

Special Section for Authors

The Autism/Engineering Link: A Replication of Baron-Cohen et al. (1997)

Jack Mearns, PhD; Nancy L. Segal, PhD; Melissa Clark, MS

Baron-Cohen, Wheelwright, Stott, Bolton and Goodyer¹ demonstrated an apparent link between children having autism and their relatives working in the engineering field. Baron-Cohen et al. hypothesized that the genetic influences that contribute to the development of childhood autism are expressed, albeit to a lesser degree, in relatives who do not have autism. This genetic influence causes these relatives to show poorer functioning in certain cognitive domains and relatively better functioning in others.

Baron-Cohen et al.¹ suggested that the relatives of autistic children may show non-pathological deficits in folk psychology, which is the ability to understand and predict the actions of others. At the same time, "the very same genes that lead an individual to have a child with autism can lead to superior functioning in the domain of folk physics" (pp. 107-108). Folk physics represents an understanding of the mechanics of objects and how they work, skills that are vital to the engineering profession.

Baron-Cohen et al.¹ sent questionnaires to 1000 parents of children with autism and Asperger syndrome, who were members of The National Autism Society in the United Kingdom. They received a response rate of 90%. The researchers found that fathers of children with autism or Asperger syndrome were twice as likely as fathers in their control groups (parents of children with Tourette Syndrome, Down's Syndrome, language delay, and children without impairment) to report engineering as their profession. Similar results were found for grandfathers. Baron-Cohen et al. concluded that "autism (or Asperger syndrome) does not strike randomly." Rather, there is a "cognitive phenotype" that is expressed in male relatives whose folk psychology is less well developed than their folk physics (p. 104).

The current study was intended to replicate Baron-Cohen et al.'s¹ United Kingdom research, in a United States sample.

Method

Participants were taking part in a larger study on caregiving for children with autism. Surveys were mailed to 109 members of the Autism Society of America, who had volunteered for research on families of autistic children. Responses were received from 79 of these individuals. Parents listed their own professions, and those of the child's other parent and maternal and paternal grandparents. They also indicated whether these individuals were blood relatives of the child. Only blood relatives were included in the current study's analyses.

Results

Our survey results are quite similar to those of Baron-Cohen et al.¹, particularly for parents. The U.S. sample of mothers included 1.6% engineers, while the UK sample included 0.2%. The U.S. fathers included 13.6% engineers, compared to 12.5% of the UK sample. No maternal grandmothers were reported to be engineers in either our or Baron-Cohen's sample. For paternal grandmothers, the rates were 0% (U.S.) and 0.2% (UK). The major difference between the U.S. and UK samples was for grandfathers, where the U.S. sample included engineers at about half the rate of the UK sample (5.2% versus 11.5% for maternal grandfathers, and 5.8% versus 9.7% for paternal grandfathers).

Discussion

Although the small sample size is a concern in the current study, the similarity of our results to those of Baron-Cohen et al.¹ suggests that their conclusions, drawn from a UK sample, apply to the U.S. population as well. Fathers, especially, reported engineering at highly similar rates; Baron-Cohen found these rates to be substantially higher than rates for control groups. Thus, certainly for fathers, Baron-Cohen's conclusion that there is a phenotypic cognitive style in families with autistic children gains further support. Our results support the conclusion that autistic children come from families whose members have more highly developed physical/causal skills and capacities for understanding mechanics, and less well developed social understanding.

From the Department of Psychology, California State University, Fullerton, California.

Address reprint requests to Jack Mearns, Department of Psychology, California State University, PO Box 6846, Fullerton, CA 92834-6846, USA.

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References

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