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GENDER DYSPHORIA [2006]

GIRES supports the right of individuals experiencing gender dysphoria to live according to their true gender identity, rather than one imposed upon them at birth.

Gender Dysphoria results from an *atypical* development in the relationship between the *gender* and the visible *sex* of an individual. In order to understand this atypical development, it is necessary, firstly, to understand something of the *typical* development of these elements of our make-up. Many in the scientific and medical professions recognise the terms '*gender*' and '*sex*' as having distinct meanings. '*Gender identity*' describes the psychological recognition of oneself, as well as the wish to be regarded by others, as fitting into the social categories: boy/man or girl/woman. These social categories generate expectations of *gender roles,* that is, how we are expected to behave in society. *'Sex'*, on the other hand, is usually understood to represent the physical differentiation as male or female, indicated by the external appearance of the genitalia (phenotype) and the presence of gonads (testes in a boy/ovaries in a girl) which will determine reproductive function, and differences in brain structure and function. *Typically*, these elements of *sex*, *gender identity* and *gender role* will be consistent with each other and with the underlying chromosomal pattern: 46,XX for a girl, 46,XY for a boy.

Typically, every fetus[1] derives one sex chromosome from the mother; this is always 'X'. The second sex chromosome is provided by the father and may be either 'X' or 'Y'. Typically, a fetus having one X and one Y chromosome will develop as a male because genes on the 'Y' chromosome play a vital role in triggering the complex cascade of hormones which masculinise (virilise) both the gender and the sex of the fetus, ensuring that his brain, genitalia and gonads are congruent. Typically, a fetus having two X chromosomes will develop as a female, in terms of gender identity and sex, so that her brain, genitalia, gonads and organs of reproduction are congruent. So, the way the fetus develops and functions, in terms of sex and gender, depends on its innate sensitivity to particular hormones,[2] as well as the availability of the relevant hormones.[3] These will influence the development of a brain which will be male or female [4] and a physical sex development which is consistent with, and typical of, each gender. Animal experiments have indicated that there may be, in addition, direct genetic effects on the brain development which are not mediated by hormone input.[5] Whatever the various routes leading to differentiation, typically, an XY baby, showing the external characteristics of a boy (male phenotype) will grow to adulthood identifying himself as a man. Similarly, an XX baby, showing the external characteristics of a girl (female phenotype) will typically grow up comfortably identifying herself as a woman.

This scenario applies to the majority of us. Despite considerable gradations, we are close enough to one end or the other of the gender/sex spectrum that we never have to question whether our gender identity is consistent with our gonadal and genital sex. Since this is true for most, it is assumed to be true for all babies – that what you see is what you get. So, despite the fact that the baby's gender identity cannot be discerned accurately at birth - since it depends, to a large extent, on the early development of the brain which is invisible - it is assumed to be consistent with the visible sex. So when 'male' or 'female' is entered on the Birth Certificate, a consistent and unchanging gender identity is inferred and, effectively 'assigned', at that time, on the basis of external appearance alone. Typically, this inference is accurate enough….

….but it is not always so. The gender/sex spectrum is complex. A few individuals do not fit comfortably into what we think of as typically male or female. For a variety of reasons, one in 100 or so babies is born with some kind of sex differentiation anomaly.[6] This could be, for instance, because the pregnant mother has additional hormones in her system, which she has absorbed from, say, medication or the environment, and which she has passed on to the fetus, or the fetus, itself, may be insensitive to the influence of certain hormones. Occasionally, sex/gender anomalies may be associated with unusual chromosomal patterns, e.g., 47,XXY, 47,XYY, 45,XO, 49,XXXYY, or even a mosaic (more than one chromosome pattern in the tissues of one individual). The possible permutations are numerous. The degree of discomfort any resultant variation may cause to an individual, depends on the nature and the degree of that variation from the typical. In a few instances, there can be a serious risk to health. On the other hand, in many cases the effect is so slight that the condition remains undiagnosed or, at least, requires no medical intervention. In some, the manifestations may not be discernible at birth or for many years, so diagnosis is delayed.[7]

