcome. Three of the eight participants had a change in score of 25% or greater on the Irritability and Hyperactivity subscales of the ABC. Two of the eight subjects had a change in score of 50% or greater on the Lethargy/Social Withdrawal subscale. Two of the eight subjects had a change of 25% or greater on the Stereotypic Behavior and Inappropriate Speech subscales. On the CGI–Improvement scale, two of the eight subjects experienced an improvement of 25% or greater. The researchers concluded that dextromethorphan was not effective for treating behavior problems or the core symptoms of autism at the group level. 


This was a double-blind, placebo-controlled, 10-week trial of piracetam as an adjunctive treatment to risperidone of severely disruptive symptoms related to autism. Forty children with autism, 30 boys and 10 girls aged 3 to 11 years inclusive, were randomized to risperidone plus placebo or risperidone plus piracetam treatment groups. All subjects completed the full 10 weeks.

Subjects weighing less than 40 kg were titrated up to 2 mg/day of risperidone; those weighing greater than 40 kg were titrated up to 3 mg/day. Piracetam was titrated up to 800 mg/day. The placebo was identical in appearance. The primary outcome measure was the
Aberrant Behavior Checklist (ABC) total score. Use of the ABC Total score is a practice to be discouraged and is inconsistent with instructions in the ABC Manual because it lacks construct validity.

At baseline, the two groups did not differ on the ABC total score ($p = .70$). By week 10, both groups had reductions on the ABC total score (-11.90 ± 3.79 and - 5.15 ± 3.04 for the piracetam and placebo groups, respectively), but the piracetam group had significantly lower scores than the placebo group ($p < .001$). The effect size was approximately 1.98.

Adverse events were experienced equally between the two groups. Six subjects in the piracetam and eight in the placebo group experienced extrapyramidal symptoms. Other adverse events included drowsiness, appetite increase, and fatigue, among others. The authors concluded that piracetam may have a synergistic effect with risperidone on the treatment of behavioral problems in children with autism and that further investigation of this effect is warranted.


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   This was a case study of melatonin in three adults with intellectual disabilities. Case 1 was a 43-year-old female with moderate ID and mild challenging behavior; Case 2 was a 69-year-old man with moderate ID, ASD, and severe challenging behavior; Case 3 was a 47-year-old man with severe ID, ASD, epilepsy, and severe challenging behavior. Melatonin was given 1 hour before usual bedtime, starting at 3 mg and increasing to 6, 9, or 12 mg/day as necessary. Sleep and circadian rhythms were monitored with Cambridge Neurotechnology AW4 actigraphs and caregivers completed the Aberrant Behavior Checklist to measure daytime behavior problems. The investigators presented changes in the ABC total score, which is inconsistent with instructions in the *ABC Manual* and is a practice to be discouraged because it lacks construct validity.

   Case 1 showed no changes in sleep quality or quantity or better coordination of circadian rhythms. Cases 2 and 3 both showed slight improvements in sleep quantity (about 40 and 25 minutes, respectively), reduction of fragmented sleep, and increased coordination of circadian rhythms. Case 3 also showed slight improvement in onset of sleep and sleep efficiency. At
baseline, ABC total scores were 32, 39, and 42 for the three cases, respectively. Case 1 showed reduction in all problem domains, Case 2 showed no changes, and Case 3 showed reduction in all problem domains except self-injurious behavior.

The authors concluded that melatonin did not produce significant improvements in sleep but may decrease daytime problem behaviors. Alternatively, staff perception of problem behaviors (i.e., the well-known placebo effect) may have contributed to reductions in ABC scores. Staff reported better sleep and decreased behavior problems, but the actigraph data showed no significant improvements in sleep, so staffs’ perceptions may have changed during the trial.


This was a descriptive study only. The researchers administered a semi-structured interview regarding the impact of dual diagnosis to parents of 11 individuals, aged 16 to 25 years, with intellectual disability and mental health problems. Parents also rated their children on the Aberrant Behavior Checklist (ABC) and on the Degree of Dependency Scale (DDS). Total scores on the ABC ranged from 53 to 116. Use of the total score is inconsistent with instructions in the *ABC Manual* and is a practice to be discouraged because it lacks construct validity. All individuals scored greater than 85% of their normative sample on at least one ABC subscale, generally the Irritability subscale (9 of 11 participants). DDS scores ranged from 17 to 24 (max possible 24), with higher scores indicating greater independence.

Results of the semi-structured interview showed that parents perceived four main impacts on their family owing to the adolescent with a dual diagnosis: There was a struggle to understand what was going on with him or her; they experienced greater pain; they attempted to just get by,
sensing hopelessness; and they battled with professionals for help. There were multiple specific concerns related to these major themes. In general, parents were first to recognize signs of mental health problems, but unable to understand them or determine where to go for help. When parents sought help, professionals were not quick to listen to concerns, explain answers, or provide care.


[This article will be summarized in a future edition of this manuscript.]


This was an open-label, parallel-groups, comparison of risperidone and haloperidol following an initial 12-week randomized double-blind study. The blinded study started with 32 children with autism ages 8 to 18, but only 28 (22 boys and 6 girls) continued on into the open-label maintenance period, with 27 completing both phases. In the extension phase, patients continued with the same medication and dose as in the double-blind phase. Thirteen received risperidone, and 15 received haloperidol.

The patients were followed-up at weeks 12 (baseline for the extension), 16, 20, and 24. Dependent measures included the (a) Clinical Global Impressions-Improvement subscale (CGI-I), (b) Ritvo-Freeman Real Life Rating Scale (RF-RLRS [used as a rating scale rather than observational tool, as intended]), (c) Aberrant Behavior Checklist (ABC), and (d) Turgay DSM-IV Pervasive Developmental Disorder Rating Scale (TPDDRS). The Extrapyramidal Symptoms
Rating Scale and the UKU Side-Effect Rating Scale were also completed to monitor for adverse events. The two groups were analyzed with respect to their baseline via Wilcoxon matched pairs (within groups time comparison) and with respect to one another via Mann-Whitney U-tests (between groups comparison).

Degree of improvement as measured by the CGI-I was greater for the risperidone group than the haloperidol group at week 24. However, the results for CGI-I were not actually tabulated, and it appears that the Mann-Whitney U-test was used inappropriately to analyze the CGI-I (most investigators use Chi Square or similar). The risperidone group also improved on several scales of the RF-RLRS. Both groups improved from baseline on the TPDDRS. The risperidone group improved from baseline on the ABC total score ($p=.0029$; within subject comparison due to time), but the haloperidol group did not show statistically-significant differences ($p=.53$). At week 24 the two groups did not differ from each other ($p=.07$) on the ABC Total score. Use of the ABC Total score is inconsistent with instructions in the ABC Manual and is a practice to be discouraged because it lacks construct validity; total scores may mask important changes reflected in subscale scores. Furthermore, visual inspection of ABC Total strongly suggests an interaction between Drug and Time. If a parametric test were conducted for the effect of Drug and Time, it is likely that a significant interaction would have been confirmed.

The two groups did not differ from each other on any safety or tolerability comparisons, except that caregivers reported “weight gain” as an adverse event more frequently for haloperidol than for risperidone. However, there was no statistically-significant difference in measured weight gain ($p=.30$). Three patients in the haloperidol group (none in risperidone group) were prescribed anticholinergic agents due to extrapyramidal side effects. The authors
concluded that risperidone is superior to haloperidol in the treatment of autism in children and that it may be safer.


The goal of this study was to determine if neuroanatomic variation in individuals with fragile X syndrome was related to low levels of the fragile X mental retardation-1 protein (FMRP) and to problem behavior and cognition. Eighty-four subjects with fragile X (mean age=11.7; 45 males; 39 females) were matched for age and gender with 72 control subjects. Exclusion criteria for the control group included a past/present psychotic disorder, a past/present neurological disorder, history of substance abuse, a score of one standard deviation from the mean on the Child Behavior Checklist, a past/present participation in a special needs program, and sensory deficiency. Exclusion criteria for the fragile X group entailed a past or present seizure disorder (not related to fragile X), psychiatric disorder, or sensory deficient. The ABC and the Autism Behavior Checklist (AuBC) were used as dependant outcome measures. Results showed that adjusted caudate nucleus (CN) volumes was correlated with Total ABC score (n=59; ρ=0.23; p<0.09; please note that the Total score on the ABC is not recommended for clinical purposes). Adjusted CN volumes were positively correlated with the total AuBC score (n=63; ρ=0.33, p=0.009). The ABC Stereotypic Behavior subscale score (ρ= 0.32; p< 0.02) and the AuBC Sensory subscale (ρ =0.26, p<0.05); Body Object Use subscale (ρ =0.31; p<0.02) and Language subscale (ρ =0.33; p<0.02) scores were significantly correlated with adjusted CN volume scores. The adjusted superior temporal gyrus (STG) volumes were positively correlated with total ABC scores (n=58; ρ =0.29; p=0.03) and ABC Stereotypic Behavior subscale (ρ=
The researchers concluded that abnormalities in certain brain areas in children with fragile X syndrome can possibly lessen the effect of the FMRP on behavioral and cognitive effects of fragile X syndrome. KL


This was a double-blind, placebo-controlled, 6-week crossover trial of guanfacine among children with an autism spectrum disorder (ASD; n=4), intellectual disability (ID; n=4) or both (n=3). There were 10 boys and 1 girl, ages 5 to 9 years.

Half of the subjects received placebo first for 8 days, followed by a 19-day trial of guanfacine dosed up to 3.0 mg/day (i.e., 1.0 mg tid) followed by a 6-day taper period. The other half of subjects received guanfacine first started with the 19-day trial receiving up to 3.0 mg/day, followed by a 6-day washout and an 8-day placebo phase. Thus, the study was controlled, but the durations on each drug condition were not equivalent. Subjects took two locking capsules (these could not be opened) three times per day: morning, noon, and late afternoon. One subject had missing data for the placebo phase due to study noncompliance.

