KNOWLEDGE OF BASIC EMOTIONS IN ADOLESCENT AND ADULT INDIVIDUALS WITH AUTISM

PETER MURIS, COR MEESTERS, HARALD MERCKELBACH, AND MIRANDA LOMME

University of Limburg, The Netherlands

Summary.—An experiment was carried out in which 30 adolescent and adult patients with autism and 30 age- and IQ-matched Down syndrome patients were instructed to choose one of the chocolates that were hanging near four pictures displaying facial expressions of basic emotions (fear, anger, happiness, and sadness). As predicted, most of the Down syndrome patients took the chocolate near the happy face picture. Unexpectedly, however, autistic patients made more responses to the fearful face picture. Also, Down syndrome patients were more capable of naming the four basic emotions than autistic patients.

According to the DSM-III—R (American Psychiatric Association, 1987), autism belongs to the disorders that usually are first evident in childhood. In most cases, onset is reported before age three. Follow-up studies of autistic children have shown that the disorder mostly continues into adolescence and adulthood. For example, Rumsey, Rapoport, and Scerri (1985) investigated 14 adult men with well-documented histories of infantile autism. Although the men, in the course of time, had exhibited gradual improvement in daily functioning, continuing social impairment was seen for the entire sample and the majority still met diagnostic criteria for autism or autism, residual state.

To account for the marked social impairment as seen in autists, Baron-Cohen, Leslie, and Frith (1985) put forward the idea that autistic individuals have no "theory of mind," that is, autists would lack the ability to appreciate the subjective experiences and intentions of others. In line with this, Hobson (1986) showed that autistic children have difficulty in recognizing basic emotional states. In Hobson’s experiments, autistic children exhibited clear impairment in matching the appropriate drawings or photographs of facial expressions of emotion to videotaped gestures and vocalizations of happy, sad, angry, and fearful feelings. The present study extended Hobson’s findings and investigated the knowledge of basic emotions in adolescent and adult individuals with autism.

METHOD

Subjects were 30 autistic (26 men and 4 women; mean age of 29 years,
range: 14 to 44 years) and 30 Down syndrome (25 men and 5 women; mean age of 33 years, range 13 to 54 years) inpatients of an institute for mental defectives. All autistic patients met the DSM-III—R criteria for Autistic Disorder. Exact IQs of the autistic were not available, but on the basis of their file data and daily functioning, the psychologist of the institute estimated intellectual impairment and categorized each autistic as either mildly (estimated IQ of 50 to 70) or moderately (estimated IQ of 35 to 49) mentally retarded. Severely mentally retarded autistics were excluded from the experiment. Down syndrome patients served as the control group and were, as well as possible, matched with the autistics for age and IQ category.

In the experimental room, four pictures were mounted on the wall. The pictures showed a woman exhibiting different facial expressions of fear, anger, happiness, and sadness. Beneath each picture, a small piece of chocolate was fastened to the wall. Subjects were led into the experimental room, seated on a chair in front of the four pictures, and encouraged by the researcher to take a good look at each one. The pictures were equidistant from the subjects and arranged in a fixed order (from the left to the right: fear, anger, happiness, and sadness). Then, the subjects' attention was called to the pieces of chocolate beneath each picture, and they were told "You may choose one piece of chocolate! Near which picture do you want to take it?"

It was expected that most Down syndrome patients would respond to the happy face picture, whereas the autistics, supposed having difficulty with the recognition of emotions, would display a random pattern of choice. After subjects had made their choice and had taken one of the chocolates, they were asked to name the emotions exhibited by the woman in each of the four pictures: "How does the woman feel?"

**Results**

Four autistic patients did not cooperate, i.e., they refused to choose a piece of chocolate, so their data were excluded from the analyses. As expected, most of the Down syndrome patients (46.7%, n = 14) took the piece of chocolate near the happy face picture, whereas this percentage was only 23.1% (n = 6) for the autistic patients (χ² = 3.4, p < .07). Surprisingly, there were significantly more autistic than Down syndrome patients who took the chocolate near the fearful face picture: percentages were 42.3% (n = 11) versus 16.7% (n = 5), respectively (χ² = 4.5, p < .05). No differences between the two groups were found with respect to choice of the other two pictures. Among autistic patients, 77.8% (n = 2) responded to the sad face picture, whereas 26.9% (n = 7) chose the angry face picture. In the Down syndrome patient group, these percentages were 13.3% (n = 4) and 23.3% (n = 7), respectively. Further, the Down syndrome patients appeared more capable of naming the four basic emotions: 53.3% (n = 16) named all four emotions correctly, whereas only 19.2% (n = 5) of the autistic patients (χ² = 6.9,
p<.005) did so. All autists who named the four emotions were only mildly mentally retarded.

In sum, these results provide some support for the notion that autistic patients have impaired knowledge of basic emotions. The finding that more autistic patients responded to the fearful-face picture was not anticipated. Two factors may have contributed to this effect. Firstly, it is well-known that, when subjects have to choose from a series of similar items, they prefer the items in a lateral (left or right) position (e.g., Nisbett & Wilson, 1977). It may well be the case that the way in which the pictures were arranged in the present experiment affected the preference of autistic patients, i.e., autistic patients preferring the left-side position. This would imply that autists' preference for the fearful-face picture was not based on the emotional characteristics of this picture per se but on a response tendency directed to the left side. In line with this reasoning, one could argue that the Down syndrome patients did not display such a response tendency precisely because they were sensitive to the emotional characteristics of the faces in the pictures presented. Secondly, it is possible that the emotional intensities of the facial displays differed. That is to say, autistic patients may largely have responded to the picture with the most intense facial expression. Again, this would imply that autists are sensitive to a very limited set of cues that accompany an emotional expression, e.g., large eyes in a fearful face, rather than the emotional expression itself.

REFERENCES

Accepted November 13, 1994.