One example of such a condition will demonstrate just how complex this subject is. An individual with complete Androgen Insensitivity Syndrome (cAIS) has XY chromosomes so one would expect the presence of a 'Y' chromosome to be associated with an individual who has a penis rather than a clitoris, whose gonadal material develops into testes rather than ovaries and whose brain takes on 'male' characteristics. However, in the case of cAIS, despite the presence of the 'Y' chromosome, the fetus has a degree of insensitivity to androgens (testosterone, dihydrotestosterone) [8] and is, therefore, not subject to their masculinising influence. The result is a mixture of female and male characteristics: the baby is born with the external appearance of a girl and retains female brain characteristics; she grows up identifying herself as a woman. It may be only at puberty, when the failure to menstruate is apparent, that the underlying condition is diagnosed. This XY female has no uterus, often a shortened vagina, or none, and undescended testes. 'Partial' AIS will lead to varying degrees of the condition, including one where assignment of sex (and, therefore, inferred gender identity) is not straightforward owing to the ambiguous appearance of the genitalia at birth. Some paediatricians would assign the baby as a boy, others, as a girl.

Many anomalies such as AIS can arise causing inconsistent development between the various elements by which we know ourselves to be either male or female. Among the larger group embracing all these varieties, there is a small subgroup of individuals who experience a condition known as **gender dysphoria** (dysphoria means 'unhappiness'). The impact of hormones during *their* fetal development appears to cause parts of the brain to develop in a way which is inconsistent with their genitalia, gonads and, usually, with their chromosomes. This may give rise to another, rather different, example of XY females, that is, individuals whose visible physical sex appears to be that of a man, but whose brain has some female characteristics and whose gender identification is, therefore, that of a woman. Or, conversely, gender dysphoria may occur the other way round. An individual having XX chromosomes and the visible physical sex of a female, may have some male brain characteristics and therefore, identify as a man. So the issue of one's gender identification, whether as a man or as a woman, or even neither (which occurs only rarely), is rooted in the brain,[9] and is regarded by the individuals concerned, and is demonstrated by research, to be largely determined pre-birth and more-or-less stable thereafter.

Thus the experience of Gender Dysphoria is increasingly understood in scientific and medical disciplines as having a biological origin. The current medical viewpoint, based on the most up-to-date scientific research, is that Gender Dysphoria, which in its extreme manifestation is known as transsexualism, is strongly associated with unusual neurodevelopment of the brain at the fetal stage. Small areas of the brain are known to be distinctly different between males and females in the population generally. In those experiencing severe Gender Dysphoria, one of these areas has been shown to develop in opposition to other sex characteristics and is, therefore, incongruent with the visible sex appearance.[10,11] Sex differentiation of the brain is imperfectly understood but, as with typical differentiation, it is believed to be associated with hormones impacting on the developing brain; in cases where an individual experiences Gender Dysphoria, the impact of hormones appears to be atypical.

Very rarely, children may experience this incongruence between gender identity and the genital sex, but this is not always easy to diagnose. Symptoms of unease with the assigned gender role and the visible sex appearance are often only apparent to the individuals concerned and may not be understood even by them. If these children are unable to articulate their unease, their discomfort may grow through adolescence and into adulthood, as their families and society, in ignorance of their underlying gender identity, relentlessly reinforce gender roles imposed upon them in accordance with their physical appearance alone. Where children are able to express a strong cross-sex identification, sometimes insisting on living in the opposite role, the incongruence may be expected to persist into adulthood as transsexualism.[12] During adolescence such individuals may have hormone blocking treatment before pubertal changes become apparent, so that they have more time to decide in which gender role they can achieve personal comfort. There is no evidence that raising children in contradiction to their visible sex characteristics causes Gender Dysphoria, nor can the condition be overridden by raising children in strict accordance with a gender role that is consistent with their visible sex.