The primary outcome measure was the Aberrant Behavior Checklist (ABC) Hyperactivity subscale. Five subjects were responders (45.5%), based on a 50% reduction in ABC Hyperactivity subscale score. Statistically significant differences were noted between the placebo and active medication phase on the parent- and teacher-completed ABC Hyperactivity subscale and on the Clinical Global Impressions Improvement (CGI–I) scale, but no other subscales of the ABC reached significance. Three subjects were unable to tolerate a dose of 3.0 mg/day of guanfacine due to adverse events. Other adverse events were reported similarly in both phases of the study. The authors concluded that despite the limitations of this study,
guanfacine demonstrated the ability to treat inattention and overactivity among some children with ID and/or ASD, but that larger studies are necessary.


The purpose of the study was to reproduce Rojahn et al.’s 2003 study on the convergent validity of the ABC and the Behavior Problems Inventory (BPI). The BPI has three subscales: (a) Self Injurious Behavior (SIB) (b) Stereotyped Behavior (c) Aggressive/Destructive Behavior. In this study, 69 institutionalized individuals (58 males, 11 females, mean age= 18.4 years) with intellectual disabilities were rated using the ABC and the BPI. A MANCOVA analysis suggested that subjects with increased BPI Stereotyped Behavior subscale scores rated highly on the ABC Lethargy/Social Withdrawal and Stereotypic Behaviors subscales. This MANCOVA analysis also suggested that those with increased BPI Aggressive/Destructive Behavior subscale scores rated highly on the ABC Irritability, Stereotypic Behavior, and Hyperactivity subscales. A multiple regression analysis suggested that all BPI subscales except for the Self-Injurious Behavior subscale predicted ABC subscale scores. The BPI significantly predicted the ABC Irritability ($R^2 = .10, p<.05$); Lethargy/Social Withdrawal ($R^2 = 0.07, p<0.005$); Stereotypic Behavior ($R^2 = .36, p<0.001$) and Hyperactivity ($R^2 = 0.08, p<0.05$) subscales scores. The researchers concluded that there were significant relationships between the ABC and the BPI subscales. KL

This was a study of the ABC, the Autism Behavior Checklist (AuBC) and the Child Behavior Checklist 2/3 (CBCL) in 93 toddlers ages 2-3 years, inclusive. All children were seen in a Turkish child psychiatry outpatient clinic and they were rated on the Turkish translations of the ABC, AuBC, and CBCL. Coefficient alpha was as follows for the ABC: I) Irritability, .90; II) Lethargy/Social Withdrawal, .81; III) Stereotypic Behavior, .83; IV) Hyperactivity/Noncompliance, .83; V) Inappropriate Speech, .68. The ABC proved to be sensitive in discriminating between broad diagnostic groups, as follows: (a) Irritability discriminated No Diagnosis (ND) from Disruptive Behavior Disorder (DBD) and autism from DBD; (b) Lethargy/Social Withdrawal discriminated ND from autism; (c) Stereotypic Behavior discriminated ND from autism; (d) Hyperactivity discriminated ND from DBD, and DBD from Internalizing Disorder; and (e) Inappropriate Speech discriminated ND from DBD. Among the most predominant correlations were the following: ABC Total (not recommend for clinical purposes) and CBLC (r=.73) and AuBC (r=.71); ABC Irritability and CBCL Externalizing (r=.74); Stereotypic Behavior and AuBC (r=.67); Hyperactivity/Noncompliance and CBCL Externalizing (r=.77); and Inappropriate Speech and CBCL Externalizing (r=.52). The authors concluded that “The ABC [is] capable of discriminating several syndromes, such as disruptive behavior disorders and autism in early childhood.”


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This study sought to compare 54 subjects with Cornelia de Lange Syndrome to 46 matched controls with intellectual disability. Assessments included the Wessex scale to measure self-help, the Vineland Adaptive Behavior Scales (VABS), the Aberrant Behavior Checklist (ABC), the Compulsive Behavior Checklist, and the Childhood Autism Rating Scale (CARS).

The Cornelia de Lange Syndrome group and control group did not differ significantly on age, gender, self-help skills, wheelchair use, VABS mental-age-equivalent score, or degree of intellectual disability. However, the VABS Expressive Communication domain was lower in the Cornelia de Lange Syndrome group. The two groups did not show a significant difference on any subscale of the ABC or on the total ABC score. Use of the total score is inconsistent with instructions in the *ABC Manual* and is a practice to be discouraged, because it lacks construct validity.

The investigators used binary logistic regression to predict group membership with total number of compulsions, total CARS score, VABS Expressive Communication age-equivalent
score, and subscales on the ABC as variables. The equation correctly classified 64% of cases; the only significant predictors were CARS score and number of compulsions (Odds Ratio = 1.15 and 1.23 respectively). A second regression equation, which correctly classified 66% of cases, examined what type of compulsions accurately predicted group membership; only number of cleaning compulsions was a significant predictor (Odds ratio = 2.36). The authors concluded that since the CARS accurately predicted membership in the Cornelia de Lange Syndrome group, this syndrome can be characterized by autistic-like behavioral impairments, and individuals with the syndrome are more likely to be classified as “severely autistic” than matched controls.


This study was an evaluation of a new unit at a hospital for the assessment and treatment of individuals with intellectual disability. The treatment unit was a renovated 16-bed facility that was housed within a hospital but operated separately. All patients admitted to the unit during the first 15 months of operation were included in the data analyses. The key research questions involved a) reasons for admission to the unit, b) success in reducing challenging behaviors and mental health problems, c) what events took place on the unit, and d) reasons for delayed discharge or readmissions. The Aberrant Behavior Checklist (ABC) was used to monitor challenging behavior.

During the course of the study, 48 individuals, 27 male and 21 female, were admitted for treatment. Other demographic information was not specified. The main reason for admission was behavioral or mental health problems. Of the 48 participants, 41 had the ABC and the Mini Psychiatric Assessment Schedule for Adults with a Developmental Disability (Mini PAS-ADD)
completed. This was done by a key community worker at admission based on the person’s behavior 4 weeks prior to admission (Time 1), by a staff person on the unit during the first 4 weeks of admission (Time 2), and by the key community worker 3 months following discharge (Time 3).

Challenging behavior, as measured by the ABC, showed a statistically-significant reduction during a person’s stay on the unit for all subscales, except Stereotypic Behavior, and for the total score. [Use of the total score is inconsistent with the instruction in the ABC Manual and is a practice to be discouraged because it lacks construct validity.] However, these reductions were not fully maintained after discharge from the unit, with Irritability and Hyperactivity showing statistically-significant increases in challenging behavior from Time 2 to Time 3. Statistically-significant reductions in challenging behavior from Time 1 to Time 3 were observed on the Lethargy/Social Withdrawal subscale and the ABC total score.

Further evidence relevant to the other aims of the study was provided by the authors. They concluded that the model provided by the assessment and treatment unit was a good model. However, without community supports for individuals after discharge and without proper training of nurses for similar units, the units will not be optimally effective.


[This article will be summarized in a future edition of this manuscript.]

In 2005, France implemented legislation mandating inclusive education, as much as possible, for students with disabilities. While France was implementing this, these researchers investigated what features of children with autism promoted inclusion. Seventy-seven children, age 3 to 5 years, were followed for 1 year. In addition to demographic information, the researchers collected information about autism severity on the Childhood Autism Rating Scale (CARS), about overall clinical evaluation on the Clinical Global Impressions (CGI) scale, about adaptive behavior on the Vineland Adaptive Behavior Scales, and about behavioral problems on the first four subscales and the Total score of the Aberrant Behavior Checklist (ABC). [Use of the ABC Total score is a practice to be discouraged and is inconsistent with instructions in the ABC Manual because it lacks construct validity.] These variables were then correlated with the number of hours a child spent in specialized settings and in regular education classrooms.

Most children who were followed (96.1%) did receive special intervention, and 84.4% participated in inclusive education. Children with more severe motor impairments, children who spent less time in inclusive classrooms, and those with high scores on the ABC Stereotypic Behavior subscale received more specialized services. Older children, children with better daily living skills, those with better socialization levels, and children of parents from higher “socioprofessional classes” were more likely to participate in inclusive education. Those with more severe autism (as determined by higher CARS scores) or with higher scores on the ABC Irritability, Stereotypic Behavior, and Hyperactivity subscales spent less time in regular education settings. The authors felt that fewer adaptive behavior skills, serious behavior problems, and low socioeconomic status were all associated with inadequate intervention services.

The efficacy and safety of the novel anticonvulsant, levetiracetam, was investigated in adults with intellectual disability and uncontrolled or generalized epilepsy. Previous clinical trials have shown the drug to have anticonvulsant properties and a good safety profile. However, there continues to be a lack of data on its effectiveness for individuals with intellectual disability. This study implemented an open-label prospective design to assess the efficacy of levetiracetam as adjunctive therapy, primarily looking at seizure frequency. Secondary variables were adverse effects, participant challenging behavior, caregivers’ concerns regarding epilepsy, and perceived participant quality of life.

Participants were recruited from clinics across the United Kingdom, seeking either refractory or current treatment for epilepsy. Entry criteria were age greater than 18 years, having intellectual disability, and a diagnosis of partial or primary generalized seizures and having at least two seizures per month. Prospective baseline observations were collected for two months prior to the introduction of levetiracetam ($T_1$). Follow-up observations were collected at four 3-month intervals after $T_1$ (designated as $T_2$- $T_5$). A total of 30 participants were involved. Physicians controlled the speed of drug initiation and dosage increments across participants. Data were collected on antiepileptic medication, concomitant therapy, caregivers’ concerns about epilepsy, and their perceptions of participant quality of life. The following rating scales were used to assess outcome variables: the ABC to assess changes in challenging behavior, the Adaptive Behavior Scale Part One to assess changes in adaptive behavior, the Glasgow Epilepsy Outcome Scale to assess caregivers’ concerns regarding epilepsy, and the Epilepsy and Learning
Disabilities Quality of Life Questionnaire to assess caregiver perceptions of participant quality of life. Frequency of seizures was measured using a seizure diary completed by primary care providers.

