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TECHNICAL REPORT

Memo Outlining Evidence for Change for Gender Identity Disorder in the DSM-5

Kenneth J. Zucker · Peggy T. Cohen-Kettenis · Jack Drescher · Heino F. L. Meyer-Bahlburg · Friedemann Pfäfflin · William M. Womack

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Introduction

In 2008, when the diagnostic Work Groups for the DSM-5 were established and formally announced by the American Psychiatric Association, one of the first tasks was to review the existing diagnostic categories and to conduct literature reviews. The Gender Identity Disorders (GID) subworkgroup was one of three subworkgroups of the Sexual and Gender Identity Disorders Work Group. Like other working groups, its charge was to evaluate what was, if anything, "good" about the existing diagnosis of GID in the DSM-IV-TR and what, if anything, required changes. The subworkgroup published four literature reviews in which some initial proposals and recommendations were made (Cohen-Kettenis & Pfäfflin, 2010; Drescher, 2010; Meyer-Bahlburg, 2010; Zucker, 2010). The subworkgroup had feedback from its advisors, from other professionals, and from the public, including three periods of APA-sponsored feedback on the DSM-5 website.

Around mid-way during the DSM-5 preparation period, which ended on 1 December 2012, the Task Force added to the review phase two additional committees. One was a Scientific Review Committee (SRC) and the second was a Clinical and Public Health Committee (CPHC).

The SRC was charged with providing feedback on all proposed changes to the diagnostic criteria that were based on empirical evidence. The CPHC was charged with providing feedback with regard to additional parameters, such as clinical utility and public health concerns.

Each Work Group or subworkgroup of the DSM-5 Task Force justified the proposed changes of diagnostic categories in a report entitled Memo Outlining Evidence for Change (MOEC). With the permission of the American Psychiatric Association, we reproduce here the final version of the MOEC prepared by the GID subworkgroup ("in press" references have been updated and typographical errors corrected). Publication of the MOEC thus makes transparent the argumentation advanced by the subworkgroup for interested readers. Comments on the proposal are welcome in the form of a Letter to the Editor of this Journal.[1]

Memo Outlining Evidence for Change

Eleven substantive changes were proposed:

1. Change in name of the diagnosis from GID to Gender Dysphoria (GD).

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2. Decoupling of the GID diagnosis from the Sexual Dysfunctions and Paraphilias (Sexual and Gender Identity Disorders in the DSM-IV-TR) and placement in a separate chapter.
3. Change in the introductory descriptor to the Point A criterion.
4. Merging of what were the Point A and B criteria in the DSM-IV-TR.
5. For children, the A1 criterion is proposed to be a necessary indicator for the GD diagnosis.
6. For children, there are minor wording changes to the diagnostic criteria, especially A1–A6. The wording for A7–A8 has been simplified compared to DSM-IV-TR (examples will be given in the text).
7. For adolescents and adults, the proposed diagnostic criteria are much more detailed than they were in DSM-IV-TR and, like the proposed criteria for children, are polythetic in form.
8. For the Point B criterion (in the current diagnostic proposal for DSM-5), we have proposed a particular change in wording to capture distress, impairment, and increased risk of suffering or disability.
9. Elimination of the sexual attraction specifier for adolescents/adults.
10. Inclusion of a subtype pertaining to the presence (or absence) of a disorder of sex development (DSD). A DSD includes (but covers more than) what, in the past, were termed physical intersex conditions.
11. Inclusion of a "Post-transition" specifier (for adolescents/adults).

For each proposed change, we summarize the reasons and, when based on data, indicate the empirical basis that we believe justifies the change. For some of the proposed changes noted below, we relied on secondary data analyses utilizing the best data available to us since the DSM-5 Task Force did not include GID in its field trials.

Evidence for Change

Change in Name of the Diagnoses to GD in Children and GD in Adolescents and Adults

In response to criticisms in some quarters that the term GID was stigmatizing (Drescher, 2010), we originally proposed to replace it with the term Gender Incongruence. This was also accompanied by a re-definition of the condition (see the Point A descriptor in Tables 2, 3). The new term, Gender Incongruence, was descriptive and avoided any presupposition of the presence of clinically significant distress or impairment as a requirement for the diagnosis (Meyer-Bahlburg, 2010). In part, this presupposition was based on a more general discussion in the DSM-5 Task Force on separating out the distress/impairment criterion, with these parameters evaluated as separate dimensions (note, however, that it is very likely that the distress/impairment criterion will be retained in DSM-5, so this line of thinking by us has been abandoned—see below). The proposed change in name, and its rationale, was documented on the DSM5.org website in February 2010 at the time of the first round of commentaries by other professionals and the general public, including "consumers" of psychiatric services and by transgender communities and their supporters.

On the open APA website, we received many favorable comments about the proposed name change, particularly with regard to the removal of the "Disorder" label from the name of the diagnosis. We also had support for this name change in an international survey of consumer organizations that we conducted (Vance et al., 2010). However, we also received many comments from reviewers of the open APA website, as well as from members of the World Professional Association for Transgender Health (WPATH, formerly the Harry Benjamin International Gender Dysphoria Association), expressing concerns that the new descriptive term could easily be misread as applying to individuals with gender-atypical behaviors who had no gender identity problem.