Those who are not treated in adolescence may continue to struggle to conform; they may embark on relationships, marriages and parenthood in an attempt to lead 'normal' lives by suppressing their core gender identity. Ultimately, however, they may be unable to continue with the charade of presenting themselves as something they know they are not. The artificiality of their situation drives individuals to seek treatment to

minimise the mismatch between the brain and the bodily appearance. They experience an overwhelming need to be complete, whole people and to live in accordance with their internal reality. Until this is achieved, the personal discomfort is such that it leads to great unhappiness and sometimes to suicidal feelings.

For many, 'transition' to live in the gender role dictated by the brain may be the only way forward if they are to avoid a life of psychological torment. This will often be assisted by treatment to achieve physical re-alignment of the sex characteristics, involving hormone therapy and corrective surgery. Transition marks the change in social status from man to woman or woman to man but the process does not change the gender identity of the individuals concerned, rather, it confirms their core gender identity by bringing their sex characteristics, especially their visible ones, and their gender role more closely into line with it. Research indicates that this treatment is highly successful.[15]

However, the level of discomfort varies widely from individual to individual, and personal circumstances also impinge on how those experiencing the condition respond: for instance, some may take hormones, but not have surgery or undergo transition of their gender role; some may become reconciled to their discomfort and learn to live with it. So, psycho-social factors may play a role in outcomes, though they appear to play no part in the causation, of the condition.

Gender Dysphoria, whilst it may be associated with a great deal of stress, is not caused by psychopathology or mental illness, rather, it may be understood to be a normal response to the internal conflict experienced by the individual. The condition cannot be overcome by psychological or psychiatric treatments alone.[13,14]

A person seeking to undergo, in the process of undergoing or having already undergone 'transition' may be described as a trans man (female to male) or a trans woman (male to female). A trans individual may be said to experience the condition of transsexualism.[16] In the UK, the Gender Recognition Act (2004) has now been introduced. This enables trans men and women to obtain a gender recognition certificate and a new birth certificate. They are now able to marry in their newly recognised gender. Driving Licences and Passports may be re-issued according to the individual's post-transition gender status.

SEXUAL ORIENTATION among TRANSSEXUAL PEOPLE

The term Transsexualism does not indicate, or refer to, sexual orientation, i.e., a person's preference for a sexual partner of the opposite, or of the same sex/gender. Trans people may identify as gay, lesbian, straight or asexual. Some trans people say that, until the process of transition is complete, they cannot tell what their future sexual preference will be. It may remain the same; it may change. A trans person who has always been attracted to women may remain so. Or not. A trans person who has always been attracted to men, may remain so. Or not. During the process of transition, the issue of sexual orientation may be of little interest to the individual concerned, since the issue of gender identity is uppermost in his or her mind.

References and notes:

1. 'foetus' – is the more usual but etymologically unsatisfactory spelling. [Chambers, 1999]
'fetus' (often miswritten foetus) [The Shorter Oxford English Dictionary 1990]

2. Kawata M. (1995) Roles of Steroid Hormones and their Receptors in Structural Organisation in the Nervous System'. Neuroscience Res. **24**:1-46

3. Greenberg JA. (1999) "…unless the body is triggered by hormonal production to follow the male path, the fetus will normally develop as a female. Therefore, although chromosomes generally control the hormones that are produced, it is actually the hormones that directly affect sexual development". Cited in Arizona Law Review.

4. MacLusky NJ & Naftolin F. (1981) Sexual Differentiation of the Central Nervous System. Science, **211**:1294-1302,

5. Dewing, P., Shi, T., Horvath, S., Vilain, E. (2003). Sexually Dimorphic Gene Expression in Mouse Brains Precedes Gonadal Differentiation, Molecular Brain Research **118**, 82-90.

6. Anne Fausto-Sterling, PhD, (2000) Sexing the Body, [p53] New York; The Intersex Society of North America; Plomin, R & DeFries, J C & McClearn, G E, Behavioral Genetics, [p 144] 2nd ed. New York. Dr Fausto-Sterling's figures, which do not include gender dysphoria and some other intersex conditions, indicate a 1 in 60 incidence. However, in subsequent discussion, Dr Fausto-Sterling indicated that the figure she had included for the 'late-onset' Congenital Adrenal Hyperplasia is likely to be inappropriate for the UK. Reducing that figure, and including estimates for other intersex conditions indicates that a figure of 1 in 100 is likely to be more realistic. It should be understood that since the effects of intersex conditions may be slight and remain undiagnosed, these statistics do not necessarily reflect clinical experience.

