CHAPTER 16

Gender Dysphoria

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DESCRIPTION OF THE DISORDER

The term *gender dysphoria* (GD) denotes discomfort with one's biologic sex or assigned gender. GD is the defining characteristic of a category of psychosexual disorders in which affected persons are "intensely and abidingly uncomfortable in their anatomic and genetic sex and their assigned gender" (Fisk, 1974b, p. 10). The most widely recognized and severe manifestation of GD is *transsexualism*, in which affected persons express an intense and persistent desire to live and be recognized as members of the other sex and to make their bodies resemble those of the other sex through hormonal and surgical treatment. Less severe and less widely known manifestations of GD also exist, however, and are probably more prevalent than transsexualism.

HISTORY AND TERMINOLOGY

Individuals who wish to live and be regarded as members of the other sex have been recognized since antiquity in many different societies worldwide (Green, 1969). The German physicians Krafft-Ebing (1903/1965) and Hirschfeld (1910/1991) described patients who would now be recognized as suffering from GD. Christine Jorgensen's widely reported sex reassignment in 1952 brought the phenomenon of transsexualism to public attention in Western countries (Meyerowitz, 2002), as did Benjamin's book *The Transsexual Phenomenon* (1966). Starting in the 1960s, academic medical centers in the United States and Western Europe began to offer hormonal and surgical sex reassignment to carefully selected patients. In 1980, conditions involving GD were first recognized as psychiatric diagnoses in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III*; American Psychiatric Association [APA], 1980).

Historically, the term GD has been used in several different ways, which has sometimes caused confusion. Fisk, who introduced the term, offered three slightly different definitions: He originally defined GD as discomfort with *both* biologic sex and assigned gender (Fisk, 1974b), but in subsequent definitions focused primarily on either biologic sex ("displeasure with the sex of [one's] genital anatomy, the chromosomes, and the endocrine secretions"; Laub & Fisk, 1974, p. 390) or assigned gender ("dysphoria concerning the individual's gender of assignment or rearing"; Fisk, 1974a, p. 388). Blanchard's definitions of GD sometimes emphasized only discomfort with biologic sex ("persistent discontent

with the primary or secondary sexual characteristics of one's body"; Blanchard, 1993b, p. 70) but at other times also emphasized cross-gender role aspirations ("discontent with one's biological sex, the desire to possess the body of the opposite sex, and the desire to be regarded by others as a member of the opposite sex"; Blanchard, 1993a, p. 301). The *DSM-IV* (APA, 1994) and *DSM-IV-TR* (APA, 2000) stated that intense discomfort with *either* biologic sex or assigned gender role could justify a diagnosis of GD ("persistent aversion toward some or all of those physical characteristics or social roles that connote one's own biological sex"; APA, 2000, p. 823). Note that, in at least some of these definitions, discomfort with biologic sex characteristics alone was considered sufficient to diagnose GD; cross-gender identification was not always explicitly required.

More recent definitions of GD, in contrast, have deemphasized discomfort with biologic sex characteristics and have focused almost exclusively on discordance between assigned sex and *gender identity* ("an individual's identification as male, female, or, occasionally, some category other than male or female"; APA, 2013, p. 451). The World Professional Association for Transgender Health (WPATH), for example, defined GD as "discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics)" (Coleman et al., 2011, p. 5). Two succinct definitions of GD that occur in the *DSM-5* (APA, 2013) do not even mention biologically based discontent or distress ("affective/cognitive discontent with the assigned gender" and "distress that may accompany the incongruence between one's experienced or expressed gender and one's assigned gender"; APA, 2013, p. 451). Although the term *experienced or expressed gender* is never formally defined in the *DSM-5,* its usage therein suggests that it is synonymous with *gender identity* (e.g., "experienced gender may include gender identities beyond binary stereotypes"; APA, 2013, p. 453).

The *DSM-III, DSM-III-R, DSM-IV,* and *DSM-IV-TR* all categorized psychosexual disorders involving GD under the overarching category of *gender identity disorders* (GIDs), because an "incongruence between anatomic sex and gender identity" (APA, 1980, p. 261) was considered to be the defining characteristic of these conditions. The *DSM-5* made GD both the overarching category and a specific diagnosis within the category, because "the current term [GD] is more descriptive than the previous *DSM-IV* term *gender identity disorder* and focuses on dysphoria as the clinical problem, not identity per se" (APA, 2013, p. 451). The *DSM-5* makes it clear, however, that a problem involving one's gender identity—now framed as an "incongruence between one's experienced/expressed gender and assigned gender" (APA, 2013, p. 452)—"is the core component of the diagnosis" (p. 453). Thus, the *DSM-5* apparently still conceptualizes GD as a disorder primarily involving gender identity, if not a disorder *of* gender identity.

In all of these *DSM* editions, adult and adolescent psychosexual diagnoses involving GD or GIDs have consisted of one principal or prototypical diagnosis with specific diagnostic criteria and one or more residual diagnoses, sometimes without specific criteria. In the *DSM-III* (APA, 1980), the principal diagnosis was Transsexualism and the residual diagnosis was Atypical Gender Identity Disorder. In the *DSM-III-R* (APA, 1987), the principal diagnosis remained Transsexualism, and the residual diagnoses became Gender Identity Disorder of Adolescence or Adulthood, Nontranssexual Type (GIDAANT)—the only residual

diagnosis to have specific criteria—and Gender Identity Disorder Not Otherwise Specified (GIDNOS). In the *DSM-IV* (APA, 1994) and *DSM-IV-TR* (APA, 2000), GID became the principal diagnosis and the only residual diagnosis was GIDNOS. The *DSM-5* continues this general pattern: The principal diagnosis is GD and the residual diagnoses are Other Specified GD and Unspecified GD. The principal diagnoses for disorders of gender identity have become progressively more encompassing in successive versions of the *DSM*: Many clinical presentations that once would have received a residual diagnosis (e.g., GIDAANT or GIDNOS) would now receive the principal diagnosis, GD.

Although transsexualism is no longer a *DSM* diagnosis, many clinicians continue to use the term, in part because it remains an official diagnosis in the most recent edition of the *International Classification of Diseases* (World Health Organization, 1992). Some experts consider transsexualism to be essentially synonymous with severe GD (e.g., Blanchard, 1993c). The distinction between transsexualism and GD may be of limited practical importance, because much of the research relevant to understanding GD in adults has involved persons who would meet diagnostic criteria for transsexualism by most definitions. Adults with severe GD, especially those who request or have completed sex reassignment, are commonly referred to as male-to-female (MtF) and female-to-male (FtM) transsexuals, or simply as MtFs and FtMs.

The terms *transgender* and *transgenderism* are used informally to describe persons who report or exhibit significant cross-gender or gender-variant identity or behavior, regardless of whether they meet diagnostic criteria for GD or transsexualism. Some of these individuals, including some persons who meet diagnostic criteria for GD, may explicitly identify as transgender persons.

CLINICAL PICTURE

TYPICAL CLINICAL PRESENTATIONS

Dislike for one's primary or secondary sex characteristics, discomfort with one's assigned gender or associated gender role, identification with the other gender, and requests for approval for hormonal and surgical sex reassignment are the most frequent presenting complaints of adult patients with GD. Some adults with GD initially present with other clinical concerns, however, including paraphilias, sexual dysfunctions, depression, or other general psychiatric conditions (Levine, 1993).

Persons with GD usually identify with the other sex; they may want the anatomy, the gender role, or the sexuality of the other sex, or any combination of these (Carroll, 1999). Persons with severe GD or transsexualism typically want both the anatomy and the gender role of the other sex (Deogracias et al., 2007; Singh et al., 2010). As noted earlier, an intense feeling of "wrong embodiment," manifesting as discontent with sexed body characteristics and a strong desire to acquire the anatomy of the other sex, has sometimes been considered the essential feature of severe GD and especially of transsexualism (Blanchard, 1993b; Bower, 2001; Laub & Fisk, 1974; Prosser, 1998). However, not all patients with GD experience intense anatomic dysphoria; some primarily desire to enact the gender role or sexuality of the other sex and are unconcerned or ambivalent about acquiring the anatomic features of the other sex.

LESS COMMON CLINICAL PRESENTATIONS

Rarely, persons with GD may identify with what the *DSM-5* calls "some alternative gender" that corresponds to neither their assigned sex nor the other sex. Examples would include males who desire castration and who identify as *eunuchs* (Johnson, Brett, Roberts, & Wassersug, 2007; Johnson & Wassersug, 2010); persons who want some combination of the secondary sex characteristics of both sexes and identify as *she-males*, *trans* persons, or transgender persons (Davidmann, 2010); and bi-gender persons who identify as both male and female and live at various times in both gender roles (Richards et al., 2016).