Many commentators recommended "gender dysphoria" as a semantically more appropriate term (e.g., De Cuypere, Knudson, & Bockting, 2010) because it captures an aversive emotional component. In this regard, it should be noted that the term "gender dysphoria" has a long history in clinical sexology (see Fisk, 1973) and thus is one that is quite familiar to clinicians who specialize in this area. Thus, in our revised posting of May 4, 2011, we made public a second proposed change in the diagnostic term from GID to GD. This proposed name change is also consistent with the general argument that the diagnostic term should, in a more transparent way, indicate that it pertains to "distress" (dysphoria) and not identity per se (Knudson, De Cuypere, & Bockting, 2010). Indeed, in the September 2011 release of the 7th version of *Standards of Care* issued by WPATH (2011), the term gender dysphoria is used to outline both assessment and therapeutic approaches for children, adolescents, and adults.[2]

In summary, it is our view that the proposed name change from GID to GD will (1) highlight a conceptual change in the formulation of the diagnosis (which we will amplify in the text description of the diagnosis) and (2) satisfy critics concerned about the stigmatizing use of the "disorder" term in the name of the diagnosis. The proposed name change to GD has been quite favorably received during the second round of public postings, is acceptable to WPATH experts, and is consistent with some other diagnostic terms in the DSM, such as Anorexia Nervosa,

[2] Subsequently published in Coleman et al. (2011).

Encopresis, and Enuresis, which do not have the term "disorder" in the diagnostic name.

Decoupling of the GID Diagnosis from the Sexual Dysfunctions and Paraphilias

In the DSM-III, the GID diagnosis was placed in the section called Psychosexual Disorders, along with Paraphilias and Psychosexual Dysfunctions (now termed Sexual Dysfunctions). In the DSM-III-R, the three main GID diagnoses (GID of Childhood, Transsexualism, and GID of Adolescence or Adulthood, Nontranssexual Type) were moved to the section termed Disorders Usually First Evident in Infancy, Childhood or Adolescence whereas the Paraphilias and Sexual Dysfunctions appeared in the section termed Sexual Disorders. In the DSM-IV and DSM-IV-TR, the three major diagnostic classes (GID, Sexual Dysfunctions, and the Paraphilias) all appeared in the section termed Sexual and Gender Identity Disorders.

The placement of these three diagnostic classes in the same section in DSM-IV was probably influenced by several considerations, including clinical utility (e.g., that clinicians and researchers who study these phenomena tend to affiliate at common scientific meetings, tend to publish in the same periodicals, and probably have at least some familiarity with all of the conditions more so than clinicians and researchers who specialize in other areas of interest to psychiatry).

Yet, it is also recognized that each of these three diagnostic classes have their own specialists and the theoretical overlap among these conditions is far from complete. For example, sexual dysfunctions are of little direct relevance to GID as it manifests in children. Some critics have also complained that inclusion of GID in a section of the manual that also includes the paraphilias is somewhat stigmatizing.

Although there can be a co-occurrence of one paraphilia, Transvestic Fetishism, with GID in adolescents and adults, it was the consensus of the entire Sexual and Gender Identity Disorders Work Group that the three diagnostic classes be uncoupled, with each having a separate chapter in DSM-5. As of this writing, this recommendation has been accepted by the DSM-5 Task Force.

Change in the Introductory Descriptor to the Point A Criterion

In both GD of Childhood and GD of Adolescence and Adulthood, the proposed introductory descriptor reads as follows: "A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least…" In the DSM-IV-TR, the introductory descriptor reads as follows: "A strong and persistent cross-gender identification (not merely a desire for any perceived cultural advantages of being the other sex)." The reasons for the proposed changes are as follows:

(a) The use of the term "incongruence" is a descriptive one that better reflects the core of the problem, namely, an incongruence between, on the one hand, the identity that one experiences and/or expresses and, on the other hand, how one is expected to live based on one's assigned gender (usually at birth) (Meyer-Bahlburg, 2010; Winters, 2005). In our view, this is preferable to the term "cross-gender identification" in that a strictly binary gender identity concept is no longer in line with the spectrum of gender identity variations that one sees clinically.

(b) The term "sex" has been replaced by assigned "gender" in order to make the criteria applicable to individuals with a DSD (Meyer-Bahlburg, 2009, 2010). During the course of physical sex differentiation, some aspects of biological sex (e.g., 46,XY genes) may be incongruent with other aspects (e.g., the external genitalia); thus, using the term "sex" would be confusing. The change also makes it possible for individuals who have successfully transitioned to the preferred gender to "lose" the diagnosis after satisfactory treatment (see Inclusion of a "Post-transition" specifier below). This resolves a problem that, in the DSM-IV-TR, there is no "exit clause," meaning that individuals once diagnosed with GID will always be considered to have the diagnosis, regardless of whether they have transitioned and are psychosocially adjusted in the identified gender role (Winters, 2008). The diagnosis without a post-transition specifier will still be applicable to transitioned individuals who have regrets, because they did not feel like the other gender after all. For instance, a natal male living in the female role and having regrets experiences an incongruence between the "newly assigned" female gender and the experienced/expressed (still or again male) gender.

(c) We recommend deletion of the "perceived cultural advantages" proviso. This was also recommended by our predecessor in the DSM-IV Subcommittee on GID (Bradley et al., 1991). There is no reason to "impute" one causal explanation (in this case, a cultural advantage hypothesis) for GD without mentioning any others (Zucker, 1992, 2010). Deleting this phrase would be consistent with a purely phenomenological approach that eschews any reference to putative underlying causal mechanisms with regard to the diagnostic criteria.

(d) The 6 month duration was introduced to make at least a minimal distinction between very transient GD (Linday, 1994) and persistent GD. The duration criterion was decided upon by clinical consensus. Unfortunately, there is no clear empirical literature supporting this particular period (e.g., 3 vs. 6 months or 6 vs. 12 months). There was, however, consensus in the GID subworkgroup that a lower-bound duration of 6 months would be unlikely to yield false positives.

Merging of the Point A and B Criteria from the DSM-IV-TR

In the DSM-IV-TR, there are two sets of clinical indicators (Criteria A and B). The descriptor for Criterion A was noted above. In DSM-IV-TR, the descriptor for Criterion B reads as follows: "Persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex."

