*i*CAHE Critical Appraisal Summary

Article/Paper

Howard, JS. A comparison of intensive behaviour analytic and eclectic treatments for young children with autism. Research in developmental disabilities. 2005; 26(4):359.

Ques No.	Yes	Can't Tell	No	Comments
1	✓			**Did the study address a clearly focused issue?** **Population studied** • 61 children diagnosed with autistic disorder or pervasive developmental disorder • diagnosis of autistic disorder or PDD-NOS according to DSM-IV criteria by qualified independent examiners before the child was 48 months of age; (b) entry into an intervention program before 48 months of age; (c) English as the primary language spoken in the child's home; (d) no significant medical condition other than autistic disorder or PDD-NOS; and (e) no prior treatment of more than 100 h. **Risk factors studied** • Intensive behaviour analytic treatment program were compared with those of children who received intensive ''eclectic'' intervention in classrooms designed exclusively for children with autism and children in non-intensive, generic early intervention programs. **Outcomes considered** • Cognitive skills • Non-verbal skills • Adaptive skills • Receptive and expressive language *Is it clear whether the study tried to detect a beneficial or harmful effect?* Yes

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2	✓			**Did the authors use an appropriate method to answer their question?** A RCT is always preferable to minimise bias, however, the study question is adequately addressed with a cohort study. The follow up period (14 months) appears adequate to assess long-term/lasting developmental effects of the respective therapy approaches. Is it worth continuing? **YES**
3	✓			**Was the cohort recruited in an acceptable way?** The sample was representative of a general paediatric autistic population. There does not appear to be anything special about the cohort. Inclusion and exclusion criteria did not reduce the generalisability of the study population. Potential subjects were referred from across public health organisations throughout California, with the authors then screening children according to set inclusion/exclusion criteria.
4			✓	**Was the exposure accurately measured to minimize bias?** None of the intervention arms were accurately measured. Intensive behaviour analytic treatment (IBT) • Multiple settings including home, school, and the community. Intensive treatment was defined as 25–30 h per week of 1:1 intervention for children under 3 years of age and 35–40 h of 1:1 intervention for children over 3 years of age. Children had 50–100 learning opportunities per hour presented via discrete trial, incidental teaching, and other behaviour analytic procedures • Each child's programming was delivered by a team of 4–5 instructional assistants, each of whom worked 6–9h per week with the child. They were trained and supervised by staff with master's degrees in psychology or special education and coursework as well as supervised practical experience in applied behaviour analysis with children with autism. • No additional services, such as occupational therapy or individual or small group speech therapy, were provided to the children • No formal measurement of treatment integrity was undertaken

				Autism educational programming (AP) • Enrolled in public school classrooms designed for children with autism. The staff:child ratio was 1:1 or 1:2, depending on individual needs and the structure of the particular program in which each child was enrolled. A credentialed special education teacher supervised the work of 4–8 paraprofessional aides in each classroom. Staff provided 25–30 h of intervention each week. • Classroom teachers received consultation from staff with 1–2 years of graduate level coursework in behaviour analysis but who had not yet completed masters' degrees. Seven of the 16 children in the autism programs also received individual or small group speech therapy sessions one to two times weekly from a certified speech and language pathologist. No measures of the integrity of this treatment were available. Generic educational programming (GP) • Enrolled in local community special education classrooms identified as early intervention or communicatively handicapped preschool programs. Those programs served children with a variety of disabilities, and provided an average of 15 h of intervention per week, with a 1:6 adult:child ratio. Each classroom was staffed by credentialed special education teachers or certified speech and language pathologists who supervised 1–2 paraprofessional aides. • Educational activities were described as ''developmentally appropriate,'' with an emphasis on exposure to language, play activities, and a variety of sensory experiences. Thirteen of the 16 children in this group also received individual or small group speech and language therapy sessions one to two times weekly from a certified speech and language pathologist. No operational definitions of this intervention were available, nor were measures of treatment integrity.

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5			✓	**Was the outcome accurately measured to minimize bias?** Different measures were used to assess cognitive skills for different children for both pre and post testing. This introduces measurement bias. Independent assessors were used (ie not the clinicians), which reduces bias. They were not blinded however. Assessments were carried out in different settings, again introducing potential bias. The measures do seem to be commonly utilised, thus increasing the likelihood that a true or valid result will be achieved. Cognitive skills • Bayley Scales of Infant Development-Second Edition • Wechsler Primary Preschool Scales of Intelligence— • Revised • Developmental Profile-II • Stanford-Binet Intelligence Scale Non-verbal skills • Merrill-Palmer Scale of Mental Tests • Leiter International Performance Scale Receptive and expressive language • Reynell Developmental Language Scales • Rossetti Infant-Toddler Language Scale • Receptive-Expressive Emergent Language Scales— • Revised • Preschool Language Scale-3 Adaptive skills • Vineland Adaptive Behavior Scales: Interview Edition

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6	✓	✓		**A. Have the authors identified all important confounding factors?** Children in the IBT group were diagnosed at a younger age than children in the autism program, who in turn were diagnosed at a younger age than children in the generic program. Children in the IBT group also began treatment earlier, and had earlier follow-up testing, than children in the AP and GP groups. Parents of children in the IBT group averaged 1–2 more years of education than parents of children in the other two groups. **B. Have they taken account of the confounding factors in the design and/or analysis? YES** All analyses included age at diagnosis and parents' mean level of education to control for the potential influence of those two variables.
7	✓ ✓			**A. Was the follow up of subjects complete enough?** With the exception of age-equivalent cognitive measures (0 measures taken across all groups at follow-up), comparable number of participant measures were taken at follow-up compared to baseline. All other measures were repeated. **B. Was the follow up of subjects long enough?** Follow-up testing occurred an average of 14 months after treatment. With mean age varying between 30.86 – 37.44 months at baseline, this represents a considerable portion of their lives/development to date.
8				**What are the results of this study?** The IBT group had statistically significant higher mean scores in all domains than the other two groups combined except for motor skills which showed no statistical difference. There were no statistically significant differences between the mean scores of children in the AP and GP groups.

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9				**How precise are the results?** NA
10		✓		**Do you believe the results?** Given the improvement in the IBT group for all domains bar one, it is hard not to believe the results. However, as highlighted in previous questions, there are some significant design faults for this study.
11	✓			**Can the results be applied to the local population?** Notwithstanding the previous design faults of the study, and the relative homogeneity of the characteristics of the children involved, participants were taken from the entire California area and seemingly representative of a paediatric autistic population. No indication is given to suggest that a specific characteristic or variable would impact results at a local level, other than the availability of services.
12	✓			**Do the results of this study fit with other available evidence?** Several references are cited supporting the use of intensive early interventions within similar populations *(Ramey & Ramey 1998, Ramey & Ramey 1999, Guralnick 1998, Lovaas 1987, Eikeseth, Smith, Jahr, & Eldevik, 2002; Fenske, Zalenski, Krantz, & McClannahan, 1985; Harris, Handleman, Gordon, Kristoff, & Fuentes, 1991, Anderson, Avery, DiPietro, Edwards, & Christian, 1987; Birnbrauer & Leach, 1993; Smith, Groen, & Wynne, 2000; Weiss, 1999, Anderson et al., 1987; Birnbrauer&Leach, 1993; Smith et al., 2000).* It appears, however, that a far greater proportion of the evidence deals with the effectiveness of behavioural interventions rather than the effects of its intensity. One observational study rarely provides sufficiently robust evidence to recommend changes to clinical practice or within health policy decision making. However, for certain questions observational studies provide the only evidence. Recommendations from observational studies are always stronger when supported by other evidence.

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