In some cases, persons with various *disorders of sex development* (DSDs; formerly known as *intersex* conditions) experience distress due to an incongruence between their gender identity and their assigned gender. These individuals can be given the principal diagnosis of GD in the *DSM-5,* with the assignment of the newly added DSD specifier. In previous editions of the *DSM*, the presence of a DSD or intersex condition was considered an exclusion criterion for the principal GID diagnosis, and gender dysphoric persons with these conditions would receive a residual diagnosis (e.g., GIDNOS). Richter-Appelt and Sandberg (2010) noted, however, that "the etiology, natural history, and response to treatment may be quite different" (p. 98) in gender dysphoric persons with and without DSDs. For example, in persons without DSDs, GD often appears during childhood and is more prevalent in males than in females; in persons with recognized DSDs, GD more commonly appears during adolescence and is more prevalent in female-assigned than male-assigned persons. Discussion of the prevalence and manifestations of GD in specific DSD syndromes is beyond the purview of this chapter, but useful summaries and reviews exist (e.g., Mazur, Colsman, & Sandburg, 2007; Steensma, Kreukels, de Vries, & Cohen-Kettenis, 2013). It is recognized that GD is rarely if ever reported in conjunction with some DSDs, such as Turner's syndrome and complete androgen insensitivity syndrome but is overrepresented relative to the general population in association with other DSDs, such as congenital adrenal hyperplasia (CAH) and partial androgen insensitivity syndrome (Dessens, Slijper, & Drop, 2005; Mazur, 2005; Mazur et al., 2007). Jordan-Young (2012) argued that the gender-atypical interests and attitudes of females with CAH plausibly reflect a complex set of influences—the general physiological effects of adrenal androgens, the consequences of medical interventions and surveillance, the sexual effects of atypical genital morphology, and altered societal expectations—rather than simply a masculinization of brain gender due to elevated androgen levels. Similar considerations may be relevant to understanding the etiology of GD in other DSD syndromes as well.

Individuals with DSDs who experience GD typically identify as men or women of the gender other than their assigned gender, but some may identify as *intersex*, *intersexual*, or *epicene* persons (Bearman, 2007; Harper, 2007; Preves, 2003).

SUBTYPES OF GD IN ADULTS

The *DSM-III* described transsexualism as a "heterogeneous disorder" (APA, 1980, p. 261), and subsequent research has confirmed that adults with GD are a diverse population. Recognizable clinical subtypes underlie this diversity; these

subtypes have important implications for understanding the etiology, development, clinical course, and effective treatment of GD. Two clinical characteristics—sexual orientation and age of onset of GD symptoms—have been used to formulate most typologies of GD (Lawrence, 2010b). Within each typology, subtypes are applicable to both males and females with GD, but clinical features are usually described separately for each sex because relevant features often differ substantially between sexes.

Subtypes Based on Sexual Orientation. Subtypes based on sexual orientation were first formulated in the 1960s. They are grounded in the theory that sexual orientation is a stable, biologically based characteristic that is determined early in development (Poeppl, Langguth, Rupprecht, Laird, & Eickhoff, 2016). Subtypes based on sexual orientation have substantial descriptive, predictive, and heuristic value (Lawrence, 2010b), and they were used as specifiers for the diagnoses of Transsexualism and GID in the *DSM-III*, *DSM-III-R*, *DSM-IV*, and *DSM-IV-TR* (APA, 1980, 1987, 1994, 2000). One limitation of these subtypes is that self-reported sexual orientation often differs from clinician-rated sexual orientation, especially in males (Lawrence, 2017; Nieder et al., 2011). Consequently, subtype assignment based on self-reported sexual orientation can be unreliable.

In adult males with GD, persons who are sexually oriented exclusively to men are described as *androphilic*, whereas those who are sexually oriented to women, women and men, or neither sex are described as *nonandrophilic*. Androphilic and nonandrophilic males with GD differ significantly in clinical presentation (Blanchard, 1985, 1989b; Lawrence, 2010b). These two subtypes appear to represent separate, distinct clinical spectra (Whitam, 1987) and plausibly reflect completely different etiologies (Freund, 1985; Guillamon, Junque, & Gómez-Gil, 2016; Lawrence, 2017; Smith, van Goozen, Kuiper, & Cohen-Kettenis, 2005b).

Androphilic males with GD were usually conspicuously feminine as children and are usually very feminine as adults (Blanchard, 1988; Whitam, 1987, 1997); in particular, they are more feminine in physical appearance than nonandrophilic males with GD (Smith et al., 2005b; van de Grift et al., 2016). They rarely report any history of sexual arousal with cross-dressing (Blanchard, 1985, 1989b). Whitam (1987) observed that "in most societies these persons regard themselves as homosexuals and are regarded by more masculine homosexuals as a natural part of the homosexual world" (p. 177); clinicians may also find this perspective useful. Androphilic males with GD who seek sex reassignment usually do so in their 20s or early 30s (Blanchard, Clemmensen, & Steiner, 1987; Smith et al., 2005b). In past decades, most males who underwent sex reassignment in Western countries were androphilic, but this is no longer true (Lawrence, 2010c).

Nonandrophilic males now constitute the most prevalent male GD subtype in many Western countries (Lawrence, 2010c; van de Grift et al., 2016; see Table 16.1). They may describe themselves as sexually oriented to women, to women and men, or to neither sex; but in most cases they also are, or once were, sexually aroused by the thought or image of themselves as women, a paraphilic sexual interest called *autogynephilia* ("love of oneself as a woman"; Blanchard, 1989a, 1989b). The most common manifestation of autogynephilia is erotic cross-dressing; most nonandrophilic males with GD have a history of erotic cross-dressing or sexual arousal with cross-gender fantasy (Blanchard, 1985; Blanchard, Racansky, & Steiner, 1986, Lawrence, 2005). Autogynephilia focused on female anatomic features (i.e., sexual arousal to the thought or image of

having breasts or a vulva) is especially characteristic of nonandrophilic males who seek surgical sex reassignment (Blanchard, 1993c). It is useful to think of nonandrophilic males with GD as having a paraphilic sexual interest that makes them want to *become what they love* (Lawrence, 2007) by turning their bodies into facsimiles of the females they find sexually desirable (Freund & Blanchard, 1993). Nonandrophilic males with GD often have other paraphilic sexual interests, especially sexual masochism (Bolin, 1988; Lawrence, 2013; Walworth, 1997). Sometimes they develop a secondary sexual interest in men because they are aroused by the idea of taking a woman's sexual role with a man, thereby having their "physical attractiveness as women validated by others" (Blanchard, 1989b, p. 622). Most nonandrophilic males with GD were not overtly feminine as children and often are not especially feminine as adults (Blanchard, 1990; Smith et al., 2005b; Whitam, 1997). Some report mild gender nonconformity during childhood (Buhrich & McConaghy, 1977) but less so than androphilic males with GD (Zucker et al., 2012). Nonandrophilic males with GD typically seek sex reassignment in their mid-30s or later (Blanchard et al., 1987; Gaither et al., 2017; Smith et al., 2005b) and not uncommonly in their 50s or 60s (Lawrence, 2003).

Adult females with GD who are sexually oriented exclusively to women are described as *gynephilic*, whereas those who are sexually oriented to men, women and men, or neither sex are described as *nongynephilic*. Gynephilic and nongynephilic females with GD are similar in some ways; for example, they apply for sex reassignment at roughly similar ages (Smith et al., 2005b). Gynephilic females with GD are the most prevalent female GD subtype (van de Grift et al., 2016). Most gynephilic females with GD were extremely masculine as children (Smith et al., 2005b) and probably would have met diagnostic criteria for GD in childhood. Their sexual attitudes are male-typical in many respects: They display greater sexual than emotional jealousy and report more sexual partners, more interest in visual sexual stimuli, and greater desire for phalloplasty than their nongynephilic counterparts (Chivers & Bailey, 2000). As children, nongynephilic females with GD "may have been girls with neutral interests or with some tomboy characteristics" (Smith et al., 2005b, p. 159), but they were usually less pervasively masculine than their gynephilic counterparts. As adults, their sexual attitudes are less male-typical (Chivers & Bailey, 2000), and they are more likely to have comorbid psychopathology (Smith et al., 2005b), for reasons that are not well understood. Sexual arousal to cross-dressing or cross-gender fantasy does not appear to be a significant factor in the development of nongynephilic GD in females (Smith et al., 2005b). Nongynephilic females with GD were once believed to be rare, but they now comprise about 16% of females with GD in northern European countries (van de Grift et al., 2016; see Table 16.1).

In the past, androphilic males and gynephilic females with GD were usually described as *homosexual* gender dysphoric persons, because their sexual orientation is homosexual relative to their natal sex. Nonandrophilic males and nongynephilic females with GD were similarly described as *nonhomosexual* gender dysphoric persons. These descriptive terms, while technically accurate, are potentially confusing and are considered objectionable by some persons with GD (Cohen-Kettenis & Pfäfflin, 2010). Consequently, these terms have been deemphasized in contemporary clinical usage.

Subtypes Based on Age of Onset. Subtypes based on age of onset of GD symptoms were first formulated in the 1970s (Lawrence, 2010b). When the *DSM-5* (APA,

2013) eliminated specifiers based on sexual orientation for the diagnosis of GD, it adopted subtypes based on age of onset for descriptive purposes, albeit not as formal specifiers. In the *DSM-5*, adults with GD are considered to be *early onset* (EO) if they met full criteria for the diagnosis of GD during childhood (i.e., they displayed a strong, persistent cross-gender identification and a strong preference for the typical clothing, gender roles, activities, or anatomic characteristics of the other sex). Adults with GD are considered be *late onset* (LO) if they did *not* meet full criteria for the diagnosis of GD during childhood. However, some investigators who have studied age of onset in persons with GD have adopted different category definitions for age of onset (e.g., Nieder et al., 2011; Schneider et al., 2016; van de Grift et al., 2016).

Assignment of an EO or LO subtype in a person with GD typically relies on the person's retrospective recollection of childhood cross-gender wishes and gender nonconformity. Such recollections can be inaccurate, sometimes exaggerating the strength and pervasiveness of childhood cross-gender traits (Lawrence, 2010b). Consequently, accurate assessment of age of onset subtypes can be problematic. Subtypes based on age of onset have less descriptive and predictive value than subtypes based on sexual orientation (Lawrence, 2010b) but have nevertheless become widely utilized in clinical research, especially in northern Europe.