Analyses showed a significant reduction in seizure frequency with levetiracetam \((z = -2.53, p < 0.05)\) to post-baseline mean, \(z = -3.75, p < 0.001\) to last data point). Thirteen participants had a mean post-intervention seizure frequency reduction to 50% of the baseline or less. Two participants became seizure-free. There were no changes found in challenging behavior based on each of the five ABC subscale scores. There was no association found between seizure frequency and total ABC score at any time point during the study, suggesting that levetiracetam had no significant effects on challenging behavior. There was a significant reduction of caregiver concern regarding epilepsy. Thirteen participants had a mean post-intervention seizure frequency of 50% of their baseline level or less. Fifteen participants reported adverse effects, after the \(T_2\) treatment phase, that included fatigue, behavior problems, digestion problems, and various physical problems, which declined thereafter.

The researchers concluded that, overall, levetiracetam is useful as adjunctive therapy for epilepsy among adults with intellectual disability. They commented that serious side effects were uncommon, that they tended to decrease with time, or that they could be managed through drug withdrawal.

The authors sought to compare 51 children with an autism spectrum disorder (ASD) to 23 controls matched on chronological age and nonverbal mental age. Control subjects had
developmental delays (DD) but no ASD. The groups were compared with regard to maternal stress and psychological distress. The sample averaged 43.7 months old with an average Mullen Scales score of 28.7 months nonverbal mental age. The authors hypothesized that (a) parental stress and psychological distress would be related to child diagnosis (with higher scores for the ASD group), (b) the ASD group would exhibit more problem behavior and fewer daily living skills, and (c) problem behavior would be more strongly related to parental stress and psychological distress than daily living skills.

Parenting stress was measured by the Questionnaire on Resources and Stress, and psychological distress was measured by the Brief Symptom Inventory. Independent variables included daily living skills, as measured by the Vineland Adaptive Behavior Scales, and a behavior problems composite score based on mean Z score across the five subscales of the Aberrant Behavior Checklist (ABC).

Mothers of children with ASD showed greater parenting stress and psychological distress than parents of children in the control group. Subsequently, the investigators used regression with (a) daily living skills, (b) ABC composite behavior problem score, (c) diagnosis, and interaction terms for (d) diagnosis by daily living skills and (e) diagnosis by ABC composite behavior problem score to determine which variables predicted parental distress or psychological distress. With regards to psychological distress, the ABC composite behavior problem score was the only significant associated variable. With regards to parental stress, the ABC composite behavior problem score and the interaction between diagnosis and the ABC composite behavior problem score were significantly related. The interaction term indicated that parental stress and ABC composite behavior problem score were more strongly related for those in the DD comparison group than those in the ASD group. The authors concluded that, if clinical services
are being designed to support parents, attention should be given to reducing problem behaviors in children with developmental disabilities.


This study explored the association between psychiatric status and level of challenging behavior, while controlling for adaptive behavior and occurrence of autistic spectrum disorders (ASD). Data for 312 participants were collected on age, gender, adaptive and challenging behavior, social impairment, and psychiatric diagnosis. Participants were grouped based on psychiatric diagnosis to compare across groups, adaptive behavior, presence of ASD diagnosis, and differences in challenging behavior. Higher rates of challenging behavior were found among participants who reached threshold levels on psychiatric screenings.

The ABC was used to assess challenging behavior. Scores from the Irritability and Hyperactivity subscales were used to establish criteria for categorizing participants’ severity of challenging behavior, as the authors have done in previous studies. Adaptive behavior was measured using Part One of the Adaptive Behavior Scale. Other measures used were the Disability Assessment Schedule to assess severity of social impairment, and the Psychopathology Instrument for Mentally Retarded Adults was used to determine psychiatric status.

Results from this study support previous findings that psychiatric morbidity among adults with ID is associated with greater challenging behavior. This relationship appears to be more pronounced for adults with severe ID and with lower adaptive behavior scores. Limitations of the study were that random selection was not used; this limited the representativeness of the sample.

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A retrospective analysis was conducted, between 2006 -2008, of data from patients admitted to a specialized psychiatric inpatient unit for individuals with comorbid intellectual disability (ID) and mental illness. There has been increased recognition of the benefit of such units in the treatment of this population, but substantial literature on the topic is lacking (fewer than 10 papers from 1994-2009). Raitasuo et al. (1999), Hall et al. (2006), Xenitidis et al. (2004), Tajuddin et al. (2004), and Van Minnen et al. (1997) were cited as evidence of the benefit of utilizing specialized psychiatric units to treat individuals with mild ID and comorbid MI; only one of these (Tajuddin et al., 2004) included subjects with moderate to severe ID, though outcomes of patients with mild and moderate to severe ID were not compared. Individuals with severe ID are under-represented in general inpatient services, yet they are more likely to benefit through interdisciplinary treatment programs.
Patients were admitted to a locked facility accepting patients with ID and mental illness, aged 16+ years. Treatments included psychotropic medications, psychosocial interventions (individual and group), social work services, nursing, recreational therapy, behavior therapy, and occupational therapy. Within two weeks of admission, patients were assessed using the ABC and the Reiss Screen for Maladaptive Behavior, which were completed by the patient’s primary nurse; a psychiatric diagnosis and judgment for GAF score were also obtained. Upon having demonstrated significant improvements and readiness for discharge, the team reassessed the patient using the same measures.

Charts (n=37) were reviewed to compare age, reason for referral, residence, ID severity, medical diagnoses, and improvements on ABC, Reiss Screen, and GAF scores of patients with moderate to severe ID with patients having mild ID. The results showed a significant improvement on the ABC-Hyperactivity subscale ($F(1,20)=10.10, P=0.05, \eta^2=0.34$). Nine patients had incomplete ABC data and were excluded from analysis. There was a significant interaction between GAF scores and IQ ($F(1,29)=5.37, P=0.03, \eta^2=0.16$); GAF scores improved significantly for patients with mild ID (mean difference= 11.31, $P<0.001$) and minimally for patients with moderate-to-severe ID (mean difference=2.13, $P=0.46$). In their conclusions, the researchers noted that the ABC Hyperactivity subscale and the Reiss screen both showed significant improvements from admission to discharge. The authors commented that individuals with mild and more severe forms of ID can benefit from the same inpatient program, though improvement in GAF scores was more limited for clients with more severe ID. Study limitations included a lack of statistical power and modest sample size. The authors recommended that future studies include post-discharge data and a different measure of psychiatric improvement than GAF due to the difficulties in administering the GAF to patients with ID.

This was an open-label, uncontrolled trial of St. John’s Wort in three male young adults with autism. All three met ICD-10 criteria for autistic disorder, and IQs ranged from 58 to 72. All subjects were medication free for at least 1 month before beginning the 4-week trial of St. John’s Wort at 20 mg per day. Parents and mentors rated the subjects on the Aberrant Behavior Checklist and a side effect symptom checklist weekly. The average of their ratings was used for data analyses. At week 4, clinicians rated the subjects on the clinical global assessment scale (CGAS), the Children’s Psychiatric Rating Scale, and the Clinical Global Impressions Improvement (CGI) scale. The ABC Irritability, Hyperactivity, and Inappropriate Speech subscales all showed statistically-significant improvement with St. John’s Wort. Parent-rated side effects indicated a significant increase in drowsiness and significantly-decreased physical activity. None of the clinician ratings showed statistically-significant improvement.


This was a Letter To The Editor regarding psychopharmacological treatment of Sotos Syndrome. The study was designed as an uncontrolled, presumably open-label, trial of psychopharmacological agents with a 14-year old male, with an IQ of 67, and diagnosed with Sotos Syndrome. The subject exhibited agitation, depressed mood, and aggressiveness, which led to an inpatient psychiatric stay, where these trials began. Outcome instruments were the Aberrant Behavior Checklist (ABC) and the Hamilton Depression Score (HAMD). The identity of the informants was not reported, and whether or not they rated the subject throughout all trials
was not specified. The subject obtained a score of 19 on the ABC and 25 on the HAMD at baseline. However, it is also unclear how the dependent measures were used, as the investigator reported a possible score range for the ABC of 0 to 26 and for the HAMD of 0 to 50, neither of which range corresponds to the possible ranges of scores for these instruments. Initial treatment was with paroxetine (brand Paroxetin) 20mg/day for two weeks, and then increased to 40 mg/day. However, scores remained 18 and 23 for the ABC and HAMD, respectively. Carbamazepine 600 mg/day for 8 weeks was added to paroxetine treatment. Scores increased to 20 and 24 on the ABC and HAMD, respectively. Paroxetine and carbamazepine were discontinued and methylphenidate was initiated, with dosage escalating to 30 mg/day. Within two months, the subject obtained scores of 12 and 14 on the ABC and HAMD, respectively, and returned to school. The author commented favorably on the clinical effects of methylphenidate in this boy with Sotos Syndrome.


Previous researchers have argued that individuals with Cornelia de Lange syndrome exhibit greater self-injurious behavior (SIB) than individuals with intellectual disability (ID) of unknown etiology. This study sought to examine the prevalence and factors associated with SIB among 54 subjects with Cornelia de Lange syndrome and 46 matched controls with ID. SIB was measured (with different operational definitions) by the Challenging Behavior Interview (CBI) and by sparsely-structured naturalistic observation.

The two groups showed no statistically-significant differences (a) in overall prevalence of SIB as measured by the CBI domains, or (b) on any individual item of the CBI, or (c) as a
function of age, gender, or level of functioning. However, the investigators proceeded to assess which variables predicted SIB across groups. Binary logistic regression was used to examine the relationship between presence of SIB and age, sensitivity to pain (as assessed by one question), autism quotient (from the Gilliam Autism Rating Scale), compulsion score (on the Compulsive Behavior Checklist), hyperactivity score (Aberrant Behavior Checklist [ABC] Hyperactivity subscale), stereotyped behavior score (ABC Stereotypic Behavior subscale), mobility score (use of wheelchair), adaptive behavior score (from the Vineland Adaptive Behavior Scales—Survey Form), and sleep problem score (from the Infant Sleep Questionnaire). This regression equation correctly classified 76.5% of cases, but only three variables were statistically-significant predictors: (a) number of compulsions, (b) ABC Hyperactivity score, and (c) ABC Stereotypic Behavior score. The authors speculated that a common cognitive impairment may underlie both stereotypic behavior and impulsiveness, and that, when SIB emerges against this background, (compulsive) self restraint may be a method of self control.