This distinction is not supported by factor analytic studies. The existing studies suggest that the concept of GD is best captured by one underlying dimension (Cohen-Kettenis & van Goozen, 1997; Deogracias et al., 2007; Green, 1987; Johnson et al., 2004; Singh et al., 2010; Zucker et al., 1998). Historically, it is of interest to note that our predecessor, the Subcommittee on GID (Bradley et al., 1991) for DSM-IV, had already recommended a merger of the Point A and Point B criteria based, in part, on secondary data analysis (Zucker et al., 1998). For reasons that were never made clear to the Subcommittee, this proposal was rejected. Subsequent to DSM-IV, factor-analytic studies continue to provide evidence in favor of one underlying factor. Mokken scale analysis also supported the merger of the Point A and B criteria (Paap et al., 2011).

For Children, the A1 Criterion Is Proposed to be a Necessary Indicator for the GD Diagnosis

In DSM-IV-TR, there are five symptom indicators for the Point A criterion, of which four (or more) are required to meet the threshold for diagnosis. The A1 criterion reads as follows: "repeatedly stated desire to be, or insistence that he or she is, the other sex." Given that four symptoms are required to meet threshold for Point A, it is possible that a child would meet threshold based on behavioral surface markers of "cross-gender identification," i.e., A2–A5. The DSM-IV Subcommittee on GID (Bradley et al., 1991) had argued that there might be a small number of children who showed all the signs of a GID (including the criteria from Point B) (see Table 1), yet did not express the desire to be of the other gender, perhaps because of reasons of social desirability, a harsh social environment, etc. It was therefore argued at the time that the desire to be of the other gender need not be a necessary symptom indicator.

As reviewed in Zucker (2010), some critics of the DSM-IV criteria were concerned that some children who showed pervasive cross-gender behavior (gender nonconformity or gender variance), yet who did not express a desire to be of the other gender, might be inappropriately diagnosed with GID (false positives).

In an attempt to address this criticism, Zucker (2010) conducted a secondary data analysis in which it could be shown that the expressed desire to be of the other gender correlated quite strongly with a series of cross-gender surface behaviors that correspond to the A2–A5 indicators in the DSM-IV. These analyses can be found in Zucker (2010, pp. 484–486). Subsequent to Zucker (2010), we conducted an identical analysis of child patients from a gender identity clinic in Amsterdam (headed by Dr. Cohen-Kettenis, the chair of the GID subworkgroup) and replicated quite precisely the findings reported on by Zucker (2010). These replication findings can be found in Figs. 1–4 of this document. To better understand them, the SRC would find it helpful to first read the findings reported on pp. 484–486 in Zucker (2010).[3]

It was, therefore, argued that, in DSM-5, the currently proposed A1 criterion be a necessary symptom in making the GD diagnosis. We contend that the presence of this symptom will, if anything, make the diagnosis more restrictive and conservative (Zucker, 2010). Given the critiques leveled at the DSM-IV

Table 1 DSM-IV-TR criteria for Gender Identity Disorder

A. A strong and persistent cross-gender identification (not merely a desire for any perceived cultural advantages of being the other sex).
In children, the disturbance is manifested by at least four (or more) of the following:
1. Repeatedly stated desire to be, or insistence that he or she is, the other sex
2. In boys, preference for cross-dressing or simulating female attire; in girls, insistence on wearing only stereotypical masculine clothing
3. Strong and persistent preferences for cross-sex roles in make-believe play or persistent fantasies of being the other sex
4. Intense desire to participate in the stereotypical games and pastimes of the other sex
5. Strong preference for playmates of the other sex
In adolescents and adults, the disturbance is manifested by symptoms such as a stated desire to be the other sex, frequent passing as the other sex, desire to live or be treated as the other sex, or the conviction that he or she has the typical feelings and reactions of the other sex.
B. Persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex.
In children, the disturbance is manifested by any of the following: in boys, assertion that his penis or testes are disgusting or will disappear or assertion that it would be better not to have a penis, or aversion toward rough-and-tumble play and rejection of male stereotypical toys, games, and activities; in girls, rejection of urinating in a sitting position, assertion that she has or will grow a penis, or assertion that she does not want to grow breasts or menstruate, or marked aversion toward normative feminine clothing.
In adolescents and adults, the disturbance is manifested by symptoms such as preoccupation with getting rid of primary and secondary sex characteristics (e.g., request for hormones, surgery, or other procedures to physically alter sexual characteristics to simulate the other sex) or belief that he or she was born the wrong sex.
C. The disturbance is not concurrent with a physical intersex condition.
D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
Specify if (for sexually mature individuals):
Sexually attracted to males
Sexually attracted to females
Sexually attracted to both
Sexually attracted to neither

[3] These figures are not reproduced here but can be found in Zucker (2010).

criteria, it was deemed that reduction of false positives is preferable to false negatives.

The subworkgroup has also recommended that "strong desire" replace "repeatedly stated desire" to capture some children who, in a coercive environment, may not verbalize the desire to be of the other gender. The text will note that the clinician needs to be attentive to the child's psychosocial environment in considering the presence of this symptom. This will afford the clinician some latitude in forming a judgment about the presence of the A1 indicator.

For Children, There are Minor Wording Changes to the Diagnostic Criteria

For the proposed A2–A8 criteria (see Table 2), there are minor wording changes. For A7 and A8, the wording has been simplified to capture the underlying construct. The desire for the anatomy of the other gender is separated from the rejection of one's own anatomy. Examples will be provided in the text.