EO males, who by definition report more intense GD during childhood than LO males, also report more intense GD in adulthood (Schneider et al., 2016). EO males present for treatment at younger ages than LO males (Nieder et al., 2011), and clinicians rate them as more feminine in appearance (van de Grift et al., 2016). EO and LO females, in contrast, appear similar in many respects. Although EO females by definition report more intense GD during childhood than LO females, the two groups report equally intense GD in adulthood (Schneider et al., 2016), and they present for treatment at similar ages (Nieder et al., 2011). Clinicians also rate EO and LO females as about equally masculine in appearance (van de Grift et al., 2016).

Table 16.1 displays the relative prevalence of subtypes based on sexual orientation and age of onset and the relationship between them in a large contemporary sample of European adults with GD.

Table 16.1

Sexual Orientation and Age of Onset in 640 European Adults with GD

Males (MtFs; *N* = 367)	**Early Onset, *n* (%)**	**Late Onset, *n* (%)**	**Total, *n* (%)**
Androphilic	88 (24)	38 (10)	74 (34)
Nonandrophilic	102 (28)	139 (38)	241 (66)
Total	190 (52)	177 (48)	367 (100)
Females (FtMs; *N* = 273)	**Early Onset, *n* (%)**	**Late Onset, *n* (%)**	**Total, *n* (%)**
Gynephilic	193 (71)	26 (10)	219 (80)
Nongynephilic	37 (14)	17 (6)	54 (20)
Total	230 (84)	43 (16)	273 (100)

Note: Data from van de Grift et al. (2016), p. 579. Due to rounding, sums of subgroup percentages may differ from total percentages.

DIAGNOSTIC CONSIDERATIONS

DIAGNOSING GD

The defining diagnostic criterion of GD (APA, 2013) is a marked incongruence between gender identity ("experienced/expressed gender") and assigned sex, manifesting as some combination of discomfort with anatomic sex, desire for the anatomy of the other sex, desire to live or be treated as a member of the other sex, or a feeling of psychological similarity to the other sex. There is also a requirement of clinically significant distress or impairment in functioning.

Like past editions of the *DSM*, the *DSM-5* provides one principal diagnosis for these conditions—GD—along with residual diagnoses. The two residual diagnoses in the *DSM-5* are *Other Specified GD* and *Unspecified GD*. Other Specified GD is applicable where symptoms of gender dysphoria are present and there is clinically significant distress or impairment but full diagnostic criteria for GD are not met and the clinician wishes to state why the clinical presentation does not meet full criteria for the principal diagnosis. Unspecified GD is applicable in the same circumstances, except that the clinician does not wish to state why full criteria for the principal diagnosis have not been met (APA, 2013).

DIFFERENTIAL DIAGNOSIS

The principal differential diagnostic considerations for the diagnosis of GD in adults include transvestic disorder; schizophrenia, bipolar disorder, and other psychotic conditions; dissociative identity disorder; some personality disorders (PDs); body dysmorphic disorder; and gender nonconformity.

Although transvestic disorder is one of the differential diagnoses for GD, the two conditions can and do co-occur (Blanchard, 2010). It is useful, in fact, to think of transvestic disorder and the nonandrophilic subtype of male GD as points on a spectrum of symptomatology, rather than as discrete entities (Lawrence, 2009b). In persons with transvestic disorder, the absence of a marked incongruence between gender identity and assigned sex would exclude the diagnosis of GD. Many cross-dressing men who meet diagnostic criteria for transvestic disorder, however, describe cross-gender identities of some strength (Docter, 1988) and some express a desire to use feminizing hormone therapy (Docter & Prince, 1997).

Patients with schizophrenia, bipolar disorder, and other psychotic disorders sometimes experience delusional beliefs of being or becoming the other sex (Habermeyer, Kamps, & Kawohl, 2003; Manderson & Kumar, 2001); treatment of the psychotic condition usually leads to resolution of this cross-gender identification, but GD and psychotic disorders sometimes co-occur, as both individual case reports (Baltieri & De Andrade, 2009; Haberman, Hollingsworth, Falek, & Michael, 1975) and large cohort studies (Brown & Jones, 2016) demonstrate. Cross-gender ideation sometimes occurs in dissociative identity disorder (Modestin & Ebner, 1995; Saks, 1998); persons with GD display fewer dissociative symptoms than patients with dissociative disorders (Kersting et al., 2003) but more than nonclinical controls. Persons with antisocial PD have been reported to seek sex reassignment in the absence of GD (Laub & Fisk, 1974).

Some theorists (e.g., Lothstein, 1984; Person & Ovesey, 1974) have proposed that the identity diffusion associated with borderline personality disturbances might manifest as GD, implying that borderline PD could be a possible differential diagnostic consideration. Wilkinson-Ryan and Westen (2000) found that patients with borderline PD were more conflicted or unsure about their gender identity than nonclinical controls, but Singh, McMain, and Zucker (2011) found no individuals meeting criteria for GD among 100 women diagnosed with borderline PD. Pfäfflin (2007) suggested that body dysmorphic disorder focused on the genitals could be mistaken for GD; the absence of a marked incongruence between gender identity and assigned sex would exclude the latter diagnosis (see also Phillips et al., 2010). Persons with gender nonconformity sometimes report significant cross-gender identification or a preference for the gender role of the other sex but may not experience enough distress or functional impairment to meet full diagnostic criteria for GD.

COMORBID PSYCHIATRIC CONDITIONS AND DUAL DIAGNOSES

Investigators have conducted many studies of comorbid psychopathology in persons with GD, and their reports reveal a wide range of confusing and sometimes contradictory results. Most high-quality studies, however, have found a substantially increased prevalence of associated psychopathology in persons with transsexualism—the most intense and most studied form of GD. Depression and anxiety disorders are especially prevalent comorbid conditions. Two recent methodologically strong investigations illustrate these conclusions.

Dhejne et al. (2011) conducted a longitudinal, population-based follow-up study of 191 MtF and 131 FtMs who underwent sex reassignment surgery (SRS) in Sweden from 1973 through 2003, comparing them with a randomly selected, age-matched control cohort using data from Swedish national health registries. They found that 19% of MtFs and 17% of FtMs had been hospitalized for other psychiatric problems before SRS, compared to 3–4% of controls. After SRS, transsexuals were 2.8 times more likely to have been hospitalized for other psychiatric problems and 19.1 times more likely to have died from suicide, even after adjusting for prior psychiatric conditions. The prevalence of documented attempted suicide in transsexuals was 9%, versus 1.4% for controls.

Heylens et al. (2014a) described current and lifetime comorbid psychopathology in 182 MtF and 123 FtM transsexuals from northern European countries, using structured clinical interviews for data collection. Approximately 38% of patients had one or more current *DSM-IV* Axis I disorders and about 69% had one or more lifetime Axis I disorders, with similar prevalence figures in MtFs and FtMs. The most common comorbid conditions were mood disorders (27% current, 60% lifetime) and anxiety disorders (17% current, 28% lifetime). These figures greatly exceed the prevalence of comorbid psychopathology in western European adults: For example, Alonso & Lépine (2007) found a 26% lifetime prevalence of mental disorders in European adults. Most other studies of comorbid pathology that have used structured clinical interviews for data collection have reported similar conclusions (for a review, see Zucker, Lawrence, & Kreukels, 2016), including a recent study of young MtF transgender women in the United States (Reisner et al., 2016). A few reports, however, have not confirmed this general pattern (e.g., Colizzi, Costa, & Todarello, 2014; Fisher et al., 2013).

Recent reviews and case series have focused attention on an increased prevalence of autism spectrum disorder (ASD) in male and female adolescents and adults with GD (e.g., Jones et al., 2012; Pasterski, Gilligan, & Curtis, 2014; van der Miesen, Hurley, & de Vries, 2016). Van der Miesen et al. concluded that "around 20% of gender identity clinic-assessed individuals reported clinical range features of ASD" (p. 78). These findings are intriguing in light of the theory that ASD reflects an "extreme male brain" developmental pattern (Baron-Cohen, 2002): Such a theory seemingly would account for an overrepresentation of ASD in females with GD, but not in males with GD.

Comorbid substance abuse ("dual diagnosis") is sometimes considered separately from other comorbid psychiatric disorders. Substance-related disorders are fairly common in persons with GD. Gómez-Gil, Trilla, Salamero, Godás, and Valdés (2009) found that among 159 MtFs, about 11% had a current or lifetime history of alcohol abuse or dependence, and about 15% and 30% had a current or lifetime history, respectively, of non-alcohol substance abuse or dependence. In a cohort of 298 young MtF transgender adults, Reisner et al. (2016) found 11% and 15% prevalence figures for alcohol dependence and other psychoactive substance dependence. Hepp, Kraemer, Schnyder, Miller, and Delsignore (2005) reported that 50% of MtFs had a lifetime history substance-related disorders. Among FtMs, substance-related problems are somewhat less prevalent: Gómez-Gil et al. reported that only 4% of 71 FtMs had a lifetime history of alcohol abuse or dependence and only 11% had a lifetime history of non-alcohol substance abuse or dependence. Hepp et al. (2005) observed a lifetime history of substance abuse or dependence in 36% of FtMs.