This study investigated the potential dysregulation of IL-23 and IL-17 cytokine production in autism spectrum disorders (ASD). A subset of T cells, T\(_\text{H}17\), produces the cytokine interleukin (IL)-17, which plays an important role in defense against extracellular bacteria, fungi, and specific parasites, and is thought to play a role in ASD and other disorders with suspected autoimmune/neuroinflammatory mechanisms. Dysregulated immune functioning in some individuals with ASD is perhaps responsible for the aberrant production of IL-23, another cytokine related to autoimmune encephalomyelitis.
A subsample (n=94) was recruited from the Childhood Autism Risks from Genetics and Environment study by Hertz-Piccioto et al., (2006) (autism spectrum disorder participants, n = 52; control participants, n = 42). ASDs were diagnosed using DSM-IV criteria, the Autism Diagnostic Observation Schedule and the Autism Diagnostic Interview–Revised. Cognitive and adaptive assessments were performed on all participants using the Mullen Scales of Early Learning and the Vineland Adaptive Behavior Scales. Typically developing controls were included if they did not have any risk of having an autism spectrum disorder based on family history, had negative scores from the Social Communication Questionnaire, and were within typical ranges on the Mullen and Vineland scales. No participant had a history of recent infections and/or fever. Participants’ parents completed the Aberrant Behavior Checklist to assess inappropriate and maladaptive behaviors. Peripheral blood samples were drawn to measure IL-23 and IL-17 concentrations in the media and PHA-stimulated cell culture supernatant of each subject by enzyme-linked immunosorbent assay. Flow cytometric analysis of T_H17 cells in peripheral blood mononuclear cell cultures was determined using intracellular staining.

The production of IL-23 but not IL-17 following cell stimulation was significantly lower in ASD than in typically developing participants. Analyses showed that scores on the Aberrant Behavior Checklist, Autism Diagnostic Interview-Revised, Mullen Scales of Early Learning, and Vineland Adaptive Behavior Scale did not show any associations with IL-23 or IL-17 levels. A negative correlation was found between stimulated IL-23 levels and Autism Diagnostic Observation Schedule scores for social interaction in children with an ASD; this suggests that lower IL-23 levels were associated with higher social impairments in such children. TGF-β1 cytokines functioned independently of IL-23 to stimulate T_H17 cell production; these cells were
decreased in ASDs and were associated with aberrant behavior. The researchers recommended further investigation on the time course for induction of both TGF-β1 and IL-23 cytokines to determine whether Th17 cells in children with autism spectrum disorders lose their ability to produce IL-17 when they lack appropriate maintenance signals. The investigators were unable to eliminate the possibility of Th17 cells having a causative role in the pathology of ASDs, and they felt that this warrants further investigation.


This was an 8-week, double-blind, placebo-controlled, parallel group study of aripiprazole in children. The participants were children with autistic disorder, ages 6 to 17 years old. In order to qualify for the study, children had to have Aberrant Behavior Checklist Irritability subscale scores of ≥18 as rated by their parents and a Clinical Global Impressions (CGI) – Severity subscale score ≥4 as rated by a clinician. Exclusion criteria included bipolar disorder, psychosis, schizophrenia, major depression, or Fragile-X syndrome. Children with Asperger’s disorder, pervasive developmental disorder not otherwise specified, Rett syndrome, or childhood disintegrative disorder were not permitted in the study. Children were phased off psychotropic medications ≥4 days preceding the baseline and then monitored at Weeks 1, 2, 3, 4, 5, 6, and 8.

Dosage was adjusted flexibly at 2.5, 5, 10 or 15 mg/day. The primary outcome measure was the Irritability subscale of the ABC as rated by subjects’ parents. Other outcomes included the CGI–Improvement subscale, the remaining subscales on the ABC, responder status (defined as ≥25 reduction on ABC Irritability and CGI rating of 1 or 2), and children’s Yale-Brown
Obsessive Compulsive Scale. Assessments of adverse events (AEs) included the Simpson
Angus Scale, the Barnes Akathisia Rating Scale, and the Abnormal Involuntary Movement
Scale. The data were analyzed by Analysis of Covariance (ANCOVA), with baseline score,
body weight (< 40 kg; ≥ 40 kg), and site entered as covariates. Change scores on the variables of
interest served as the variates.

In all, 98 subjects were randomized to the study; 51 received placebo and 47 received
aripiprazole. The mean subject age was 9.3 years, and participants did not differ as a function of
assignment on age, sex, racial group, weight, or baseline ABC Irritability subscale scores.

At Week 8, the mean decrease from baseline on the ABC Irritability subscale was 12.9
for subjects assigned to aripiprazole and 7.9 for those assigned to placebo ($p < .001$). The
participants were also found to have reduced scores for aripiprazole relative to placebo for the
ABC Stereotypic Behavior, Hyperactivity/Noncompliance, and inappropriate Speech subscales
(all $p$’s < .001). CY-BOCS scores and CGI–Severity also showed significant reduction with
aripiprazole. Higher AE scores (relative to placebo) were found for somnolence, sedation,
drooling, tremor, vomiting, fatigue, and “EPS event” (n=4 for placebo; n=7 for aripiprazole).
This was one of two pivotal studies that resulted in the U.S. Food and Drug Administration
granting a clinical indication for the use of aripiprazole for managing irritable behavior in
children and adolescents with autism.

McDougle, C. J. (2009). Aripiprazole in pervasive developmental disorder not otherwise
specified and Asperger’s disorder: A 14-week, prospective, open-label study. Journal of
Child and Adolescent Psychopharmacology, 19, 265-274. doi: 10.1089/cap.2008.093

This was a 14-week, open-label, uncontrolled trial of aripiprazole in children and adolescents
with either Pervasive Developmental Disorder–Not Otherwise Specified (PDD–NOS; n = 21) or
Asperger’s Disorder (n = 4) and co-occurring irritability. Participants were 19 males and 6 females, aged 5-17 years (mean, 8.6), with an IQ of 48 to 122 (mean, 84).

Subjects were treated with 1.25 mg/day for 3 days, then 2.5 mg/day for the remainder of the first two weeks. For the next four weeks, the investigators increased the dose up to 15 mg/day for optimal clinical response. The last 8 weeks were held at the maintenance dose. Three subjects withdrew from the study, none due to adverse events. Last observations were carried forward with an intent-to-treat model.

The primary outcome measures were the Clinical Global Impressions–Improvement (CGI–I) scale and the Aberrant Behavior Checklist Irritability subscale (ABC–I). Twenty-two subjects (88%) were considered responders, as determined by a CGI–I of “very much” or “much improved.” The ABC–I decreased from an average score of 29.0 at baseline to 8.1 at week 14 (p ≤ .0001). Scores also improved on the Vineland Adaptive Behavior Scales (VABS) Socialization domain (p ≤ .0001), on the Adaptive Behavior Scales Composite score (p ≤ .036), and on Part 1 (p ≤ .0001), Part 2 (p ≤ .0001), and the total (p ≤ .0001) Maladaptive Behavior scores of the VABS. The Children’s Yale-Brown Obsessive-Compulsive Scale Modified for PDDs (CY-BOCS-PDD) also showed improvement (p ≤ .0001).

Aripiprazole was well tolerated with mostly mild adverse events. Prolactin significantly decreased over the 14 weeks. The authors concluded that aripiprazole shows promise as an effective treatment of irritability, but they also stated that future controlled studies are necessary to determine its true place in children with PDD–NOS and Asperger’s Disorder.


This was a study of medication alone (usually risperidone, occasionally aripipazole in risperidone nonresponders) as compared with medication plus parent training (PT, or “behavior therapy” administered by parents) in 124 children with autism spectrum disorders (ASDs). The participating families were involved in the investigation for 24 weeks. Families who received combined treatment (risperidone + PT) were offered up to 17, one-on-one PT sessions; the average number of PT sessions was about 11. Forty-nine families were assigned to medication alone and 75 were assigned to combined treatment. The participating children were rated on a scale that assessed behavioral compliance [the Home Situations Questionnaire (HSQ)] and on the ABC. The results indicated that families who received the *combined treatment* rated their children as showing significantly greater compliance on the HSQ than children who received medication alone. On the HSQ, scores declined from 4.31 to 1.23 for the combined treatments group as compared with 4.16 to 1.68 for medication alone (*p* = .006; effect size, δ, = 0.34).

Findings on the ABC indicated that children receiving combined treatment were rated substantially better on the Irritability and Hyperactivity/Noncompliance subscales. Scores on Irritability declined from 29.33 to 10.96 for the combined treatments as compared with 29.69 to 14.53 for medication alone (*p* = .01, δ = .48). Scores on the Hyperactivity/Noncompliance subscale declined from 35.35 to 15.38 for the combined treatments as compared with 36.08 to 20.78 for medication alone (*p* = .04, δ = .55). Thus, the Hyperactivity/Noncompliance subscale proved to show the largest effect size associated with combined medication and PT. Clinicians’ ratings on the Clinical Global Impressions—Improvement scale did not show an effect with
combined medication and PT. Importantly, the final dose of medication was significantly lower (1.98 mg/day) for children receiving combined treatment than for the group that received medication alone (2.26 mg/day). Thus added PT resulted in better behavior overall, as well as lower dosage of medication.