7. Greenberg JA. (1999) see Professor Greenberg's comprehensive outline of conditions of atypical sex differentiation, quoted in Kansas Court of Appeals, re Estate of Gardiner. Arizona Law Review.

8. Androgens are hormones produced by the testes and the adrenal glands; by definition, these substances masculinise.

9. Reiner, WG. (1997) To Be Male or Female – That is the Question, Arch Pediatric Adol. Medicine **151**:225 "the organ that appears to be critical to psychosexual development and adaptation is not the external genitalia, but the brain".

10. Zhou J-N, Swaab DF, Gooren LJ & Hofman MA. (1995) Sex Difference in the Human Brain and its Relation to Transsexuality. Nature **378**, 68-70. "… in one of the human brain structures that is different between men and women, a totally female pattern was encountered in six male to female transsexual (people)….This was not due to cross-sex hormone treatment. These findings show that a biological structure in the brain distinguishes male-to-female transsexuals from men". Nature. Cited by Gooren LJ, University Hospital, Vrije Universiteit of Amsterdam, affidavit in Bellinger v Bellinger, TLR 22-11-2000.

11. Kruijver FPM, Zhou J-N, Pool CW, Hofman MA, Gooren LJG, and Swaab DF. (2000) Male to female transsexuals have female neuron numbers in a limbic nucleus. The Journal of Clinical Endocrinology & Metabolism **85**(5):2034-2041. "Regardless of sexual orientation, men had almost twice as many somatostatin neurons as women. The number of neurons in…male-to-female transsexuals was similar to that of the females…In contrast, the neuron number of female-to-male transsexuals was found to be in the male range….The present findings of somatostatin neuronal sex differences in the BSTc (a part of the brain) and its sex reversal in the transsexual brain clearly support the paradigm that in transsexuals sex differentiation of the brain and genitals may go into opposite directions and point to a neurobiological basis of gender identity disorder".

12. Di Ceglie D. (2000) Gender Identity Disorders in Children & Adolescents, Guidance for Management. Advances in Psychiatric Treatment, **6**:458-466. Council Report CR 63, Jan 1998, 'Gender Identity Disorder in Young People'.

13. Green R, Affidavit in Bellinger v Bellinger, Court of Appeal Judgment of July 17th 2001. TLR 22-11-2000.

14. Kipnis K & Diamond M. (1998) Pediatric Ethics and the Surgical Assignment of Sex. Journal of Clinical Ethics (Winter) **9**(4):398-410; Diamond M, 3rd Conference on Gender Identity Issues, Portman Clinic, Gender Identity Development Unit, from his talk entitled, "Some Current Views on the Management & Therapeutic Issues in Children and Adolescents with Intersex Conditions". 18 Nov 2000.

15. Green R & Fleming DT. (2000) Transsexual Surgery Follow-up: Status in the 1990s. Annual Review of Sex Research, ed. J Bancroft, **1**:163-174. Results measure treatment as 97% successful in female to male individuals and 87% successful in male to female individuals.

16. Terminology: The term 'transsexualism' rather than 'transsexuality' is preferred, since the latter misleads by giving the impression that the issue here is 'sexuality', which it is not. Some individuals prefer to describe themselves as transgendered, as a catch-all description of many gender/sex variations across a broad spectrum. Although the term 'transsexual' is still used as a noun, it is preferable to use it as an adjective – transsexual people – or, better still, is the use of the more up-to-date terminology, trans men and trans women, as used in this paper. The usage of all these terms is continuously changing, especially as our understanding and perceptions of the condition change. Some, having transitioned from assigned to core gender, do not identify as trans at all. Understandably, they identify simply as men and women. The clinical definition of the condition is Gender Identity Disorder. This is regarded as stigmatising, and it should be avoided.