Personality disorders (PDs) are also often considered separately from other comorbid conditions. Data on the prevalence of PDs in persons with GD are inconsistent. Heylens et al. (2014a) found associated PDs in only 12% of MtF and 18% of FtM transsexuals, comparable to nonclinical populations. Other investigators utilizing structured clinical interviews for data collection have found higher figures, albeit in smaller samples. Madeddu, Prunas, and Hartmann (2009) reported that 59% of MtFs and 38% of FtMs they studied had at least one PD; Hepp et al. (2005) found that 42% of a combined group of MtFs and FtMs had at least one comorbid PD. In both of the latter studies, Cluster B disorders were most prevalent.

Mental disorders tend to be significantly correlated with each other, and having one mental disorder greatly increases the probability of having one or more other mental disorders (Caspi et al. 2014). From this perspective, the increased prevalence of comorbid psychopathology in patients with GD patients is not surprising. Some theorists suggest that associated psychopathology in GD is largely a consequence of minority stress (Meyer, 2003), resulting from the pervasive discrimination and victimization that many persons with GD experience. Perceived prejudice and discrimination have been shown to be associated with an increased prevalence of mental health problems in ethnic and other minority groups (Pascoe & Smart Richman, 2009; Pieterse, Todd, Neville, & Carter, 2012), albeit with only small-to-medium effect sizes. Direction of effect is difficult to determine, however: Prejudice and discrimination might lead to a greater likelihood of persons with GD developing comorbid mental health problems; or comorbid mental health problems in persons with GD might lead to a greater likelihood of their experiencing (or simply perceiving) prejudice and discrimination. Possibly both of these phenomena occur. Heylens et al. (2014a)

and Terada et al. (2012) found no significant relationship between age of onset of GD symptoms and comorbid psychopathology, which implies that longer exposure to GD-related prejudice and discrimination is not necessarily associated with more prevalent psychopathology.

EPIDEMIOLOGY

PREVALENCE AND SEX RATIO

Population-based treatment data from European countries provide the best estimates of the prevalence of GD and transsexualism in Western societies. In a meta-analysis of 11 epidemiologic studies published between 1974 and 2014, 10 of which were conducted in Europe, Arcelus et al. (2015) found the prevalence of transsexualism to be 1:14,705 adult males and 1:38,461 adult females. Recent studies from northern Europe reveal still higher prevalence figures in adults: 1:12,900 males and 1:33,800 females in Belgium (De Cuypere et al., 2007); 1:7,750 males and 1:13,120 females in Sweden (Dhejne et al., 2014), and 1:10,154 males and 1:27,668 females in Ireland (Judge et al., 2014). These reports reflect only severe cases of GD, treated with legal, hormonal, or surgical sex reassignment.

Treatment-based studies almost certainly underestimate the true prevalence of GD. Primary care physicians in Scotland reported a prevalence of GD, treated with cross-sex hormone therapy or SRS, of 1:12,800 adult male patients and 1:52,100 adult female patients, but the overall prevalence of GD, treated or untreated, was higher: 1:7,400 males and 1:31,200 females (Wilson, Sharp, & Carr, 1999). Cross-gender identification, not necessarily indicative of clinically significant GD, is more prevalent still. Based on New Zealand passport data, Veale (2008) found the prevalence of cross-gender identification to be 1:3,630 adult males and 1:22,714 adult females. In a probability sample of over 28,000 male and female adults who participated in a telephone health survey in the US, 0.5% of participants reported a cross-gender identification (Conron, Scott, Stowell, & Landers, 2012). A similar study of over 150,000 US adults also found that 0.5% identified as transgender (Crissman, Berger, Graham, & Dalton, 2017). In yet another large population-based survey of persons 15–70 years old in the Netherlands, 1.1% of males and 0.8% of females reported an incongruent gender identity (stronger identification with the other sex than with their assigned sex; Kuyper & Wijsen, 2014); but respondents who also disliked their sexed body characteristics and desired to change their bodies hormonally or surgically were much less prevalent, only 0.2% of males and 0.05% of females. These last results make it clear that incongruent gender identity does not necessarily imply clinically significant GD or a desire for sex reassignment.

In almost all Western countries, transsexualism, GD, and cross-gender identification are two or three times more prevalent in males than in females (Landén, Wålinder, & Lundström, 1996). Longitudinal data suggest that GD is becoming more prevalent over time. For example, Landén et el. reported a prevalence of transsexualism of 1:37,000 adult males and 1:103,000 adult females in Sweden in the 1960s, roughly one-fifth of current estimates (Dhejne et al., 2014). The observed increase in the prevalence of transsexualism probably reflects a lower threshold at which individuals consider themselves to be appropriate candidates for sex reassignment.

Two surveys revealed that 2.7% and 2.8% of adult males reported having

experienced sexual arousal in association with cross-dressing (Ahlers et al., 2011; Långström & Zucker, 2005). These results imply that autogynephilic cross-dressers plausibly constitute the most numerous transgender subgroup. Many of these individuals, however, may not experience their gender identities as incongruent with their assigned sex or identify as transgender persons. Moreover, many probably do not experience sufficient distress or impairment to meet diagnostic criteria for either GD or transvestic disorder.

AGE OF ONSET

In European countries, about 50% of males and 85% of females with GD are categorized as EO, meaning that they met full diagnostic criteria for GD during childhood. Other persons with GD, categorized as LO, did not meet these criteria in full during childhood. Many LO individuals nevertheless report childhood feelings and behaviors that were subthreshold for diagnosis. Some persons with GD describe being aware of transgender feelings from their earliest memories. Most androphilic males, most gynephilic females, and many nongynephilic females with GD report that they displayed overt cross-gender behaviors and interests during early childhood. Nonandrophilic males with GD typically report experiencing their first desire to be the other sex or to change sex in middle childhood, but sometimes as late as adolescence or adulthood (Lawrence, 2005, 2013; Nieder et al., 2011; Zucker et al., 2012).

PSYCHOLOGICAL AND BIOLOGICAL ASSESSMENT

PSYCHOLOGICAL ASSESSMENT

Psychological assessment in cases of known or suspected GD involves evaluation of the presence or absence of GD symptoms, appraisal of their duration and severity, and investigation of possible comorbid psychopathology. In adults, GD is diagnosed primarily on the basis of self-report: "There are no so-called objective tests, either medical or psychological, that serve as proof of the diagnosis" (Pfäfflin, 2007, p. 176). The clinician should obtain information about the patient's psychosexual development, gender identification, sexual orientation, and feelings concerning sexed body characteristics and assigned gender role. Patients sometimes deliberately or inadvertently provide misleading information to caregivers, especially if they are eager to be approved for treatment (Walworth, 1997). Clinicians should not uncritically accept self-reported sexual orientation in male patients with known or suspected GD who have an unequivocal history of sexual attraction to women: Some of these individuals develop a secondary sexual attraction to men in connection with their cross-gender identification and subsequently describe themselves as exclusively attracted to men, whereas experienced clinicians often judge otherwise (Nieder et al., 2011).

Self-report questionnaires and scales for the assessment of GD exist but are more commonly employed in research settings than in clinical practice. The Minnesota Multiphasic Personality Inventory–2 (MMPI-2; Butcher et al., 2001; Martin & Finn, 2010), a widely used assessment instrument, includes three gender-related scales (*Mf*, *GM*, and *GF*) that provide quantitative measures of gender-typical or atypical attitudes and interests (see Gómez-Gil, Vidal-

Hagemeijer, & Salmero, 2008). The Gender Identity/GD Questionnaire for Adolescents and Adults (Deogracias et al., 2007; see also Schneider et al., 2016) is a published self-report instrument with good sensitivity and specificity; it has been cross-validated (Singh et al., 2010) and seems destined to achieve widespread clinical acceptance. The Utrecht GD Scale, a similar inventory, was recently described in detail in an English-language publication (Schneider et al., 2016).

The specific focus of GD can vary considerably among patients. GD may involve dissatisfaction with sexed body characteristics, gender role, or both; the specific pattern may affect treatment planning. Intensity of GD not only varies among patients but can also vary over time in the same patient. GD often intensifies following significant crises or losses (Levine, 1993; Lothstein, 1979; Roback, Fellemann, & Abramowitz, 1984) but may moderate or remit when these have resolved.

As noted previously, comorbid mental health problems are prevalent in persons with GD. Treatment of comorbid psychotic, affective, and anxiety disorders may be required before GD can be confidently diagnosed and adequately characterized. According to contemporary treatment guidelines (e.g., Coleman et al., 2011), comorbid mental health problems must be reasonably well controlled before approval for genital SRS

BIOLOGICAL ASSESSMENT

Physical examination and laboratory testing are of limited value in the assessment of GD. Physical examination could help ascertain the presence of a DSD, which might lead to assignment of a specifier. Some gender identity clinics routinely perform karyotyping in GD evaluations, but the procedure is expensive and the results will be normal in roughly 97% of patients with known or suspected GD or transsexualism (Auer, Fuss, Stalla, & Athanasoulia, 2013; Bearman, 2007; Inoubli et al., 2011). Nonautosomal positive findings in males will usually represent Kleinfelter syndrome (47, XXY) or an XYY karyotype (Auer et al., 2013; Wylie & Steward, 2008). Bearman suggested that if karyotyping is performed at all, it should be offered only to male patients with hypogonadism, tall stature, gynecomastia, or learning disorders. There are a few case reports in the literature showing sex chromosome abnormalities in FtM patients (Auer et al., 2013; Turan et al., 2000).