The current study is the first 12-week, double-blind, placebo-controlled, cross-over clinical trial of injectable methyl B12 as a treatment alternative for the behavioral symptoms of autism. Anecdotal reports have suggested remarkable clinical improvements and few side effects from B12 treatment. Parents were instructed to administer 64.5 mcg/kg a day, with a subcutaneous administration every third day. The authors collected blood for glutathione (GSH) analysis, and behavioral assessments were obtained at baseline, 6-weeks, and endpoint. Recent findings showed that many children with autism exhibit low levels of GSH, which can result in increased levels of homocysteine and low levels of methionine and S-adenosylmethionine (SAM), which produces cytotoxic effects.

Inclusion criteria for this study were for the child to have an autism diagnosis, aged between 3 and 8 years, and have a nonverbal IQ of 49 or more. A sample of 30 participants (28 males) was recruited; all participants agreed to maintain a consistent treatment schedule during the 12-week study, refraining from adding or changing any treatments. All subjects were reassessed at baseline, 6-week, and 12-week appointments. Assessment measures used at baseline and follow up were the Parent Interview for Autism–Clinical Version, Clinical Global Impression Scale of Improvement, Childhood Autism Rating Scale, Peabody Picture Vocabulary
Test–Third Edition, Stanford Binet Fifth Edition Routing Subsets, and Child Behavior Checklist. The ABC was used at each appointment to determine severity and change in behavior problems. Clinically significant improvement was defined as improvement of at least 1 point on the CGI, 10 points on the PIA-CV and CBCL, 5 points on the ABC, PPVT–III, MCDL, or 2 points on the CARS. The study was designed with 80% power to detect 40% improvement rates in the methyl B12 group compared with a 10% improvement rate in the placebo group.

Results showed no overall significant difference between active and placebo groups, although a subgroup of 9 participants in the active treatment group did demonstrate clinically significant improvements on the SCI and at least two additional behavior measures. Twenty-two participants continued on a 6-month extension study. The authors argued that the significance of methyl B12 in decreasing behavior problems may have been diminished by the small sample size (15 subjects) in this cross-over study. Limited side-effects were observed. The authors suggested that this study offers preliminary evidence for the use of methyl B12 subcutaneously as a safe treatment alternative for patients with autism. REAN


In this study, the researchers sought to investigate the association between iron deficiency and severity of autistic symptoms, developmental delay, and behavior problems in preschool children with an autism spectrum disorder (ASD). A secondary aim was to determine the prevalence of iron deficiency in the same sample. Previous studies have found a negative correlation between iron deficiency and psychomotor and behavioral development in infants and
young children. Additional studies have found that children with ASD consistently have a higher frequency of iron deficiency than typically developing control groups.

The sample consisted of children (n = 31) referred to the Ankara University Department of Child and Adolescent Psychiatry for behavioral interventions and assessment within the age range of 18-60 months. Children with chronic neurological conditions or other medical conditions, other than ASD, were excluded. Information was collected through clinical interviews, behavioral observations, and rating scales. The Childhood Autism Rating Scale and Autism Behavior Checklist were used to assess ASD symptom severity. The Turkish translation of the ABC was used to gather information on changes in behavior problems throughout the study. The ABC Turkish translation for ages 1-4 years was conducted by Karabekiroglu and Aman (2009), which yielded Cronbach’s alpha values of the following: (a) Irritability, Agitation, Crying: 0.90, (b) Lethargy, Social withdrawal: 0.81, (c) Stereotypic behavior: 0.83; (d) Hyperactivity, Non-compliance: 0.89, and (e) Inappropriate speech: 0.68. The Ankara Developmental Screening Inventory (ADSI) was also used. This is a measure designed to assess the developmental levels of 0-6 year old Turkish children, taking culture-specific features into account. The researchers measured iron deficiency by blood sample serum ferritin levels, as iron deficiency is the only known cause of low ferritin concentration.

Statistical analyses yielded no significant associations between behavior problems based on ABC subscale recommended cutoffs and serum ferritin levels (all ps > 0.05). Similarly, no significant associations were found between iron deficiency and autistic symptom severity as illustrated by the CARS and AuBC cutoffs, as well as developmental delay severity, as illustrated by the ADSI. A significantly high rate of iron deficiency was found in the sample compared to normative data of preschool children. However, these findings are subjected to
limitations due to a small sample size and a lack of control group. Future studies are recommended to clarify the relationship between iron deficiency and ASD symptoms.


The relationship between personality factors and burnout was investigated in staff providing direct care to individuals with intellectual disabilities who exhibited challenging behaviors. For the purpose of this study, burnout was conceptualized in terms of emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment. Previous research has found that many staff members working with people with intellectual disabilities who display challenging behavior suffer from some form of poor psychological burnout. The authors investigated the following hypotheses on the relationships between the five personality traits and staff burnout, with challenging behavior controlled: the five personality traits, except neuroticism, would positively predict emotional exhaustion, depersonalization and poor psychological wellbeing, but negatively predict personal accomplishment (conscientiousness would predict the inverse); and personality traits would moderate the relationship between client challenging behavior and staff burnout/psychological well-being.

Thirteen residential community homes for individuals with intellectual disabilities and challenging behavior were contacted in two cities in the United Kingdom. Staff members who cared for at least one client with challenging behavior were invited to participate. An equal number of staff were recruited from each city ($n_1 = 52$ and $n_2 = 51$), with more females (70%) than males (30%). A wide variety in age and nursing qualifications was found. Staff members worked a mean of 5 years ($sd = 4.81$) in their positions.
The Aberrant Behavior Checklist was completed by each participant to indicate the degree of challenging behavior displayed by the primary client for whom the participant was the key worker. Other measures were a short demographic survey, the Maslach Burnout Inventory, General Health Questionnaire–28, and NEO-Five Factory Inventory to assess participant’s demographic information, degree of burnout, likelihood of being assessed as a psychiatric case based on current emotional state, and level of each of the Big Five personality traits, respectively. Results on the Aberrant Behavior Scale found that staff rated clients’ hyperactivity and noncompliant behavior as the most severe challenging behaviors encountered. The most common mental health problems found were somatic complaints and anxiety. In all, 43% of staff members met cutoff for high risk of being assessed as a psychiatric case. Challenging behavior, neuroticism, agreeableness, conscientiousness, and extraversion was found to predict emotional exhaustion. Neuroticism and extraversion moderated the impact of challenging behavior on personal accomplishment.

Several implications were drawn. One is that staff working with clients with ID and challenging behavior should be made aware of how their own personality traits could affect their wellbeing in a negative way or protect them from harm. This in turn could affect their care for clients. Another is that the training program for staff who care for people with intellectual disability and challenging behaviors should not be restricted to skills aimed to meet the needs of the clients or deal with challenging behavior alone. Appropriate training should include a component on the complex relationship between personality and well-being.

This was a psychometric study of the Brief Infant-Toddler Social and Emotional Assessment (BITSEA). The BITSEA has a BITSEA – Problem scale (BITSEA/P) which comprises 31 items and a BITSEA – Competence scale (BITSEA/C), which comprises 11 items. Over 14 months, 112 consecutive patients who were younger than 3 months of age and who had no serious medical illness, severe motor handicap, or intellectual disability were enrolled in the study. All children were seen at least twice in a psychometric outpatient clinic in Samsun, Turkey. There were 79 boys and 33 girls in the sample. Age ranged from 14 to 42 months, with a mean of 29.9 months (S.D. = 7.3). In addition to the BITSEA, a mental status examination was collected and parent ratings were gathered on the Child Behavior Checklist/ 2-3 (CBCL/ 2-3), Autistic Behavior Checklist (AuBC), and Aberrant Behavior Checklist (ABC).

This report was focused on the psychometric characteristics of the BITSEA, including the relationship of its subscales with the other instruments used in the study. Internal consistency (Chroubach’s α) was .80 for BITSEA/P and .69 for BITSEA/C. The children were diagnosed into five broad groups as follows: (a) No diagnosis (No Dx; n=21), (b) autism (n=35), (c) disruptive behavior disorder (DB; n=15), (d) anxious/ depressed (Anx/ Dep; n=12), and (e) *** sample (n=427, collected previously). As rated by their mothers, children with DBD diagnoses had significantly higher scores then community controls, on the BITSEA/P; and children with Autism had significantly lower scores than all other diagnostic groups on the BITSEA/C. As rated by their fathers, children with Anx/Dep had significantly higher scores than community controls on the BITSEA/P; and children with autism had significantly lower scores than all other groups on the BITSEA/C. The researchers computed Spearman correlations between the BITSEA and ABC ratings with the following observations. BITSEA/P was correlated with ABC
Irritability (r=.54), ABC Lethargy/Social Withdrawal (r=.45), ABC Stereotypic Behavior (r=.45), and ABC Hyperactivity/Noncompliance (r=.50; all p’s <.001). BITSEA/C was negatively correlated with ABCS Lethargy/Social Withdrawal (r=-.48; p<.001). The authors concluded that the findings suggest the reliability and validity of the BITSEA as a screening tool in primary health care services and in psychiatric clinical settings.


This study sought to gather preliminary evidence on the efficacy of a social skills intervention intended for children with pervasive developmental disorders. The intervention implemented a randomized controlled design between treatment and wait-list group. Children with scores higher than 18 on the Irritability subscale of the ABC or within the clinically significant range on the Child Symptom Inventory were excluded from the study. Autism diagnoses of participants were confirmed using the Social Communication Questionnaire, the Autism Diagnostic Observation Schedule, and the Pervasive Developmental Disorders: Behavior Inventory. Forty-four children aged 8 to 11 years with a PDD were included in the treatment program. The treatment consisted of a 16-week manualized treatment of a weekly 75-minute group intervention. Each group had four or five participants and two typically developing peer tutors. The primary outcome measure used was the Clinical Global Impressions Scale–Improvement subscale. As secondary measures, improvements in participants’ social skills were based on the Social Competence Inventory and the Parent Satisfaction Survey. Outcome measures showed a high level of parent satisfaction with the treatment. Children in the treatment group were rated as more improved by parents on the CGI–I but not on the Social Competence
Inventory or Parent Satisfaction Survey. The authors concluded that this study supports the feasibility of a group social skills treatment for children with PDDs.