Table 2 Proposed DSM-5 **criteria for Gender Dysphoria (in children)**

A. A **marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least 6 of the following indicators (including A1)**:

1. **A strong** desire to be **of the other gender** or **an** insistence that he or she is the other **gender (or some alternative gender different from one's assigned gender)**
2. In boys, **a strong** preference for cross-dressing or simulating female attire; in girls, **a strong preference for** wearing only **typical** masculine clothing **and a strong resistance to the wearing of typical feminine clothing**
3. **A** strong preference for cross-**gender** roles in make-believe play or **fantasy play**
4. **A strong preference for the toys,** games**, or activities** of the other **gender**
5. **A** strong preference for playmates of the other **gender**
6. **In boys, a strong rejection of typically masculine** toys, games, and activities and **a strong avoidance** of rough-and-tumble play; **in girls, a strong rejection of typically feminine toys, games, and activities**
7. **A strong dislike of one's sexual anatomy**
8. **A strong desire for the primary and/or secondary sex characteristics that match one's experienced gender**

B. **The condition is associated with clinically significant distress or impairment in social, school, or other important areas of functioning, or with a significantly increased risk of suffering such distress or disability.**

Subtypes

With a DSD

Without a DSD

The proposed changes are in boldface

For Adolescents and Adults, the Proposed Diagnostic Criteria are Much More Detailed than They were in DSM-IV-TR and, Like the Proposed Criteria for Children, are Polythetic in Form

In DSM-IV, the GID criteria for adolescents and adults were somewhat sketchy and, for some, even lacked a reference to intensity or frequency (e.g., "a stated desire to be the other sex"). This has been viewed as problematic (Zucker, 2006).

Although the DSM-IV diagnosis of GID encompasses more than transsexualism, it is still often used as an equivalent to transsexualism (Sohn & Bosinski, 2007). For instance, a man can meet the two core criteria if he only believes he has the typical feelings of a woman and does not feel at ease in the male gender role (see Table 1). The same holds for a woman who just frequently passes as a man (e.g., in terms of first name, clothing, and/or haircut) and does not feel comfortable living as a conventional woman. Someone having a GID diagnosis based on these subcriteria clearly differs from a person who identifies completely with the other gender, can only relax when permanently living in the other gender role, has a strong aversion against the sex characteristics of his/her body, and wants to adjust his/her body as much as technically possible in the direction of the desired gender. Those who are distressed by having problems with just one of the two criteria (e.g., feeling uncomfortable living as a conventional man or woman) will have a GIDNOS diagnosis. This is highly confusing for clinicians. It perpetuates the search for the "true transsexual" in order to identify the right candidates for hormone and surgical treatment instead of facilitating clinicians to assess the type and severity of any type of GD and offer appropriate treatment. Furthermore, in the DSM-IV, gender identity and gender role were described as a dichotomy (either male or female) rather than a multi-category concept or spectrum (Bockting, 2008; Bornstein, 1994; Drescher, 2010; Ekins & King, 2006; Lev, 2007; Røn, 2002). The current formulation makes it more explicit that a conceptualization of GD acknowledging the wide variation of conditions will make it less likely that only one type of treatment is connected to the diagnosis. Taking the above regarding the avoidance of male–female dichotomies into account, in the new formulation, the focus is on the discrepancy between experienced/expressed gender (which can be either male, female, in-between or otherwise) and assigned gender (in most societies male or female) rather than cross-gender identification and same-gender aversion (Cohen-Kettenis & Pfäfflin, 2010).

For the adolescent/adult criteria, we have, therefore, proposed a more nuanced description of the symptom indicators (see Table 3) and they have been written in a polythetic format.

Based on secondary data analysis, we suggest that the presence of at least two indicators (out of 6) is needed to meet the diagnostic criteria for GD. This was based on an analysis of 154 adolescent and adult patients with GID compared to 684 controls (Deogracias et al., 2007; Singh et al., 2010). From a 27-item

Table 3 Proposed DSM-5 criteria for **Gender Dysphoria (in adolescents/adults)**

A. A **marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least 2 or more of the following indicators**:
1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or, in young adolescents, the anticipated secondary sex characteristics)
2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or, in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics)
3. A strong desire for the primary and/or secondary sex characteristics of the other gender
4. A strong desire to be of the other gender (or some alternative gender different from one's assigned gender)
5. A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender)
6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender)
B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning, or with a significantly increased risk of suffering, such as distress or disability
Subtypes
With a DSD
Without a DSD
Specifier
Post-transition, i.e., the individual has transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross-sex medical procedure or treatment regimen, namely, regular cross-sex hormone treatment or gender reassignment surgery confirming the desired gender (e.g., penectomy, vaginoplasty in a natal male, mastectomy, phalloplasty in a natal female).

The proposed changes are in boldface. It should be noted that, for adolescents and adults, the criteria in DSM-IV-TR were written in a relatively vague manner and were not in polythetic format

dimensional measure of gender dysphoria, the Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ), we extracted five items that corresponded to the proposed A2–A6 indicators (we could not extract a corresponding item for A1). Each item was rated on a 5-point response scale, ranging from Never to Always, with the past 12 months as the time frame. For the current analysis, we coded a symptom as present if the participant endorsed one of the two most extreme response options (frequently or always) and as absent if the participant endorsed one of the three other options (never, rarely, sometimes). This yielded a true positive rate of 94.2 % and a false positive rate of 0.7 %. These findings suggest that the proposed diagnostic criteria will have a very high true positive rate and a very low false positive rate.

Regarding the A2 criterion, in referring to secondary sex characteristics, anticipation of the development of secondary sex characteristics has been added for young adolescents. Adolescents increasingly present at gender identity clinics requesting gender reassignment, before the first signs of puberty are visible (Delemarre-van de Waal & Cohen-Kettenis, 2006; Zucker & Cohen-Kettenis, 2008).