Evidence concerning a possible elevated prevalence of polycystic ovary syndrome (PCOS) in females with GD has been inconsistent. Baba et al. (2007) reported an unexpectedly high figure, 58%, in a Japanese sample; the same investigators subsequently reported a figure of 32% in FtMs who had never used testosterone (Baba et al., 2011). In contrast, a well-controlled study that used a rigorous definition of PCOS found a prevalence of only 11.5% in Dutch FtMs, not significantly different from the 9.6% found in healthy controls (Mueller et al., 2008). Because PCOS may be related to both prenatal and postnatal androgen levels, it should probably be assessed as part of a routine endocrinological evaluation.

CLINICAL COURSE AND TREATMENT

CLINICAL COURSE

The clinical course of GD is variable, not easily predictable, and not well understood, even in persons who have been carefully evaluated and diagnosed (Coleman et al., 2011). There are at least four recognized outcomes of severe GD in adults (Carroll, 1999): (1) unresolved or unknown, (2) acceptance of natal gender, (3) part-time cross-gender expression, and (4) full-time cross-living and sex reassignment.

Unresolved or Unknown Outcomes. As many as half of patients who undergo evaluation or psychotherapy for GD may withdraw from treatment (Carroll, 1999). They may find the process prohibitively expensive, become impatient with a prolonged evaluation, or feel ambivalent or hopeless about achieving a solution to their gender concerns. Some patients who drop out subsequently resume treatment, but otherwise little is known about the natural history of GD in these persons.

Acceptance of Natal Gender. Acceptance of natal gender was once considered the optimal outcome for patients with GD. There have been no convincing demonstrations, however, that any form of psychiatric treatment can eliminate GD symptoms or reliably facilitate acceptance of natal gender in adults with GD. Some adults diagnosed with GD, however, do appear to subsequently accept their natal gender (Marks, Green, & Mataix-Cols, 2000; Shore, 1984). Acceptance of natal gender sometimes occurs in persons who undergo treatment of comorbid psychological problems, are unwilling to risk losing their employment or their families, hold religious beliefs that condemn sex reassignment, or have physical characteristics that make it impossible for them to present convincingly as members of the other sex (Carroll, 1999; Shore, 1984). Nonandrophilic men with GD sometimes successfully postpone treatment until they have completed parental or spousal obligations (Blanchard, 1994). Coleman et al. (2011) described various "options for social support and changes in gender expression" for individuals who decide not to live part- or full-time in a cross-gender role.

Part-Time Cross-Gender Behavior. Persons with GD may decide to live part-time in their preferred gender role and part-time as members of their natal sex. They sometimes use masculinizing or feminizing hormone therapy or undergo surgical procedures to facilitate this process. Docter and Prince (1997) surveyed more than 1,000 heterosexual cross-dressers, none of whom lived full-time as women, and found that 17% would seek sex reassignment if possible, 28% considered their feminine self their preferred gender identity, and nearly 50% were either using feminizing hormones or wanted to do so. Many of these persons presumably experienced some degree of GD yet decided to live only part-time as women. Adult females with GD sometimes live part-time in the cross-sex gender role as well, but this rarely becomes a focus of clinical attention and has not been as thoroughly documented.

Full-Time Cross-Living and Sex Reassignment. Many patients with a presenting complaint of GD or transsexualism will want to undergo sex reassignment and live full-time as members of the other sex. In reality, full-time and part-time

cross-gender behavior do not represent distinctly demarcated outcomes but rather points on a spectrum of options available to persons with GD, involving many possible choices of presentation, cross-gender role assumption, and anatomic modification. Some persons who live full-time in a cross-gender role do not undergo SRS and may not use cross-sex hormone therapy. Some persons who use cross-sex hormones and undergo SRS do not present themselves unambiguously as members of the other sex, but as gender-ambiguous, androgynous, or openly transgender individuals.

The decision to undertake full-time cross-living and sex reassignment and the process of actualizing this decision typically occurs in stages, similar to the stages of coming out for lesbians and gay men. Several multistage models of transsexual coming out have been proposed (e.g., Devor, 2004; Gagne, Tewksbury, & McGaughey, 1997; Lewins, 1995). These typically involve acknowledging GD, questioning and information gathering, developing a cross-gender identity, disclosing one's feelings to significant others, cross-living, undergoing SRS if desired, and experiencing further evolution of gender identity following transition (Devor, 2004).

TREATMENT

Treatment Guidelines. Treatment of GD in adults has largely become standardized in developed countries, due to the publication of authoritative clinical guidelines. Of these, the *Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People* (SOC; Coleman et al., 2011), promulgated by WPATH, is the best known and most influential. The SOC and similar guidelines (e.g., Byne et al., 2012; Wylie et al. 2014) reflect the consensus opinions of experienced professionals but rarely a higher quality of evidence (Byne et al., 2012).

The SOC describe four main treatment modalities for GD and transsexualism: counseling and psychotherapy, cross-sex hormone therapy, real-life experience (RLE) in the desired gender role, and SRS. SRS usually denotes feminizing genitoplasty in MtFs but can denote either mastectomy with chest reconstruction or masculinizing genitoplasty in FtM transsexuals. Adults with GD may not always want all of these therapeutic elements (Beek, Kreukels, Cohen-Kettenis, & Steensma, 2015): For example, some individuals are satisfied with cross-sex hormone therapy and living part-time in their preferred gender role. The SOC state that hormone therapy, RLE, and nongenital surgery can be provided separately or in any combination, but that feminizing or masculinizing genitoplasty should ordinarily be provided only to patients who have previously used cross-sex hormone therapy for at least one year and have completed at least one year of successful, full-time, RLE in their desired gender role (Coleman et al., 2011).

Counseling and Psychotherapy. Counseling and psychotherapy are strongly encouraged for adults with GD (Coleman et al., 2011; see also Bockting, 2008). These therapies are not intended to cure GD but rather to allow patients to explore evolving gender identities, discuss relationship and employment issues, and consider various treatment options. Zucker et al. (2016) proposed that "helping adults with GD find greater acceptance and comfort with their natal sex and assigned gender" (p. 237) was also a legitimate goal of therapy, albeit one

that has recently been deemphasized. Seikowski (2007) argued that psychotherapy was most appropriate for GD patients with some type of personality disorder but was not necessary for most patients. Some persons with GD can benefit from group psychotherapy (Heck, 2017; Stermac, Blanchard, Clemmensen, & Dickey, 1991), which can reduce feelings of isolation, provide opportunities to receive and give support, and facilitate the acquisition of problem-solving skills.

Cross-Sex Hormone Therapy. Cross-sex hormone therapy suppresses or minimizes the secondary sex characteristics of the person's natal sex and promotes the development of the secondary sex characteristics of the other sex. Review articles and expert guidelines describe the recommended management of cross-sex hormone therapy (e.g., Hembree et al., 2009; Unger, 2016; Wylie et al. 2014). The SOC (Coleman et al., 2011) discuss eligibility criteria for cross-sex hormone therapy. Hormone therapy is usually prescribed for persons who seek sex reassignment, but it also can be beneficial for those who do not wish to live full-time in a cross-gender role or do not desire SRS. It is not unusual for adults with GD, especially MtF persons, to use hormone therapy without medical supervision (Gómez-Gil et al., 2009; Simonsen et al., 2015).

Hormone therapy for males with GD (e.g., MtF transsexuals) usually involves a combination of estrogens and antiandrogens (Unger, 2016). These feminizing hormone regimens typically result in breast growth, decreased muscle mass, reduction in the growth of facial and body hair, slowing of scalp hair loss, and decreased sexual interest. MtFs who receive treatment with feminizing hormone therapy report improvements in self-esteem, mood, and quality of life (Gómez-Gil et al., 2012; Gorin-Lazard et al., 2013). Feminizing hormone therapy is reasonably safe for short-term use: Wierckx et al. (2014) detected no serious complications in a prospective study of 53 MtFs who received hormone therapy for one year. In a long-term follow-up study, however, Wierckx et al. (2012) reported that 12% of hormone-treated MtFs experienced thromboembolic events (6%) or other serious cardiovascular problems (6%), and about one quarter displayed significant osteoporosis. Asscheman et al. (2011) found that all-cause mortality in hormone-treated MtFs was 51% higher than in the general population, with most of the increased mortality attributable to suicide, AIDS, cardiovascular disease, and drug abuse.

Hormone therapy for females with GD (e.g., FtM transsexuals) usually involves only testosterone, although synthetic progestins are sometimes added (Gorin-Lazard et al., 2012). Such masculinizing hormone therapy typically results in increased facial and body hair and muscle mass, male pattern scalp hair loss, deepening of the voice, clitoral enlargement, and suppression of menses. Masculinizing hormone therapy also has emotional and psychological effects, including increased aggressiveness and anger-proneness and greater sexual interest and arousal (Costantino et al., 2013; Van Goozen, Cohen-Kettenis, Gooren, Frijda, & Van de Poll, 1995). Hormone therapy in FtMs is associated with improvements in self-esteem, mood, and quality of life (Gómez-Gil et al., 2012; Gorin-Lazard et al., 2013). Asscheman et al. (2011) found that mortality in hormone-treated FtMs was no higher than in the general population, and Wierckx et al. (2012) reported no evidence of significant cardiovascular or other medical complications in a group of FtMs who had used masculinizing hormones for nearly a decade on average.

RLE in the Desired Gender Role. Adults with GD can undertake a full- or part-time RLE without professional help, and some patients will already be living full-time in their desired gender role when clinicians first encounter them. RLE in the desired gender role can help patients decide whether living in this role long-term might offer an improved quality of life. The SOC describe the RLE as a reversible step that, if successful, allows patients and caregivers to consider the irreversible step of genital SRS with greater confidence (Coleman et al., 2011). However, undertaking a full-time RLE in the other gender role may have irreversible social and economic consequences (Zucker et al., 2016).