This study compared the effects of micronutrients versus prescription medications in the treatment of aggression and self-injurious behavior in children with autism spectrum disorders (ASDs). Previous studies have described the benefits of using micronutrients (i.e., vitamins and minerals), as well as risperidone and methylphenidate, in treating aggressive behaviors. However, the researchers felt that positive findings for micronutrients are often dismissed in favor of pharmaceuticals. Magnesium-B6 supplements, B vitamins, and omega-3 fatty acids have shown improved symptoms in autistic symptoms such as social interaction, communication, stereotyped behavior, sleep, and GI symptoms.

A case-control methodology was implemented in a naturalistic clinic setting, using the charts of pediatric patients seen between 1998 to 2008, for whom parents had requested non-pharmacological therapy and outcome data were complete. Inclusion criteria were a diagnosis of an ASD based on DSM-IV criteria and a mental age of at least 18 months. The resulting sample (n=44) was then matched (based on age, sex, parental education, income, IQ, and symptom severity) with patients whose families had requested pharmacological treatment. All subjects were concurrently receiving additional services, such as occupational therapy and educational assistance, which remained constant during treatment.

For the micronutrient group, the clinician had prescribed a broad-based supplement, EMPowerplus, which included all known dietary vitamins, minerals, amino acids, and
antioxidants. An additional fish oil supplement, not included in the micronutrient, was also recommended. The goal of the pharmacological group was to find the minimum dose that would produce acceptable symptom levels and side effect profiles.

The Aberrant Behavior Scale was the primary outcome measure at baseline and endpoint of the study using multiple raters (parents, teachers, other caregivers). Additional outcome measures were the Childhood Autism Rating Scale, the Children’s Psychiatric Rating Scale, the Yale-Paris Self-Injurious Behavior Scale, and the Clinical Global Impression-Severity scale, completed by the clinician prescribing the different treatments. Outcomes on the Aberrant Behavior Scale were calculated using the total ABC score. [Note that the use of Total scores is discouraged in the ABC Manual, as the total lacks construct validity (Aman & Singh, 1985).]

The researchers found significant decreases in the total ABC score, with greater decreases in the micronutrient group. There was a significant group difference in changes on the total ABC score. Of the 5 subscales, the groups also differed in changes on the Irritability and Hyperactivity subscales, with greater reductions in the micronutrient group.

Benefits were found in the reduction of aggressive behavior for both treatment conditions. There were no differences between groups in changes on outcome ratings based on the total scores for the Childhood Autism Rating Scale and Children’s Psychiatric Rating Scale. The only difference found was a greater reduction, for the micronutrient group, in Activity level on the Childhood Autism Rating Scale. Clinical Global Impression-Severity scores decreased for the micronutrient group only. Both groups displayed statistically significant decreases on total ABC score, with a greater decrease in the micronutrient group. Groups did not differ in changes in the frequency of self-injurious behavior. Statistically significant decreases in CGI score from baseline to endpoint were found for the micronutrient group only. Overall, advantages in
symptom improvement for the pharmacological group over the micronutrient group were not found in this non-blind study. The micronutrient group experienced fewer adverse events (33 vs. 214).


This prospective, open-label, 10-week clinical trial was designed to explore the effect of genotypic variation of the serotonin transporter polymorphism promoter region (5-HTTLPR), at low, intermediate, and high expression, on the response of children and adolescents with ASD to escitalopram. A previous open-label study of escitalopram indicated improvement of some symptoms associated with ASD, particularly on the Irritability subscale as measured by the ABC–Community. The authors hypothesized that genotype would predict response to ABC Irritability subscale score after escitalopram treatment, and that genotype subgroup would relate to final dose, with the lowest-expressing genotype having a lower final dose in comparison to the higher-expressing genotype subgroups.

The subjects (N=58, age 5-17 years) were recruited from university developmental disorder and psychopharmacology clinics and blinded to their own genotype. Study inclusion criteria were an autism diagnosis, a minimum score of 12 on the Aberrant Behavior Checklist–Community version Irritability subscale, absence of any serious medical or psychiatric conditions, and lack of erratic change in awakening time during baseline. This is because changes in sleep latency and awakening were used as titration criteria. Groups were created based on TT/TT expression regardless of 5-HTTLPR, as S/S or S/L genotype and TT/TT diplotype correlates with a greater serotonin uptake rate than L/L genotype. The participants were
assessed at Baseline, Week 4, and Week 10. Forced titration was used with weekly increases in doses of 2.5, 5, 10, or 20 mg.

The ABC–Community, final drug dose, and study dropout were used as primary outcome measures. Parents completed the ABC–Community and a sleep diary weekly. Increases of greater than 10 points on the Hyperactivity or Irritability subscales were considered an indicator for lack of tolerability and led to a dose reduction. Genotype group was analyzed across the 10-weeks based on Irritability subscale scores within probands using a mixed-effects polynomial (quadratic) regression model. ABC Hyperactivity subscale scores were analyzed at Baseline using proband age (months) and final dose (mg).

Results showed no significant decreases in Irritability scores across genotype, with the least reduction in participants who had a S/S genotype and lacked intron TT/TT diplotype. Limitations of the study included the inability to determine whether the least responsive group would have the highest dose based on insensitivity to behavioral inactivation of escitalopram. Groups with different halotypes affecting the expression of the serotonin transporter were thought to have potentially differing responses to escitalopram. Replication of the study in a larger sample with a priori testing of the refined expression groups was recommended.


This study explores the role of support staff as targets of attachment behavior for young people with ID by testing the hypothesis that young people who engage more often in attachment interactions with group care staff are less at risk for challenging behavior. The authors sought to investigate whether a person’s attachment behavior towards different caregivers is strongly
correlated. Secondly, they explored whether a person’s attachment behavior towards different caregivers is uniquely associated with his or her challenging behavior. Lastly, the relationship between preference for a specific caregiver and severity of challenging behavior was explored.

The sample comprised 156 children and adolescents (107 males, 69%) with moderate to severe ID attending a therapeutic day care or a residential facility. For each participant, two direct care staff were randomly selected to complete the Secure Base Safe Haven Observation list (SBSHO; De Schipper & Schuengel, 2006) to assess the participant’s attachment behavior. One direct care staff was additionally requested to complete the Dutch translation of the ABC (Didden et al., 2002), to provide a rating of challenging behavior. All ABC subscales, with the exception of the Inappropriate Speech subscale (a substantial proportion of the sample was nonverbal), were analyzed. Clinical psychologists reported on the developmental age and presence or absence of an autism spectrum disorder (ASD) based on previous diagnostic testing.

Results from the ABC and SBSHO demonstrated that participants who showed higher attachment behavior towards professionals had lower scores on the Irritability, Social Withdrawal, and Stereotypic Behavior subscales than subjects with lower attachment behavior, even after controlling for developmental age and ASD diagnosis. These findings suggest that attachment behavior in young adults with ID may be part of a coping mechanism for stress and the challenges of living in a group care setting and experiencing limited emotional security.


The aims of this study were to provide data associated with aging for individuals with comorbid autism spectrum disorder (ASD) and intellectual disability (ID). A sample of 819
adults with an intellectual disability (ID) was sampled from group homes. A total of 282 participants were 50 years of age or over. Eighty-seven of them were known to have an ASD. Of the remaining 537 participants under 50 years, 194 were then assessed as having an ASD. Presence of an ASD was determined based on meeting threshold on the three core areas of deficit characterizing an ASD, using levels of the Disability Assessment Schedule (Holmes et al., 1982). Outcome measures were used to determine severity of behavior problems, psychiatric symptoms, and quality of life as outcome indicators for adults with ASD and ID.

The ABC Total score was used to measure severity of problem behaviors. Adaptive skills were measured using the Adaptive Behavior Scale Part One (ABS); psychiatric symptoms were measured using the PIMRA or PAS-ASS, and quality of life was assessed using the Index of Participation in Domestic Life and the Index of Community Activities. Between-group comparisons were performed after matching participants with ASD 50 years or older with ID-only participants 50 years or older on ABS scores. Adults with ASD and ID 50 years or older were also matched with adults with ASD and ID 18-49 years.

Analyses revealed lower levels of functioning and more adaptive behavior problems in adults with both ASD and ID. In all cases, adults with ASD and ID had lower activity levels; however, all significant differences between the ASD and ID group and the ID only group became nonsignificant when participants were matched based on ABS scores. The findings suggest that lower adaptive behavior levels in adults with ASD and ID are associated with negative impacts on behavior problems, psychiatric symptoms, and quality of life. The findings do not suggest that the presence of ASD is independently associated with differential outcomes for older adults with ID. Older adults with both ASD and ID showed fewer behavior problems and psychiatric symptoms than younger adults with ASD and ID. This study suggests
the need for further research on the behavioral and psychiatric problems associated with aging in adults with ASD and ID compared to adults with ID only.

Decreased adaptive skills were associated with increased behavior problems and poorer quality of life. Study limitations included the use of a screening tool to identify ASD characteristics rather than clinical diagnostic procedures, which may have resulted in over-inclusive diagnosing and an unrepresentative sample.


This was a study of the Home Situations Questionnaire (HSQ) used to rate 124 children and adolescents who participated in a randomized clinical trial of risperidone treatment with and without parent training (described elsewhere in this Annotated Bibliography; Aman et al., RUPP, 2009). The HSQ for typically developing children comprises 20 items that describe common situations that occur in the home and community. Children are rated to determine whether compliance is a problem in that setting: if not, the item is assigned a score of 0; if it is, the rater (usually a parent) rates noncompliance from 1 (mild) through 9 (severe). In this study, the investigators supplemented the HSQ, by adding five items (25 items in all) thought to make the HSQ more pertinent to children with autism spectrum disorders (ASDs). The researchers sought to determine if this version of the HSQ had a factor structure unique to children with ASDs.