For the Point B Criterion (in the Current Diagnostic Proposal for DSM-5), We have Proposed a Particular Change in Wording to Capture Distress, Impairment, and Increased Risk of Suffering or Disability, Including "A Significantly Increased Risk of Suffering Such Distress or Disability"

This is based on a consensus in the subworkgroup that some adolescents who are planning gender change and are undergoing puberty-blocking hormonal therapy are not distressed when a clear path towards gender change is mapped out for them, but may become strongly distressed if parents or others try to strongly block this path.[4]

Elimination of the Sexual Attraction Specifier for Adolescents/Adults

In DSM-IV, for sexually mature individuals, there is a specifier pertaining to sexual attraction (sexual orientation): sexually attracted to males, sexually attracted to females, sexually attracted to both, sexually attracted to neither.

There is considerable evidence that the sexual attraction specifier (perhaps better characterized as a subtype) is associated with meaningful differences among GD adolescent and adult patients (see, e.g., Blanchard, 1994; Lawrence, 2010; Nieder et al., 2011; Smith, van Goozen, Kuiper, & Cohen-Kettenis, 2005; Zucker et al., 2012), such as age-of-onset of GD symptoms, degree of expression of cross-gender behavior in childhood, age at presentation for clinical evaluation, marital status, co-occurrence with Transvestic Disorder, etc. These findings likely reflect underlying differences in causal mechanisms among subgroups of GD patients.[5] This has been particularly so for natal males with GD, who show much more variability in their sexual attraction patterns than do natal females with GD (Kreukels et al., 2012). Lawrence (2010), among others, has provided an exhaustive review on this topic.

The subworkgroup reviewed this literature carefully and came to the conclusion that sexual attraction (sexual orientation) per se

[4] This proposal did not make its way into the DSM-5 (American Psychiatric Association, 2013). Instead, the DSM-5 adopted a common template with regard to distress/impairment across most diagnoses: "The condition is associated with clinically significant distress or impairment in social, school, or other important areas of functioning" or "The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning."

[5] "…differences in casual mechanisms…" could have been phrased as "differences in developmental pathways."

plays only a minor role in contemporary treatment protocols or decisions. This is very different from what happened clinically in the early years of gender-reassignment surgery decisions that were managed by psychiatrists in specialized gender identity clinics who would only provide treatment to individuals attracted to their own natal sex and would not endorse the medical creation of post-operative "homosexuals." This change in treatment protocols for adults is reflected in the recent Standards of Care issued by the WPATH (2011).[2] In the entire document, the term sexual orientation or sexual attraction is not even mentioned, suggesting a contemporary consensus that sexual orientation or sexual attraction is of minimal importance to treatment providers.

Although it is accurate to state, for example, that cases of "regret" after gender-reassignment surgery occur most often among natal males with a gynephilic or bisexual sexual orientation (e.g., Blanchard, Steiner, Clemmensen, & Dickey, 1989; Olsson & Möller, 2006), the absolute percentage of regrets is rather low (Gijs & Brewaeys, 2007; Green & Fleming, 1990; Pfäfflin & Junge, 1992, 1998). As a result, the subworkgroup has recommended deleting this specifier. Because sexual attraction (sexual orientation) subtyping is of interest to researchers in the field, it is recommended that reference to it be addressed in the text (but not as a specifier).[6] This recommended change (from a specifier to text) should also reduce the widespread suspicion,[7] especially in LGB (lesbian, gay, bisexual) circles, that the GID diagnosis was originally introduced into the DSM as a cryptic way to maintain the psychopathologization of homosexuality (Drescher, 2010; Zucker & Spitzer, 2005). Lastly, it is noted here that the Paraphilias subworkgroup, for the diagnosis of Transvestic Disorder, has recommended that there be a specifier termed With Autogynephilia (Sexually Aroused by Thought or Image of Self as Female) (Blanchard, 2010) or With Autoandrophilia (Sexually Aroused by Thought or Image of Self as Male) (see www.dsm5.org).

Inclusion of a Subtype Pertaining to the Presence (or Absence) of a DSD

In DSM-III, the presence of a DSD was not an exclusionary criterion for GD, but it became one in DSM-IV.

In the meantime, considerable additional evidence has accumulated that some individuals with a DSD experience GD and may wish to change their assigned gender; the percentage of such individuals who experience GD is syndrome-dependent (Cohen-Kettenis, 2005; Dessens, Slijper, & Drop, 2005; Mazur, 2005; Meyer-Bahlburg, 1994, 2005, 2009, 2010). From a phenomenologic perspective, DSD individuals with GD have both similarities and differences to individuals with GD with no known DSD (Meyer-Bahlburg, 1994, 2009; Richter-Appelt & Sandberg, 2010). Developmental trajectories also have similarities and differences. The presence of a DSD is suggestive of a specific causal mechanism that may not be present in individuals without a diagnosable DSD.

Inclusion of a "Post-transition" Specifier

For adolescents and adults, we proposed a new specifier provisionally labeled "Post-transition." The addition of this specifier is prompted by the observation that many individuals, after transition, do not meet any more the criteria set for GD; however, they continue to undergo chronic hormone treatment, further gender-confirming surgery, or intermittent psychotherapy/counseling to facilitate the adaptation to life in the desired gender and the social consequences of the transition. Although the concept of "post-transition" is modeled on the concept "in [partial or full] remission" as used for mood disorders, "remission" has implications in terms of symptom reduction that do not apply directly to GD. Cross-sex hormone treatment of gonadectomized individuals could, of course, be coded as treatment of hypogonadism, but this would not apply to individuals who have not undergone gonadectomy but receive hormone treatments. In the text, we will, however, also mention that the course specifier of "full remission" in its original meaning does apply to many children with the diagnosis of GD and, perhaps, to a small number of adolescents and adults.