Being regarded as a person of the other sex during a RLE is usually easier for FtM than MtF transsexuals. Attribution of male status results from observed signs of masculinization, whereas attribution of female status occurs by a process of exclusion, when few or no signs of masculinization are observed (Kessler & McKenna, 1978). Although it is nearly impossible for either MtFs or FtMs to remove all physical signs of their natal sex, residual signs of maleness in MtFs will often prevent their being regarded as unequivocally female, whereas residual signs of femaleness in FtMs will rarely prevent their being regarded as unequivocally male, assuming they also display visible signs of masculinization.

Although the SOC consider a one-year, full-time RLE to be a requirement for genital SRS (Coleman et al., 2011), surgical candidates are only required to live in a gender role that is congruent with their gender identity, not as typical members of the other sex. The *DSM-5* diagnosis of GD is applicable to persons who want to live in some "alternative gender different from one's assigned gender" (APA, 2013, p. 452) and such an alternative gender might include elements of both male- and female-typical gender roles. Consequently, persons with GD could theoretically satisfy the SOC eligibility requirement for SRS by living part-time in their original gender role and part-time in the other gender role, effectively rendering the SOC requirement moot (Zucker et al., 2016). Nevertheless, most adults with GD who undertake a RLE typically attempt to live and present themselves full-time as members of the other sex.

Sex Reassignment Surgery. Genital SRS in males with GD yields excellent cosmetic and functional results and a high degree of patient satisfaction (Gijs & Brewaeys, 2007; Giraldo, Mora, Solano, Gonzáles, & Smith-Fernández, 2002). Because all the elements of the sex reassignment process appear to contribute to improvement of GD symptoms in MtFs (Kuiper & Cohen-Kettenis, 1988), it is difficult determine the specific social and psychological benefits of genital SRS per se. In a prospective controlled study of SRS outcomes, MtF patients who received expedited SRS reported better psychosocial outcomes than did wait-list controls (Mate-Kole, Freschi, & Robin, 1990). On the other hand, Udeze et al. (2008) found no difference in pre- and post-SRS psychological adjustment in 40 MtFs, with each patient acting as her own control. Good surgical results and absence of surgical complications are associated with greater subjective satisfaction and better psychosocial outcomes after SRS in MtFs (Lawrence, 2003; Karpel et al., 2015).

Subcutaneous mastectomy with chest reconstruction is the surgical procedure that females with GD most frequently undergo, and it is arguably the most important one (Monstrey, Buncamper, Bouman, & Hoebeke, 2014). It is often performed early in the sex reassignment process, which the SOC explicitly

permit. There are no entirely satisfactory genital SRS techniques available to females with GD, and some patients forego this procedure entirely. Phalloplasty using a vascularized tissue flap from the forearm is currently considered the "gold standard" genital SRS technique for FtMs (Monstrey et al., 2014). The resulting neophallus usually allows standing urination. The labia majora are typically fused to create a neoscrotum and silicone testicular prostheses are inserted. An erectile prosthesis is sometimes placed in the neophallus. Complications related to tissue necrosis, urinary leakage or obstruction, and erectile prosthesis problems are not uncommon following phalloplasty. These difficulties notwithstanding, the great majority of FtMs who undergo phalloplasty report being satisfied with the results (Wierckx et al., 2011). Barrett (1998) found no difference in psychological and social functioning between FtMs who had undergone phalloplasty several years earlier and other FtMs who had been approved for but had not yet undergone surgery. An alternative genital SRS technique for females with GD is metoidioplasty, in which the hypertrophied clitoris is used to create a microphallus (Monstrey et al., 2014); this is a much less complex surgical procedure with fewer potential complications.

Outcomes of Sex Reassignment. Most studies of outcomes of the sex reassignment process have involved MtFs who have undergone hormone therapy and genital SRS and FtMs who have undergone hormone therapy and chest reconstruction. Nearly all such studies have concluded that sex reassignment usually results in substantial relief of GD, high levels of patient satisfaction, and generally favorable, or not worsened, psychosocial outcomes (Gijs & Brewaeys, 2007; Lawrence, 2003; Murad et al., 2010). Dhejne et al. (2014) reported that only 2.2% of Swedish transsexuals who had undergone SRS during the period 1960–2010 subsequently submitted "regret applications" for reversal of their legal sex reassignment, suggesting a low prevalence of overt regret after sex reassignment.

Factors associated with favorable outcomes of sex reassignment involving SRS include careful diagnostic screening of candidates, availability of social support, psychological stability, and freedom from surgical complications. Nevertheless, sex reassignment does not successfully solve all the problems that persons with GD face. As noted previously, Dhejne et al. (2011) found that Swedish MtFs and FtMs who had successfully completed SRS displayed higher mortality rates than age-matched controls of either sex, especially death from suicide; they were also at higher risk for suicide attempts and inpatient psychiatric hospitalization.

ETIOLOGICAL CONSIDERATIONS

It is important to recognize the limitations of current research concerning the etiology of GD and transexualism in adults. Many studies have addressed the etiology of GD as it manifests in children. Most cases of GD in childhood, however, remit before adulthood (Drummond, Bradley, Badali-Peterson, & Zucker, 2008; Green, 1987; Singh, 2012; Wallien & Cohen-Kettenis, 2008), and many adults with GD are of the LO type and did not meet diagnostic criteria for GD during childhood. Much of the research on the etiology of GD has been conducted in males; females have received less attention. Finally, some researchers have not distinguished between androphilic and nonandrophilic males with GD, or between gynephilic and nongynephilic females with GD, even though these subtypes plausibly reflect different etiologies.

BEHAVIORAL GENETICS AND MOLECULAR GENETICS

Behavioral Genetics. Studies of the co-occurrence of behavioral traits within families and especially within monozygotic (MZ) twin pairs are the usual methods of estimating the influence of genetic factors on behavioral traits, including GD and gender nonconformity. Heylens et al. (2012) conducted an analysis of MZ and dizygotic (DZ) twin pairs in which one twin had been diagnosed with GID; among 23 pairs of MZ twins, 9 pairs (39%) were concordant for GID, whereas among 21 pairs of same-sex DZ twins, none were concordant for GID, a statistically significant difference. There have also been two large studies of co-occurring transsexualism or related conditions in first-degree relatives of persons diagnosed with transsexualism. Green (2000) reported 10 instances of co-occurring transsexualism or transvestism in the siblings, parents, or children of roughly 1,500 transsexual probands. Gómez-Gil et al. (2010) reported finding 12 pairs of non-twin siblings among a sample of 995 consecutive transsexual probands; the prevalence of transsexualism in the siblings of transsexuals, 1 in 211, was much higher than the estimated prevalence in the general population.

Coolidge, Thede, and Young (2002) conducted the best-known investigation of the heritability of GID in children. They studied 96 MZ and 61 DZ twin pairs, ages 4 to 17 years. They assessed GID using a six-item scale based on *DSM-IV* criteria for GID, but none of the twins had been clinically diagnosed with GID. Coolidge et al. found that heritability accounted for 62% of the variance in GID scores and nonshared environment accounted for 38%. Based on these scores, however, the prevalence of GID in the children was 2.3%, suggesting that the authors' threshold for ascertaining the GID was too low and that their heritability findings addressed childhood gender nonconformity rather than true GID. Two large twin studies that explicitly addressed the heritability of childhood gender nonconformity found different results using different methodologies. Bailey, Dunne, and Martin (2000) reported that heritability accounted for 50% of variance in recalled childhood gender nonconformity among males and 37% among females, with nonshared environment accounting for the rest. Knafo, Iervolino, and Plomin (2005) found that heritability accounted for 27% of variance in parent-reported gender atypicality in boys ages 3 to 4 years, with shared environment accounting for 57% and nonshared environment accounting for 16%; the comparable figures for girls were heritability 42%, shared environment 43%, and nonshared environment 15%.

Molecular Genetics. Sexual differentiation of the mammalian brain is influenced by prenatal sex hormone activity (Gooren, 2006; Savic, Garcia-Falgueras, & Swaab, 2010). Consequently, researchers have hypothesized that abnormalities in genes that code for sex hormone receptors or enzymes that catalyze the synthesis or metabolism of sex hormones might show associations with GD and transsexualism. Candidate genes include those coding for the androgen receptor (AR), estrogen receptor alpha (ERα), estrogen receptor beta (ERβ), and progesterone receptor (PR), and the enzymes aromatase (CYP19A1), 17-alpha-hydroxylase (CYP17), and 5-alpha-reductase, type II (SRD5A2). Most studies have investigated differences between transsexual patients and same-sex controls in mean repeat numbers of specific polymorphisms in candidate genes or in the frequencies of specific mutant alleles or genotypes. None of these studies have attempted to differentiate between transsexual subtypes.