The researchers analyzed the items using exploratory factor analysis with oblique rotations. Two clear factors emerged, one called Socially Inflexible (14 items) and the other called Demand-Specific (6 items). These items were subsequently scored as subscales using Likert weightings to compute totals and by dividing each total by the number of items (14 or 6). The researchers then computed change scores (baseline minus endpoint [Week 24]) to compare HSQ scores with scores on the ABC, on the Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS), and the Vineland Adaptive Behavior Scales (VABS). The results showed moderate
correlations between the Irritability subscale (r = .35) and Hyperactivity/Noncompliance (r = .53) of the ABC, CY-BOCS (r = .56), and mild correlations between VABS domains and the Socially Inflexible subscale of the HSQ. Correlations between the same validation subscales with the Demand-Specific subscale were generally significant but very mild in size. The researchers interpreted these findings as showing external validity for the HSQ. As the modified scale was derived with children diagnosed as having pervasive developmental disorders using DSM-IV-TR, the new scale was called the HSQ-PDD.


This was an editorial that commented on recent use and misuse of the ABC. The ABC garnered a significant reputation following studies by the NIMH-sponsored Research Units on Pediatric Psychopharmacology (RUPP) studies that showed risperidone to be significantly superior to placebo in managing irritable behavior in children with autistic disorder. Following this, Johnson & Johnson and Bristol-Myers-Squibb used ABC data to demonstrate clinical superiority of risperidone and aripiprazole, respectively, over placebo in children with autistic disorder. These pivotal trials led to FDA clinical indications of risperidone and aripiprazole in children with autism and severely irritable behavior. Since these events, the ABC has become a frequently used outcome in pharmaceutical industry studies.

In recent years, some investigators and pharmaceutical companies have used ABC total scores, rather than subscale scores, to test for treatment and other effects. The ABC Manual explicitly warns against this practice. *Using a single total ABC score is not rational because it
ignores the derivation of the instrument by principal components analysis, and it lacks construct validity.

Recently, other investigators have conducted exploratory factor analysis (EFA) in individuals with Fragile-X syndrome. This resulted in slightly different factor structure, with the Social Withdrawal items splintering into a Lethargy factor and a Social Avoidance factor. Whereas this may be a compelling factor structure for Fragile-X syndrome, there are potential problems with syndrome-specific scoring algorithms. One issue is that the notion could lead to confusion within the developmental disabilities fields, with numerous scoring algorithms being used, each being tailored to different syndromes and genotypes. Another limitation is that standardized tools are used to determine how individuals and how different syndromes differ from the norm. One would not create a new Child Behavior Checklist (CBCL) algorithm for each Diagnostic and Statistical Manual (DSM) disorder among typically developing children. In the same sense, it may be irrational to derive unique scoring algorithms within different developmental disability syndromes to compare these individuals with their normative counterparts.


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This follow-up took place an average of 21 months (1.8 years) after the subjects were involved in the Research Units on Pediatric Psychopharmacology (RUPP) study of risperidone in 101 children with autistic disorder and co-occurring severely irritable behavior. Eighty-four youth were successfully followed up, and they participated in a 5-6 hour series of assessments that included numerous safety and tolerability measures, developmental outcomes, and assessments with standardized rating instruments. At the time of assessment, 53 subjects (63%) were taking risperidone and three others were taking other antipsychotic drugs. The remainder were free of antipsychotic medications.

More subjects taking risperidone had excessive appetite than among children not taking risperidone. Significantly more youth taking risperidone (20%) had enuresis than among the subjects not taking risperidone (0%; p = .01). CBC, lipid panel tests, glucose, urinalysis, and ECG data failed to show consistent patterns when comparing children taking risperidone and those not taking risperidone. Tests of neurological impairment were negative, whereas children taking risperidone at follow-up gained more weight and had greater height-gain than those not taking risperidone.

Parents and guardians rated their children on the ABC and on the modified Ritvo-Freeman Real Life Rating Scale (M-RFRLRS). Children taking risperidone were rated as having significantly lower scores (p = .05), as compared with the non-risperidone-treated subjects, on the following ABC subscales: (a) Irritability, (b) Social Withdrawal, (c) Hyperactivity/Noncompliance, and (d) Inappropriate Speech. On the M-RFRLRS, children taking risperidone at follow-up were rated as having lower scores on (a) Affectual Responses (e.g., crying, temper outbursts) and on Sensory Responses (e.g., rubbing surfaces, sniffing self or objects); three other M-RFRLRS subscales failed to show change with drug condition.

Conclusions were that appetite gain, increased weight, and enuresis are risks associated with risperidone treatment, but these children also showed associated behavioral and social benefits with risperidone treatment.


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This was a controlled study comparing Parent Training (PT) in behavior intervention techniques with a Parent Education Program (PEP). The study participants were 180 preschoolers with autism spectrum disorder (ASD) enrolled because of high levels of irritable behavior (scores at or above 15 on the Irritability subscale on the ABC). Ninety children were randomized to PT and 90 to PEP. PT comprised the experimental intervention, whereas PEP was intended as the control condition (equalivant in terms of contact time and therapist attention). PT comprised 11 core sessions and 2 optional sessions focused on behavior intervention, whereas PEP comprised 12 didactic sessions that were focused on factual information in relation to ASD.

The two primary outcomes were the ABC Irritability subscale score and the mean score on the Home Situations Questionnaire—ASD (HSQ-ASD); a secondary outcome was the Clinical Global Impressions Scale Improvement score (CGI-I) as rated by blinded clinicians. Following 24 weeks of treatment, the ABC Irritability score declined 47.7% for children in PT as compared with 31.8% for children in PEP ($p = .001$; effect size [ES]=0.62). For the HSQ-ASD, scores declined 55.0% for the PT group as compared with 34.2% in the PEP group ($p = .001$, ES= 0.45). For the CGI-I, 68.5% of the PT group were rated as much or very much improved as compared with 39.6% of the PEP group ($p = .001$). In addition, ABC Hyperactivity/Noncompliance ($p = .01$; ES= 0.43) and ABC Inappropriate Speech ($p = .05$; ES= 0.22) showed significant advantages for children assigned to the PT group. This was the largest randomized clinical trial published in English of psychosocial treatment in children with ASD to this date.