Antecedent Validators

Familial Aggregation

Within sex, there is evidence that the broad construct of gender identity/gender role behavior has a heritable component along with evidence for both shared and non-shared environmental influences (Bailey, Dunne, & Martin, 2000; Elizabeth & Green, 1984; Iervolino, Hines, Golombok, Rust, & Plomin, 2005; Knafo, Iervolino, & Plomin, 2005; Mitchell, Baker, & Jacklin, 1989; van Beijsterveldt, Hudziak, & Boomsma, 2006). In terms of the more narrow construct of GID or GD, there is also evidence of a heritable component (Coolidge, Thede, & Young, 2002). In a review of the twin literature on GID, including unpublished case series from specialized gender identity clinics, concordance for GID was significantly higher among MZ twins than among DZ same-sex twins (Heylens et al., 2012). There is also some evidence that GID runs in families when one studies non-twin siblings (Gómez-Gil et al., 2010), but, in terms of absolute numbers, familiality among non-twin siblings is quite low.

[6] In Dr. Drescher's response to a query from the Board of Trustees, he wrote that "The absence of a sexual orientation specifier should not inhibit research in this area, any more than the absence of a 'gender specifier' for Major Depression or Schizophrenia inhibits research on sex differences in those (or any other) diagnostic categories."

[7] The word "concern" would have been preferable to "suspicion."

Sociodemographic and Cultural Factors

The prevalence of GD may well be higher among natal males than among natal females. In terms of referral rates in childhood (perhaps an indirect marker of prevalence), the sex ratio has favored boys to girls in a number of samples in the U.S., Canada, and the Netherlands (Cohen-Kettenis et al., 2003; Green, 1987). It is possible that the threshold for referral is lower in boys than in girls, since cross-gender behavior in boys is less tolerated than such behavior is in girls and subject to more social sanctions. However, in one study, the percentage of boys and girls diagnosed with GID was comparable (Cohen-Kettenis et al., 2003), but there is also some evidence that girls referred clinically for gender problems show more extreme behavior than boys on dimensional measures (Zucker, Bradley, & Sanikani, 1997a).

The sex ratio in referral rates, however, appears to narrow by adolescence but males still outnumber females (Garrels et al., 2000; Kreukels et al., 2012; Zucker & Lawrence, 2009; Zucker et al., 2012).

GD appears to be expressed in many cultures, including non-Western countries (e.g., Koon, 2002). In Samoa, for example, the fa'afafine constitute a kind of "third gender" category, who, from a phenomenological perspective, bear striking similarity to the Western category of transsexualism or GD. Fa'afafine are biological males who gradually transition to live in this labeled third gender category. The term itself translates into "in the fashion of a woman" (Bartlett & Vasey, 2006; Besnier, 1994). Interestingly, there is very little indication of a corresponding third gender category for natal females in Samoa.

Compared to base rates in the general population, clinic-referred boys with GD show an overrepresentation among adoptees (Zucker & Bradley, 1998) although it is quite likely that the rate is not higher than in clinic-referred children in general.

Individuals with specific DSD diagnoses are at heightened risk for GD. Chromosomal females who have been exposed to higher than normal levels of prenatal androgen, as in the case of congenital adrenal hyperplasia, have an elevated rate of GD compared to population base rates (Dessens et al., 2005). Chromosomal males with at least some degree of male-typical levels of prenatal androgen exposure, who are nevertheless assigned female at birth because of marked genital ambiguity, also show an elevated risk for GD as do chromosomal males with apparently normal prenatal androgen levels who are assigned female because of a congenital absence of the penis or its extremely poor differentiation as in the case of cloacal exstrophy (Meyer-Bahlburg, 2005).

Environmental Risk Factors

Boys with GD (both children and adolescents) have an excess of brothers and are later born among their siblings, particularly brothers (Blanchard, Zucker, Bradley, & Hume, 1995; Blanchard, Zucker, Cohen-Kettenis, Gooren, & Bailey, 1996; Schagen, Delemarre-van de Waal, Blanchard, & Cohen-Kettenis, 2012; Zucker et al., 1997b). Similar findings have been reported for adult males with GD, including Samoan fa'afafine (Blanchard & Sheridan, 1992; Gómez-Gil et al., 2011; Green, 2000; Poasa, Blanchard, & Zucker, 2004; VanderLaan & Vasey, 2011). This fraternal birth order effect, which has also been found repeatedly in gay men without GD, has been postulated to result from a progressive maternal immune response to male fetuses that affects the sexual differentiation of the brain but without affecting the sex-dimorphic differentiation of the genitalia (for review, see Blanchard, 2001; Bogaert & Skorska, 2011).

Boys with GD also have a lower birthweight after taking into account the number of older brothers (Blanchard et al., 2002).

Prior Psychiatric History

No data are available for this parameter.

Concurrent Validators

In providing an appraisal of concurrent validators, one line of evidence has been to identify variables in which there is a shift in the direction of the desired gender or a way from the natal gender. Although this model does not necessarily apply to all relevant validators, it is common enough to alert the reader to this underlying conceptual model (for a sketch of this conceptual model, see Meyer-Bahlburg, 2011).

Cognitive, Emotional, Temperamental, and Personality Correlates (Unrelated to the Diagnostic Criteria)

Boys with GD perform relatively more poorly on visual-spatial tasks than on verbal tasks taken from standardized IQ tests (Zucker & Bradley, 1995, pp. 167–171). Two studies of GD adults have also shown that sex-dimorphic cognitive ability patterns appear to be intermediate between that of control males and females (Cohen-Kettenis, van Goozen, Doorn, & Gooren, 1998; van Goozen, Slabbekoorn, Gooren, Sanders, & Cohen-Kettenis, 2002). In one fMRI study, Schöning et al. (2010) showed that GD adult males, during a spatial cognition task, had less activation of the left parietal cortex (BA 40) than control males.