Henningsson et al. (2005) found no significant differences between MtFs and male controls for the AR or CYP19A1 genes but did find a significant difference for the ERβ gene. Hare et al. (2009) examined the same three candidate genes in MtFs and male controls but obtained different results: No significant differences for the CYP19A1 or ERβ genes, but a significant difference for the AR gene, albeit using a one-tailed test (a two-tailed test would have been nonsignificant). Bentz et al. (2007) reported no differences between MtFs and male controls or FtMs and female controls for the SRD5A2 gene. Bentz et al. (2008) found no differences between MtFs and male controls for CPY17 alleles and genotypes but did find a significant difference between FtMs and female controls. Ujike et al. (2009) detected no significant differences between MtFs and male controls or FtMs and female controls for the AR, ERα, ERβ, PR, or CYP19A1 genes. Fernández et al. (2014a) described similar negative results for the AR, ERβ, and CYP19A1 genes in MtFs; however, the same investigators (Fernández et al., 2014b) reported a significant difference for the ERβ gene in FtMs. Finally, in a study of young MtFs, Lombardo et al. (2013) found no significant associated molecular mutations in candidate genes related to male sexual differentiation (AR, DAX1, SOX9, SRY, and the AZF region of Y). In summary, there is little evidence at present that abnormalities related to molecular genetics account for GD or transsexualism: Most investigations have produced negative results, and the few positive reports in the literature have not been replicated.

NEUROANATOMY AND NEUROBIOLOGY

One influential etiologic hypothesis proposes that GD may reflect abnormal sexual differentiation of the brain during early development (Savic et al., 2010), resulting in sex-atypical brain morphology, connectivity, or function. Investigators have studied these features in adult transsexuals using histologic, neuroimaging, and other techniques. Several detailed summaries of this research are available (e.g., Guillamon, Junque, & Gómez-Gil, 2016; Kreukels & Guillamon, 2016; Smith, Junger, Derntl, & Habel, 2015).

Neuroanatomy: Histological Studies. Among the earliest neuroanatomic studies in transsexuals were the postmortem histologic investigations conducted by Swaab and colleagues (e.g., Garcia-Falgueras & Swaab, 2008; Kruijver et al., 2000; Zhou, Hofman, Gooren, & Swaab, 1995). They examined several limbic or hypothalamic nuclei, some of which had been reported to be sexually dimorphic. Their most influential line of research involved the central subdivision of the bed nucleus of the stria terminalis (BSTc): This structure has a larger volume and cell number in males than in females but was discovered to be sex-atypical for these parameters in the brains of six MtFs (Zhou et al., 1995; Kruijver et al., 2000). Interpretation of the Zhou/Kruijver findings was complicated by the possible effects of cross-sex hormone therapy, which all subjects had received. Hulshoff Pol et al. (2006) demonstrated using magnetic resonance imaging (MRI) that hormone therapy in MtFs was associated with significant reductions in the volume of the hypothalamus; this led them to suggest that, in the Zhou/Kruijver studies, "the altered size of the bed nucleus of the stria terminalis could have been due to the exposure of cross-sex hormones in adult life" (p. S108). Again using MRI, Schiltz et al. (2007) found that male pedophiles also had a lower than expected BST volume; noting the similar findings in MtFs, they proposed that “these alterations may not be specific to pedophilia but may rather be a feature of sexual abnormalities in general” (p. 744). Detailed information about the sexual

orientation of the six Zhou/Kruijver MtFs, reported by Garcia-Falgueras and Swaab (2008), was consistent with the hypothesis that all were nonandrophilic. Consequently, a sex-reversed BSTc size and neuron number might be a marker for nonandrophilic MtF transsexualism specifically (or for paraphilic male sexuality), rather than for MtF transsexualism generally. Alternatively, the Zhou/Kruijver BSTc findings may be attributable to the effects of hormone therapy; Guillamon et al. (2016) suggested that this explanation was more probable.

Neuroanatomy: Imaging Studies. Other investigators have used neuroimaging techniques to examine sexually dimorphic features in the brains of MtF and FtM transsexuals. Because cross-sex hormone therapy is capable of altering brain structure and function (Guillamon et al., 2016; Smith et al., 2015), this review focuses on studies conducted in persons who had not yet undergone hormone therapy. Gray matter in the brain consists primarily of neuronal cell bodies; females generally have larger grey volumes than males and typically display greater cortical thickness (CTh), an alternative measure of gray matter volume. In some studies of MtFs who were primarily nonandrophilic (Luders et al., 2009) or exclusively nonandrophilic (Savic & Arver, 2011), investigators found gray matter volumes that were largely typical for natal sex. But Simon et al. (2013) observed gray matter volumes in androphilic MtFs to be sex-atypical in several regions. In a study of CTh in a group of primarily nonandrophilic MtFs, Luders et al. (2012) observed some areas that were comparatively large and sex-atypical. Zubiaurre-Elorza et al. (2013) examined CTh in androphilic MtFs and gynephilic FtMs; they found sex-atypical values in the MtFs, but sex-typical values in the FtMs.

The few imaging studies of the putamen, a large subcortical nucleus, conducted in transsexuals have produced inconsistent results. A recent meta-analysis found that the right putamen is sexually dimorphic in humans, larger in males than in females (Ruigrok et al., 2014), but not all imaging studies in transsexuals have confirmed this in control subjects. Zubiaurre-Elorza et al. (2013), who observed the same direction of sexual dimorphism reported by Ruigrok et al., found that right putamen volume in androphilic MtFs was comparable to both male and female controls, but was larger in gynephilic FtMs than in female controls (i.e., more male-typical). Savic & Arver (2011), who also observed the same direction of sexual dimorphism, reported right putamen volume in nonandrophilic MtFs to be smaller than in either male or female controls. Luders et al. (2009), in contrast, found that the right putamen was larger in females than in males, and was largest of all (but in the typical female range) in a group of mostly nonandrophilic MtFs.

White matter (WM) in the brain primarily consists of myelinated nerve fibers; WM structure is usually studied using diffusion tensor imaging (DTI). This technique yields measures of fractional anisotropy (FA), an indicator of WM coherence and organization, and mean diffusivity (MD), a complementary measure, with "high MD values indicating loss of white matter integrity, while a low FA reflects the same" (Guillamon et al., 2016, p. 1618). FA values are generally higher in males than in females for most important WM structures; the pattern is reversed for MD values. Rametti, Carrillo, Gómez-Gil, Junque, Zubiarre-Elorza, et al. (2011) observed that androphilic MtFs were intermediate between the males and females on most measures of FA and differed significantly from both. In a parallel investigation, Rametti, Carrillo, Gómez-Gil, Junque, Segovia, et al. (2011) found that gynephilic FtMs were also intermediate on most measures of FA, but more closely matched the male control group. Kranz, Hahn, Kaufmann, et al. (2014) reported that, for FA

measurements, neither a group of mostly nonandrophilic MtFs nor a group of mostly gynephilic FtMs differed from either male or female controls; for MD measures, the MtFs and FtMs were intermediate between male and female controls. Using MRI, Hahn et al. (2015) investigated structural connectivity networks in the brains of these same transsexual participants; they found evidence of decreased hemispheric connectivity ratios (the ratios between inter- and intra-hemispheric connections) in subcortical limbic regions in both MtFs and FtMs, but attributable to increased inter-hemispheric connectivity in MtFs and decreased intra-hemispheric connectivity in FtMs.

Neurophysiology. A few investigators have used neuroimaging techniques to conduct neurophysiological studies of transsexuals prior to hormone therapy. Berglund, Lindström, Dhejne-Helmy, and Savic (2008) used positron emission tomography (PET) to study the effect of inhaling odorous steroid compounds on regional cerebral blood flow in the hypothalamus in nonandrophilic MtFs and male and female controls; the MtFs displayed an intermediate activation pattern. Gizewski et al. (2008) employed functional MRI (fMRI) to study patterns of cerebral activation in response to visual erotic stimuli in mostly-nonandrophilic MtFs and male and female controls; they found that the MtFs' activation pattern more closely matched that of female controls. Schöning et al. (2010) utilized fMRI to examine cerebral activation patterns during a mental rotation task in MtFs (sexual orientation unspecified) and male controls. Both groups activated the classical cerebral mental rotation network, but with some between-group regional differences. Kranz, Hahn, Baldinger et al. (2014) used PET to study regional asymmetries in the serotonin transporter system in the brains of MtFs (androphilic and nonandrophilic in about equal numbers) and male and female controls; all three groups displayed similar regional patterns of leftward and rightward asymmetry except in the midcingulate cortex, where rightward asymmetry was observed in male controls, but not in MtFs or female controls.

Summarizing neuroanatomic and neurophysiologic studies in adults with GD, Guillamon et al. (2016) observed: "The review of the available data seems to support two existing hypotheses: (1) a brain-restricted intersexuality in . . . [androphilic] MtFs and [gynephilic] FtMs and (2) Blanchard's insight on the existence of two brain phenotypes that differentiate 'homosexual' [androphilic] and 'nonhomosexual' [nonandrophilic] MtFs" (p. 1643).

LEARNING, MODELING, AND LIFE EVENTS

Early psychoanalytic theorists viewed parenting behavior as etiologically important in GD. Stoller (1968, 1975) emphasized the importance of maternal parenting style: He believed that the mother's excessive closeness to her son ("blissful symbiosis"; Stoller, 1975, p. 37) was largely responsible for the development of transsexualism in males, whereas the mother's inability to achieve emotional closeness with an "unfeminine" daughter contributed significantly to the development of transsexualism in females. Moberly (1986) similarly proposed that transsexualism reflected a "same-sex developmental deficit" (p. 205) in which a child's inability to identify with the same-sex parent led to a defensive opposite-sex identification.

