Dr. Oswald's Corner
Comments on recent autism-related research reports

News Flash: Females have Better Social Skills

While those of us afflicted by maleness have long been aware that we are, sadly, the weaker sex with respect to sociability and emotional acumen, only relatively recently have clinicians and researchers concluded that a similar pattern exists in people with ASD; a paper just published in the journal *Molecular Autism* offers new evidence.

Head and colleagues (2014) examined gender patterns on the Friendship Questionnaire (Baron-Cohen & Wheelwright, 2003) in a sample of 10-16-year-old males and females, with and without ASD. Results indicated, not surprisingly, that typically developing girls were more adept with respect to “friendship quality, understanding and empathy,” compared to typically developing boys; perhaps less predictably, females with ASD outscored males with ASD by a similar amount. But the most striking finding reported by these authors was that, on the self-report version of the friendship instrument, the mean score for girls with ASD was not significantly different from the mean score for typically developing boys. With respect to whatever it is that the instrument is measuring, typically developing boys appeared to be as deficient as girls diagnosed with ASD.

While some might choose to interpret these findings as support for the conclusion that the male of the species is inherently clueless with when it comes to emotion and relationships, Head and colleagues focus on how the results might illuminate the gender ratio for individuals with ASD. They suggest that females with ASD might be under-diagnosed because “their levels [of friendship-related skills] might superficially appear normal, being similar to that of TD males, and considerably higher than males with ASD” (p. 28)

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The appearance of this paper led me to an exploration of recent research reports related to gender and autism and suggested the central question for this commentary: What do we know about why the ASD gender ratio is so skewed in the direction of an over-representation of males? (For every female diagnosed with ASD, there are approximately four males so diagnosed.)

Two recent meta-analyses examined the empirical literature on sex differences in the clinical presentation of ASD (Kirkovski et al., 2013; Van Wijngaarden-Cremers et al., 2013); in the end, both concluded that females with ASD may present with somewhat different clinical features that could lead to under-diagnosis, particularly among girls with little or no intellectual impairment. “The literature to date is biased toward an understanding of the male profile of autism, and an extremely limited knowledge of the female profile is available, potentially leading to inappropriate treatment and management of symptoms for this cohort” (Kirkovski et al., 2013; p. 2599).

There is a considerable line of research reflecting the assumption that male-female ASD prevalence differences are biologically-based. Many have concluded that the preponderance of males in the population of individuals with ASD is a function of increased male vulnerability, although the mechanism for such increased vulnerability has not been established. However, an alternative (or supplementary) hypothesis is that there is a female protective factor that limits the manifestation of autistic behavioral impairment in girls (Robinson et al., 2013). Robinson and colleagues base their hypothesis on the assumption, which has been around for many years, that autism is associated with a complex of genetic effects involving many different genes (cf. Tsai et al., 1981), and the conclusion that the behavioral expression of autism is the result of an accumulation of those genetically-driven effects. The sum of the effects has been called an individual’s “liability” or “etiologic load” for ASD; when that liability becomes too great, the result is a clinical presentation of autism. Robinson and colleagues found evidence that “female sex protects girls from autistic impairments and that girls may require greater familial etiologic load to manifest the phenotype” (p. 5258).

However, there is not universal agreement that the discrepant sex ratio for ASD is entirely biologically-based. In a newly published review paper, Kreiser and White (2014) explored the hypothesis that ASD gender disproportionality is due at least in part to “a pattern of subtle yet potentially meaningful gender differences in symptom manifestation . . . and gender inequities in research on the ASD phenotype that potentially contributes to biases in assessment tools and diagnostic practices.” (p. 67) They propose that “sociocultural (e.g., school, community, ethnicity) and familial factors, along with intrapersonal processes, influence symptom manifestation as well as clinical interpretation of such symptoms in females with ASD” (p. 73; Kreiser & White, 2014).
In short, there are a number of sometimes-competing, sometimes-overlapping ideas about the discrepant sex ratio in ASD. These hypotheses interact with potentially conflicting ideas about the nature of the condition we call ASD in ways that might be characterized as follows:

- there may be a single underlying disease condition, called ASD, which for reasons yet to be determined is manifested more frequently in males than in females.
- there may be a multiplicity of genetically-based developmental differences which tend to co-occur and which, when accumulated to a certain point, are considered to constitute a disease condition (called ASD). Some of those differences are more likely to occur in males than in females, contributing to the over-representation of boys in the ASD population. Others of those differences may lead to different behavioral presentations in boys and girls, including some behavioral presentations that have not been routinely associated with the condition we call ASD.
- there may be a protective factor inherent to the female sex which tends to suppress the impact of the genetically-based developmental differences associated with autism such that more of those differences are required in girls in order to reach the threshold of a diagnosable ASD presentation.
- some apparent sex differences in the presentation of autism may be the product of sociocultural influences on the development, and on the interpretation, of behavior associated with ASD and may contribute to under-representation of females in ASD.

These recent papers make it clear that there is a great deal that we do not know about sex differences in ASD; however, they also suggest several significant implications for our clinical and educational practice. First, they should lead us to recognize the limitations of the empirical assessment and treatment literature, given that it is based on predominantly-male samples; this is not to dismiss the value of that literature, but only to point out that it may be less relevant in some respects to the clinical population of girls with ASD.

Similarly, we do well to recognize that the best diagnostic tools that we have were developed on the basis of clinical samples with markedly skewed gender ratios. We must approach with humility the question of whether these tools work equally well for males and females. And perhaps we should be especially vigilant about looking (in girls) for cognitive and behavioral features that are reminiscent of autism, even if our current diagnostic criteria are not clearly met in those girls.

Finally, we should be aware that similar behaviors are perceived differently when observed in boys and girls, by society and by clinicians, such that what is viewed as pathological in males may be considered within the typical range for females, or vice versa. We should consider the extent to which societal biases and conventional gender expectations affect how individuals with features of ASD develop, and how we may be inclined to interpret those features.
The good news in all of this is that the field has begun to seriously address the question of the explanation for, and implications of, the sex ratio discrepancy in ASD. And, whether or not it is perceived as good news, this work has also raised the visibility of some important questions as to the nature, etiology, and phenomenology of the condition we call autism. Further exploration of those questions can only bring us closer to a more satisfactory understanding of that condition.

References