Boys with GD have a lower parent-reported physical activity level (a sex-dimorphic dimension of temperament) than control boys whereas girls with GID have a higher parent-reported activity level than control girls. Indeed, parent-reported activity level of GD children is sex-inverted compared to control children (Zucker & Bradley, 1995, pp. 189–193).

Biological Markers

Genetics There are no published molecular genetic studies of GD patients. It is unusual to find an abnormal sex chromosome karyotype in patients with GD (Inoubli et al., 2011), but it is possible that the prevalence is elevated compared to base rates in the general population. Nonetheless, most specialized gender clinics do not routinely screen for abnormal sex chromosome patterns.

Hormonal Factors In adult natal females with GD, some reports suggested an elevated rate of polycystic ovary syndrome (e.g., Balen, Schachter, Montgomery, Reid, & Jacobs, 1993; Bosinski et al., 1997; Futterweit, Weiss, & Fagerstorm, 1986), including an astonishing prevalence of 56 % in one Japanese sample (Baba et al., 2007). One recent more rigorous methodological study using the Rotterdam 2003 criteria, however, suggested no elevated rate compared to controls (Mueller et al., 2008).

Sexual differentiation of the mammalian brain is influenced by prenatal sex hormone activity. Consequently, it has been hypothesized that abnormalities in genes that code for sex hormone receptors or for enzymes that catalyze the synthesis or metabolism of sex hormones might show associations with GD/transsexualism. Candidate genes include those coding for the androgen receptor (AR), estrogen receptor alpha (ERα), estrogen receptor beta (ERβ), and progesterone receptor (PR) and for the enzymes aromatase (CYP19), 17-alpha-hydroxylase (CYP17), and 5-alpha-reductase, type II (SRD5A2). Most studies have investigated differences between transsexual/GD 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 have attempted to differentiate between transsexual/GD subtypes. In these studies, all of the probands studied were GD patients without a co-occurring DSD.

Henningsson et al. (2005) found no significant differences between GD males and same-sex controls for the AR or CYP19 genes, but did find a significant difference for the ERβ gene. Hare et al. (2009) examined the same three candidate genes in GD males and same-sex controls, but obtained different results: No significant differences for the CYP19 or ERβ genes, but a significant difference for the AR gene, albeit using a one-tailed test; a two-tailed test would have been non-significant (moreover, the "false positive" rate among the controls was substantial). Bentz et al. (2007) reported no differences between GD males and same-sex controls or GD females and same-sex controls for the SRD5A2 gene. Bentz et al. (2008) found no differences between GD males and same-sex controls for CPY17 alleles and genotypes, but did find a significant difference in the case of GD females and same-sex controls. Ujike et al. (2009) detected no significant differences between GD males and same-sex controls or GD females and same-sex controls for the AR, ERα, ERβ, PR, or CYP19 genes. In summary, there is mixed evidence at present that abnormalities related to molecular genetics account for GD/transsexualism: Most investigations have yielded negative results and most positive results have not been replicated by other investigators.

Neuroanatomy Luders et al. (2009) used MRI to compare regional gray matter volumes in 24 GD males (6 androphilic, 18 non-androphilic) and male and female control subjects; the pattern observed in the GD males more closely matched the male controls. Subsequent MRI studies, however, have been more suggestive of an intermediate pattern of sex-dimorphic neural structures between that of control males and control females (Rametti et al., 2011a, b; Savic & Arver, 2011). This has been shown to be particularly true for GD adults with an "early onset" (i.e., in childhood, not adolescence) of GD traits (Savic & Arver, 2011).

The central division of the bed nucleus of the stria terminalis (BSTc), a hypothalamic or limbic nucleus, is sexually dimorphic: significantly larger in men than in women. Zhou, Hofman, Gooren, and Swaab (1995) conducted a postmortem study of six GD males and found that mean BSTc was small in size and in neuron number and female-typical, a sex-reversed pattern. The GD males supposedly included both the androphilic and non-androphilic subtypes. Kruijver et al. (2000) studied the same six GD males and found that mean neuron number in the BSTc was also sex-reversed. Similar postmortem findings in a GD male who had never received hormone therapy suggested that cross-sex hormone therapy could not account for the sex-reversed pattern. Kruijver et al. proposed that "transsexualism may reflect a form of brain hermaphroditism" (p. 2041).

The validity of this putative marker was challenged by the discovery that the BSTc does not become sexually dimorphic until adulthood, long after the symptoms of GD typically appear (Chung, De Vries, & Swaab, 2002). Magnetic resonance imaging (MRI) studies also demonstrated that hormone therapy in MtF transsexuals was associated with significant reductions in the volume of the brain globally and the hypothalamus particularly (Hulshoff Pol et al., 2006). Hulshoff Pol et al. conjectured 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). Additional information about the sexual orientation of the six Zhou/Kruijver GD males, reported by Garcia-Falgueras and Swaab (2008), was consistent with the hypothesis that all were non-androphilic.

In another study of 11 GD males, Garcia-Falgueras and Swaab (2008) reported that the INAH-3 subnucleus of the hypothalamic uncinate nucleus was similar to that of control females with regard to volume and number of neurons.[8]

[8] The material in this section was drawn from Lawrence and Zucker (2012).