Although these psychoanalytic formulations are no longer widely accepted, parenting behavior nevertheless may be etiologically important. Zucker and Bradley (1995) observed that the mothers of boys with GD often have a history of significant psychopathology (see also Zucker et al., 2003), which is positively correlated with

their reinforcement of feminine behaviors in their sons; they proposed that the mothers of boys who develop GD may be unwilling or unable to limit or discourage their sons' cross-gender behavior. Something similar may occur in girls with GD: Maternal psychopathology may again be associated with an inability to limit cross-gender expression (Zucker & Bradley, 1995). Consistent with these observations, Simon, Zsolt, Fogd, and Czobor (2011) reported that, compared with nonclinical controls, adult MtFs and FtMs retrospectively described their mothers as less caring and less affectionate but more controlling. MtFs also described their mothers as more unreliable and abusive yet less demanding; they described their fathers as less caring, reliable, and available.

COGNITIVE INFLUENCES

Cognitive factors appear to play a limited role in the etiology of GD in adults. Most relevant research has focused on a few specific areas: childhood development of cognitive schemas concerning gender, cognitive comparisons of self and others during transgender coming out, and cognitive contributions to cross-gender identity formation in transvestism and nonandrophilic MtF transsexualism.

Children develop cognitive schemas concerning gender identity and gender stereotypes during early and middle childhood (Martin, Ruble, & Szkrybalo, 2002). Some children with GD develop gender schemas that include a cross-gender identity, but the reasons for this are unclear: Perhaps these children observe that their behaviors and interests conform to opposite-sex gender stereotypes and mislabel themselves accordingly (Zucker & Bradley, 1995). Although such a cognitive process could explain the mechanism of cross-gender identity formation in children with GD, it does not explain the origins of the sex-atypical behaviors and interests that are the putative objects of cognitive appraisal. Moreover, most children who display gender nonconformity do not go on to experience GD in adulthood.

Cognitive comparisons of self and others concerning gender-related interests and behaviors is a recognized mechanism of identity formation and consolidation in the process of coming out for transsexuals and transgender persons. Devor (2004) observed that transgender persons typically use "a number of techniques of identity comparison to try to determine if there is an identity in which they can comfortably live their lives in their originally assigned gender and sex" (pp. 50–51). They subsequently undertake a similar cognitive process as they try to find an authentic identity within the other gender. Docter's (1988) theory of gender identity formation in transvestism and nonandrophilic MtF transsexualism stressed the importance of fully enacting the cross-gender role through complete cross-dressing and public self-presentation. Implicitly, this is a cognitive process, grounded in self-observation ("I dress and behave like a female; therefore I *am*, in some sense, female"). Docter described the process of reconciling core gender identity and the emergent cross-gender identity as an attempt to resolve cognitive dissonance. He observed that this process could lead to integration of the cross-gender identity into the existing male self-system (i.e., a revised cognitive schema) or reorganization of the self-system to give primacy to the cross-gender identity (i.e., an alternative cognitive schema).

SEX AND ETHNICITY CONSIDERATIONS

As previously noted, biologic sex is a key feature that explains much of the diversity in the phenomenology of GD. GD in adults is two or three times more common in

males than in females, perhaps because autogynephilia accounts for many cases of nonandrophilic GD in males, whereas the analogous paraphilia is probably rare in females (Lawrence, 2009a, 2017). Males with GD are quite diverse with respect to sexual orientation, age at clinical presentation, and congruence between physical appearance and desired gender role; females with GD are more homogeneous with respect to these variables. Cross-sex hormone therapy is very effective in masculinizing the appearance of FtMs but is less effective in feminizing the appearance of MtFs. Genital SRS techniques for MtFs are highly refined and generally yield excellent results, whereas many FtMs forego genital SRS altogether for want of a surgical technique that is affordable, has a low rate of significant complications, and predictably yields high-quality results.

The role of ethnicity in accounting for the etiology and clinical manifestations of GD is incompletely understood, but there is a significant association between ethnicity and MtF transsexual typology across national cultures, and probably within national cultures as well. In Asian, Polynesian, and Latin American countries, most MtFs (or, at least, the cultural equivalents of MtFs) are androphilic, whereas in the United States, Canada, and most western European countries, the majority of MtFs are currently nonandrophilic (Lawrence, 2010c). Societal individualism appears to mediate the relationship between ethnicity and MtF transsexual typology: Nonandrophilic MtFs are relatively more prevalent in more individualistic societies and less prevalent in less individualistic societies (Lawrence, 2010c). There is also evidence of a significant association between ethnicity and MtF transsexual typology within the United States. Hwahng and Nuttbrock (2007) reported that Black and Hispanic transgender and transsexual males in New York City were more likely than their White counterparts to be androphilic in orientation. In a subsequent, larger study of transgender and transsexual males in New York City, most of whom were Black or Hispanic, the correlation between nonandrophilic orientation and White ethnicity was 0.60 (Nuttbrock et al., 2011; see also Lawrence, 2010a). Kellogg, Clements-Nolle, Dilley, Katz, and McFarland (2001) similarly observed that, in a predominantly (71%) non-White sample of transgender and transsexual men in San Francisco, about 64% were probably androphilic, a much higher percentage than has typically been observed among predominantly White MtFs in the United States (Lawrence, 2010c).

CASE STUDY

The patient is a 58-year-old male who sought consultation because of distress related to his gender identity and dissatisfaction with his sexed body characteristics. He has a history of cross-dressing and medically unsupervised feminizing hormone use, and he is considering undergoing sex reassignment. He is a twice-married and twice-divorced father of two children from his first marriage. He is a college and business school graduate who works as a self-employed designer and manufacturer of specialized electrical equipment.

The patient was the eldest of five children in a lower middle-class family. All of his younger siblings were girls. He was never overtly feminine as a child; he enjoyed typical boys' games and rough-and-tumble play. At about age 7, he first became aware of cross-gender feelings, and he began to cross-dress occasionally with the help of his sisters. At age 10, his father caught him wearing his mother's undergarments and beat him, but he continued to cross-dress in secret. Beginning in adolescence, his cross-dressing was associated with sexual arousal

and masturbation. As a young adult, he often wore women's undergarments beneath his male outer clothes. He felt confused and ashamed by his cross-gender feelings and the associated sexual arousal he experienced. He married his first wife at age 20; she knew that he sometimes cross-dressed, but they never talked about it. During the marriage, he would occasionally go out in the evenings dressed as a woman. He needed to fantasize that he was a woman in order to achieve sufficient sexual arousal to permit coitus with his wife.

After 18 years of marriage, he and his wife underwent a bitter divorce that left him with little contact with his two children. He married again at age 45 and continued to cross-dress in secret. His wife was aware that he had gender issues, but again they never discussed it. They divorced after 8 years of marriage. He briefly resumed cross-dressing in public and also began sporadic self-treatment with estrogen and antiandrogens, obtained via the Internet. He later stopped cross-dressing publicly so as not to jeopardize his business and his employees if he were discovered. He stated that he would like to take medically prescribed hormone therapy and live full-time as a woman. He doubted, however, that he could preserve his relationships with his business suppliers and customers, some of whom were culturally conservative foreign nationals, if he were to undergo complete sex reassignment. He said that he believed he was a very feminine person inside: He noted that he cried easily, disliked violent movies, and related to children and animals in what he considered an unmasculine way.

Assessment involved a detailed psychological and social history, as well as administration of the MMPI-2. Based on the information obtained, the patient met full *DSM-5* diagnostic criteria for GD: He experienced a marked incongruence between his gender identification and his sex of assignment, resulting in a desire to acquire the primary and secondary sex characteristics of the other sex and to assume a gender role different from that of his assigned gender. He also experienced clinically significant distress and disability because of this incongruence. His GD was of the nonandrophilic, LO type, in that he was sexually attracted only to females and had not met full diagnostic criteria for GD during childhood. A secondary diagnosis was Transvestic Disorder With Autogynephilia, based on his history of intense sexual arousal with cross-dressing, including arousal from the thought or image of himself as female, associated with clinically significant distress.

The patient was referred to a physician for cross-sex hormone therapy and underwent regular psychotherapy for approximately two years. These treatments were associated with significant reduction in the patient's GD-related distress. The patient gradually transitioned to a female-typical gender role and social presentation in most domains of life, facilitated by a name change to a female-typical first name and a legal gender change. In a few domains of life, primarily in her business affairs, the patient chose to present herself as an androgynous male rather than unambiguously as a female. Her decision appeared to reflect both pragmatic considerations and the fact that she genuinely valued and enjoyed enacting some elements of the traditional male gender role in business settings.

She was referred to a surgeon for SRS, which she successfully underwent. The therapist's referral letter made it clear that the patient had not been living full-time in a female-typical gender role, but part-time in a female-typical role and part-time as an androgynous male. The therapist explained that WPATH SOC (Coleman et al., 2011) do not require candidates for SRS to live full-time in a

cross-gender role, but only "in a gender role that is congruent with their gender identity" (p. 178). The therapist expressed the opinion that the patient had fulfilled both the letter and the spirit of this requirement. The patient's surgeon and her health insurance provider agreed that the patient had complied with the WPATH SOC and were willing to perform SRS and provide insurance coverage for the procedure.

SUMMARY

GD refers to severe discomfort with one's biologic sex or assigned gender, reflecting a marked incongruence between one's gender identity and assigned sex. Biologic sex (male vs. female), sexual orientation, and age of onset define GD subtypes that differ in clinical presentation. Possible outcomes of GD include acceptance of assigned gender, part-time cross-gender expression, or sex reassignment and full-time cross-gender living. Individual and group psychotherapy can benefit some persons with GD. Treatment with cross-sex hormone therapy and SRS can provide significant relief of GD, high levels of patient satisfaction, and favorable psychosocial outcomes.

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