# PART II: ONGOING WORK WITH THE ABC, TAKEN FROM Clinicaltrials.gov

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<tr>
<th>Official Title</th>
<th>Novel Pharmacological Strategies in Autism</th>
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<th>Safety and Efficacy of Aripiprazole in the Long-Term Maintenance Treatment of Pediatric Patients With Irritability Associated With Autistic Disorder</th>
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<td>Masking: Double Blind (Subject, Caregiver, Investigator)</td>
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<td>Primary Purpose: Treatment</td>
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<td>Official Title</td>
<td>A Randomized, Double-Blind, Placebo-Controlled Study of the Efficacy, Safety, and Tolerability of STX209 (Arbaclofen) Administered for the Treatment of Social Withdrawal in Adolescents and Adults With Fragile X Syndrome</td>
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<tr>
<td>Condition</td>
<td>Fragile X Syndrome</td>
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<tr>
<td>Study Director</td>
<td>Seaside Therapeutics</td>
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<tr>
<td>Intervention</td>
<td>Drug: arbaclofen Drug: placebo</td>
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<tr>
<td>First Received</td>
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<tr>
<td>Identifier</td>
<td>NCT01282268</td>
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<tr>
<td>Study Type</td>
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<tr>
<td>Study Design</td>
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<tbody>
<tr>
<td>Condition</td>
<td>Autism Spectrum Disorders</td>
</tr>
<tr>
<td>Study Director</td>
<td>Seaside Therapeutics</td>
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<tr>
<td>Intervention</td>
<td>Drug: Arbaclofen</td>
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<tr>
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<tr>
<th>Official Title</th>
<th>Pilot Study of Acamprosate in Youth With Fragile X Syndrome and Autism Spectrum Disorders</th>
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<tr>
<td>Condition</td>
<td>Fragile X Syndrome and Autism Spectrum Disorders</td>
</tr>
<tr>
<td>Investigator</td>
<td>Craig A. Erickson, M.D (Indiana University School of Medicine - Department of Psychiatry)</td>
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<td>Intervention</td>
<td>Drug: Acamprosate</td>
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<tr>
<td>First Received</td>
<td>August 25, 2010.</td>
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<tr>
<td>Identifier</td>
<td>NCT01300923</td>
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<td>Study Design</td>
<td>Allocation: Non-Randomized Endpoint Classification: Safety/Efficacy Study Intervention Model: Single Group Assignment</td>
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<tr>
<td>Official Title</td>
<td>Treatment of Sleep Disturbances in Young Children With Autism</td>
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<tr>
<td>Condition</td>
<td>Autism/ Autism Spectrum Disorders</td>
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<tr>
<td>Investigator</td>
<td>Cynthia R Johnson, PhD (University of Pittsburgh)</td>
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<tr>
<td>Intervention</td>
<td>Behavioral: Parent Training</td>
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<td>First Received</td>
<td>March 22, 2011.</td>
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<tr>
<td>Identifier</td>
<td>NCT01322022</td>
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<td>Endpoint Classification: Efficacy Study</td>
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<td>Intervention Model: Parallel Assignment</td>
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<td></td>
<td>Masking: Open Label</td>
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<tr>
<td>Primary Purpose</td>
<td>Treatment</td>
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<tbody>
<tr>
<td>Condition</td>
<td>Fragile X Syndrome</td>
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<tr>
<td>Study Director</td>
<td>Seaside Therapeutics, Inc.</td>
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<tr>
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<td>Intervention Model: Parallel Assignment</td>
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<tr>
<td>Primary Purpose</td>
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<tr>
<th>Official Title</th>
<th>Milnacipran in Autism and the Functional Locus Coeruleus and Noradrenergic Model of Autism</th>
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<tbody>
<tr>
<td>Condition</td>
<td>Autism Spectrum Disorder and Asperger’s Syndrome</td>
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<tr>
<td>Investigator</td>
<td>Eric Hollander, MD (Montefiore Medical Center, Albert Einstein College of Medicine)</td>
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<td>Intervention</td>
<td>Drug: Milnacipran Drug: Placebo</td>
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<td>First Received</td>
<td>December 27, 2010.</td>
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<td>Identifier</td>
<td>NCT01337700</td>
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<td>Study Type</td>
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<td>Endpoint Classification: Safety/Efficacy Study</td>
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<td>Intervention Model: Parallel Assignment</td>
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<td>Masking: Double Blind (Subject, Caregiver, Investigator, Outcomes Assessor)</td>
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<tr>
<td>Official Title</td>
<td>Fragile X Syndrome Study to Evaluate the Long-term Safety, Tolerability and Efficacy of AFQ056 in Adult Patients With Fragile X Syndrome</td>
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<tr>
<td>Condition</td>
<td>Fragile X Syndrome</td>
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<tr>
<td>Study Director</td>
<td>Novartis Pharmaceuticals</td>
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<td>Intervention</td>
<td>Drug: AFQ056</td>
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<td>First Received</td>
<td>May 3, 2011.</td>
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<tr>
<td>Identifier</td>
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<tr>
<td>Study Type</td>
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<tr>
<td>Study Design</td>
<td>Allocation: Non-Randomized</td>
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<tr>
<th>Official Title</th>
<th>A Randomized, Double-blind, Placebo-controlled, Parallel Group Study to Evaluate the Efficacy and Safety of AFQ056 in Adolescent Patients With Fragile X Syndrome</th>
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<tbody>
<tr>
<td>Condition</td>
<td>Fragile X Syndrome</td>
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<tr>
<td>Study Director</td>
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<td>Intervention</td>
<td>Drug: AFQ056</td>
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<tr>
<td>First Received</td>
<td>May 18, 2011.</td>
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<tr>
<td>Identifier</td>
<td>NCT01357239</td>
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<td>Study Type</td>
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<thead>
<tr>
<th>Official Title</th>
<th>An Evaluation of a Developmentally-Based Parent Training Program for Children With Autism</th>
</tr>
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<tbody>
<tr>
<td>Condition</td>
<td>Autistic Disorder</td>
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<tr>
<td>Investigators</td>
<td>Antonio Hardan (Stanford University )</td>
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<tr>
<td>Intervention</td>
<td>Behavioral: Pacific Autism Center for Education (PACE) developmentally based parent delivered intervention</td>
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<tr>
<td>First Received</td>
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<tr>
<td>Identifier</td>
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<td>Intervention Model: Single Group Assignment</td>
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<td></td>
<td>Masking: Open Label</td>
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<td>Primary Purpose: Treatment</td>
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<p>| Official Title                                                                 | An Open-label Study to Evaluate the Long-term Safety and Tolerability of |</p>
<table>
<thead>
<tr>
<th><strong>AFQ056 in Adolescent Patients With Fragile X Syndrome</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Condition</strong></td>
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<tr>
<td><strong>Study Director</strong></td>
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<tr>
<td><strong>Intervention</strong></td>
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<td><strong>Study Type</strong></td>
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<tr>
<td><strong>Study Design</strong></td>
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| **Official Title** | Sulforaphane-rich Broccoli Sprout Extract for Autism    |
| **Condition**      | Autism                                                  |
| **Investigator**   | Andrew W. Zimmerman, M.D (Massachusetts General Hospital) |
| **Intervention**   | Drug: Sulforaphane-rich Broccoli Sprout Extract         |
|                    | Drug: Placebo                                           |
| **First Received** | November 8, 2011.                                      |
| **Identifier**     | NCT01474993                                             |
| **Study Type**     | Interventional                                          |
| **Study Design**   | Allocation: Randomized                                  |
|                    | Endpoint Classification: Safety/Efficacy Study          |
|                    | Intervention Model: Parallel Assignment                 |
|                    | Masking: Double Blind (Subject, Caregiver, Investigator, Outcomes Assessor) |
|                    | Primary Purpose: Treatment                              |

| **Official Title** | An Open-label, Non-Randomized, Multi-Center Study to Assess the Safety and Effects of Autologous Adipose-Derived Stromal Cells Delivered Intravenously in Patients With Autism |
| **Condition**      | Autism                                                  |
| **Investigator**   | Arnoldo Sierra, MD (Instituto de Medicina Regerativa)   |
| **Intervention**   | Procedure: Fat Harvesting and Stem Cell Injection       |
| **First Received** | December 27, 2011.                                     |
| **Identifier**     | NCT01502488                                            |
| **Study Type**     | Interventional                                          |
| **Study Design**   | Endpoint Classification: Safety/Efficacy Study          |
|                    | Intervention Model: Single Group Assignment             |
|                    | Masking: Open Label                                     |
|                    | Primary Purpose: Treatment                              |

<p>| <strong>Official Title</strong> | A Randomized, Double-blind, 12-week, Parallel Group, Placebo-controlled Study of Efficacy and Safety of RO4917523 in Patients With Fragile X Syndrome |
| <strong>Condition</strong>      | Fragile X Syndrome                                      |
| <strong>Study Director</strong> | Clinical Trials Hoffmann -La Roche                     |</p>
<table>
<thead>
<tr>
<th>Intervention</th>
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<tr>
<td>Drug</td>
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<td>First Received</td>
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<td>Intervention Model: Parallel Assignment</td>
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<td>Masking: Double Blind (Subject, Investigator)</td>
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<td></td>
<td>Primary Purpose: Treatment</td>
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</tbody>
</table>

| Official Title | The Efficacy of Minocycline in the Treatment of Angelman Syndrome |
| Condition      | Angelman Syndrome                                      |
| Study Director | Edwin J Weeber, Ph.D (University of South Florida)     |
| Intervention   | Drug: minocycline                                     |
| First Received | February 5, 2012.                                     |
| Identifier     | NCT01531582                                           |
| Study Type     | Intervention                                          |
| Study Design   | Endpoint Classification: Efficacy Study                |
|                | Intervention Model: Single Group Assignment           |
|                | Masking: Open Label                                    |
|                | Primary Purpose: Treatment                            |
PART III: TRANSLATIONS OF THE ABC

ABERRANT BEHAVIOR CHECKLIST:
AFRIKAANS TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
CHINESE TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
CZECH TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
Danish Translation
ABERRANT BEHAVIOR CHECKLIST: DUTCH TRANSLATION

If in need of the translation, please contact Michael Aman, Ph.D. at aman.1@osu.edu or phone 614-688-4196.
ABERRANT BEHAVIOR CHECKLIST: FINNISH TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
FRENCH (CANADIAN) TRANSLATION

A French (Canadian) Translation is Available.
If in Need of the Translation, Please Contact
Michael Aman, Ph.D. at:
aman.1@osu.edu
or
phone 614-688-4196
ABERRANT BEHAVIOR CHECKLIST:
FRENCH (EUROPEAN) TRANSLATION

A French (European) Translation Is Available.
If in Need of the Translation, Please Contact
Michael Aman, Ph.D. at:
aman.1@osu.edu
or
phone 614-688-4196
ABERRANT BEHAVIOR CHECKLIST: GERMAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST: HEBREW TRANSLATION
ABERRANT BEHAVIOR CHECKLIST: HUNGARIAN TRANSLATION

If in Need of the Translation, Please Contact Michael Aman, Ph.D. at aman.1@osu.edu or phone 614-688-4196

A Hungarian Translation Is Available.
ABERRANT BEHAVIOR CHECKLIST:
INDONESIAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
ITALIAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
JAPANESE TRANSLATION
ABERRANT BEHAVIOR CHECKLIST: KOREAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
LITHUANIAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
NORWEGIAN TRANSLATION

A Norwegian Translation Is Available.
If in Need of the Translation, Please Contact
Michael Aman, Ph.D. at:
aman.1@osu.edu
or
phone 614-688-4196
ABERRANT BEHAVIOR CHECKLIST:
PERSIAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
PORTUGUESE TRANSLATION

A Portuguese Translation is Available.
If in Need of the Translation, Please Contact
Michael Aman, Ph.D. at:
aman.1@osu.edu
or
phone 614-688-4196
ABERRANT BEHAVIOR CHECKLIST:
ROMANIAN TRANSLATION

A Romanian Translation Is Available.
If in Need of the Translation, Please Contact
Michael Aman, Ph.D. at:
aman.1@osu.edu
or
phone 614-688-4196
ABERRANT BEHAVIOR CHECKLIST:
RUSSIAN TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
SLOVAK TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
SLOVENIAN TRANSLATION

If in need of the translation, please contact Michael Aman, Ph.D. at aman.1@osu.edu or phone 614-688-4196.
ABERRANT BEHAVIOR CHECKLIST:
SPANISH TRANSLATION

A Spanish Translation Is Available.
If in Need of the Translation, Please Contact
Michael Aman, Ph.D. at:
aman.1@osu.edu
or
phone 614-688-4196
ABERRANT BEHAVIOR CHECKLIST:
TELUGU (NATIONAL LANGUAGE OF ANDHRA PRADESH, INDIA) TRANSLATION
ABERRANT BEHAVIOR CHECKLIST:
TURKISH TRANSLATION
ABERRANT BEHAVIOR CHECKLIST: VIETNAMESE TRANSLATION

A Vietnamese Translation Is Available. If in Need of the Translation, Please Contact Michael Aman, Ph.D. at aman.1@osu.edu or phone 614-688-4196.
## PART IV: TRANSLATIONS OF THE ABC IN PROGRESS

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<thead>
<tr>
<th>Language</th>
<th>Scheduled Date for Final Version</th>
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<tr>
<td>Estonian</td>
<td>22 August 2012</td>
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<tr>
<td>Filipino</td>
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<tr>
<td>French (Belgian version)</td>
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<tr>
<td>Icelandic</td>
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<td>Malay</td>
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<td>Polish</td>
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<tr>
<td>Serbian</td>
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<tr>
<td>Spanish (Columbian version)</td>
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<td>Spanish (Mexican version)</td>
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<td>Zulu</td>
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