Cerebral Dominance and Anthropometrics Several studies have identified an elevated rate of left-handedness or non-right-handedness in GD boys and GD adult males (Green & Young, 2001; Zucker, Beaulieu, Bradley, Grimshaw, & Wilcox, 2001). However, it is not yet clear if this elevation is diagnostic-specific or characteristic of clinical populations in general. Note here that these findings, if valid, suggest an "exaggerated" male-typical pattern since natal males are more likely to be left-handed than natal females. Evidence for an elevation in non-right-handedness in GD adult females was also reported by Green and Young (2001).

The ratio between the length of the second and fourth digit (2D:4D) shows a strong sex-dimorphic pattern, with a smaller ratio found in natal males than in natal females. There is some evidence for a masculinized pattern of 2D:4D in adult females with GD, but the evidence is much more mixed with regard to adult males with GD (Wallien, Zucker, Steensma, & Cohen-Kettenis, 2008). One study did not find any evidence for an altered 2D:4D pattern in children with GD (Wallien et al., 2008).

Patterns of Co-morbidity

On standardized parent-report measures of behavior problems, such as the Child Behavior Checklist (CBCL), both boys and girls with GD in clinical samples have rates of behavior problems comparable to that of other clinic-referred children (especially when matched carefully for demographic factors) and higher than that of non-referred children, including siblings (Cohen-Kettenis et al., 2003; Zucker & Bradley, 1995). On the CBCL, boys with GD have a predominance of "internalizing" as opposed to "externalizing" behavior problems whereas for girls with GD the pattern is more equally distributed across these two broad-band types of behavior problems. Similar findings have been obtained using teacher ratings using the Teacher's Report Form variant of the CBCL (Steensma, Zucker, Kreukels, & Cohen-Kettenis, 2012; Zucker & Bradley, 1995). There is also some evidence that boys with GD have elevated rates of separation anxiety traits (Coates & Person, 1985; Zucker, Bradley, & Lowry Sullivan, 1996). Lastly, one study showed that children with GD had an elevation in skin conductance level, a physiological marker of anxiety, during a psychological challenge task (Wallien, van Goozen, & Cohen-Kettenis, 2007). Adolescents with GD have elevated rates of behavior problems on the Youth Self-Report Form variant of the CBCL compared to non-referred youth (de Vries, Postema, Steensma, & Cohen-Kettenis, 2011; Zucker et al., 2012). Adults with GD also have elevated rates of psychiatric problems although there is a great deal of variance as a function of method and measures (for review, see Lawrence & Zucker, 2012). There is now also emerging evidence of a relation between GD and autism-spectrum disorders (de Vries et al., 2010; Jones et al., 2012). This is of interest because both disorders are expressed early in development and both show a sex ratio that favors natal males.

Lastly, one important population-based matched cohort study found that the overall morbidity and mortality for GD patients was higher at follow-up than for same-sex controls (Dhejne et al., 2011). There was an increased risk for suicide attempts and a higher rate of psychiatric inpatient care. There was also a higher rate of death, particularly death from suicide.

The higher rate of psychiatric co-morbidity is likely related to a number of factors, including the stigma associated with having GD (e.g., peer ostracism, familial rejection, societal discrimination) as well as generic risk factors, such as the presence of various psychiatric disorders in first-degree relatives.

Predictive Validators

Diagnostic Stability

If one follows children with GD longitudinally, the "persistence" of GD into adolescence and adulthood is variable, ranging from 2 % to 50 % (e.g., Green, 1987; Drummond, Bradley, Badali-Peterson, & Zucker, 2008; Wallien & Cohen-Kettenis, 2008; Zucker, 2011; Zuger, 1984); however, relative to base rates of GD in the general population (however that may be defined), the persistence rate is markedly higher. It should be noted that these follow-up reports cannot be characterized as "natural history" studies, as the children were all seen in clinical settings and one could argue that clinician recommendations, involvement in therapy, etc. contributed, at least in part, to the high rate of "desistance." Nonetheless, that there is some indication of persistence provides evidence for diagnostic stability.

In adolescents and adults, there is considerable evidence of diagnostic stability. For many adolescents and adults, the gender-related distress does not lessen until there is treatment with contra-sex hormones and/or gender-reassignment surgery and the patient transitions to living in the preferred gender (Gijs & Brewaeys, 2007; Green & Fleming, 1990; Pfäfflin & Junge, 1992, 1998).

Course of Condition

The information here is similar to that for diagnostic stability. In general, it appears that the course of GD becomes more fixed over developmental time, with a narrowing of plasticity as affected individuals reach adolescence or adulthood.

Response to Treatment

By definition, full social transitioning and legal sex/gender reassignment make the diagnostic criteria no longer applicable, although these steps support the behavior pattern that was incongruent with the natal sex. These steps also usually reduce

or relieve the distress of the individual. Note that psychosocial and medical approaches that assist individuals with GD in transitioning to a life-style commensurate with their desired gender has no parallel in any other psychiatric category.

There is a great deal of empirical evidence that, in adolescents and adults, the institution of biomedical treatments, such as cross-sex hormonal therapy or gender-reassignment surgery, reduces the gender dysphoria (e.g., Cohen-Kettenis & van Goozen, 1997; Mate-Kole, Freschi, & Robin, 1990; Smith, van Goozen, & Cohen-Kettenis, 2001). Of course, such treatments would not be applied to clinical patients with other psychiatric conditions, so one cannot argue for specificity effects as one might attempt to demonstrate in a pharmacotherapy trial in which patients with diagnosis A respond to the medication, but patients with diagnosis B do not.

More in line with psychiatric treatment approaches in general, several studies and case reports suggest that some psychological treatment approaches may be associated with "desistance," i.e., reduction of cross-gender behavior and desires in children (for review, see Zucker, 2007). Yet, there are no randomized controlled studies in which some children with GD were given a particular treatment compared to a no-treatment comparison group or even a "sham" treatment.

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