but elevated levels of androstenedione. The natural history of 17-HSD is similar to that of 5-aR deficiency. These natural experiments have been mostly studied for psychological traits such as gender identity (24), sexual orientation (25), childhood play (26), personality types (27), cognitive abilities (28) and etc. Most of these studies have been focused on CAH patients due to their much more prevalence; therefore they could have only evaluated the androgen effects. To our knowledge there has been no imaging study, neither on CAH nor on 5ARD or CAIS patients. Regarding the prevalence of these conditions in our region, these would be of immense importance for future studies.

Clearly, sex differences that arise before birth must be a consequence of prenatal or perinatal sex-specific hormonal action and genetic determination rather than differential social stimulation. In contrast, morphological sex differences which arise after birth could be the result of prenatal, perinatal, or postnatal influences. However, except for the larger brain weight and volumes (16) in males compared to females, it is not known conclusively whether any of the sexual dimorphisms in the human brain are present at birth or not. Thus, the exact underlying mechanisms and determinants remain to be assessed in future work, where interplay between genetic determination, hormonal exposure, and environment is very likely.

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Conflict of Interest

The authors declare no conflict of interest.

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