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Epidemiology of Gender Identity Disorder: Recommendations for the *Standards of Care* of the World Professional Association for Transgender Health

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ABSTRACT. Formal epidemiological studies on the incidence and prevalence of gender identity disorder (GID) or transsexualism have not been conducted. Accordingly, crude estimates of prevalence have had to rely on indirect methods, such as parental endorsement of behavioral items pertaining to GID on omnibus questionnaires for children and youth or the number of adult patients seeking contra-sex hormonal treatment or sex-transformative surgery at hospital- or university-based gender clinics. Data from child and adolescent parent-report questionnaires show that the frequent wish to be of the other sex is quite low but that periodic cross-gender behavior is more common. In the general population, cross-gender behavior is more common in girls than it is in boys but boys are referred to gender identity clinics more frequently than are girls. Prevalence estimates of GID in adults indicate that it is higher in natal males than in natal females although this may be accounted for by between-sex variation in sexual orientation subtypes. Prevalence estimates of GID in adults based on clinic-referred samples suggest an increase in more recent cohorts. It remains unclear whether this represents a true increase in prevalence or simply greater comfort in the seeking out of clinical care as professionals become more attuned to the psychosocial and biomedical needs of transgendered people.

KEYWORDS. Gender identity disorder, transsexualism, prevalence, incidence, sex ratio

BASIC TERMS

Epidemiology has traditionally been concerned with the patterns of disease or illness that occur in the human population and with the factors that influence these patterns. Over the past several decades, epidemiological methods have been used to study the distribution of psychiatric disorders and, more broadly, various behavioral phenomena. As a backdrop to this article, we will briefly define two key terms that are used in epidemiological research: *prevalence* and *incidence*.

Prevalence

Prevalence refers to the presence or absence of an illness or disorder (or behavioral phenomenon) in a representative (or randomly ascertained) population of individuals. The term *point prevalence* is used when ascertainment is limited to a specific point in time. The term

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period prevalence is used if one asks about the presence or absence of a condition over time, such as at any point during a 12-month time frame. Regarding point prevalence, for example, one could ask, for a randomly selected sample of adults, what percentage tested positive for HIV?

Incidence

Incidence refers to the number of new cases with an illness or disorder (or behavioral phenomenon) that occurs in a population during a specified period of time. *Cumulative incidence*, therefore, is defined as the number of new cases during a specified period of time divided by the total population at the beginning of the time period. As an example, one might find that the percentage of injecting drug users who were HIV+ was 5% at baseline but 10% over a one-year time period.

Predictors of Prevalence and Incidence

Epidemiologists are, of course, interested in identifying the factors that are associated with the prevalence or incidence of a disorder (or behavioral phenomenon) and several methods are commonly used to identify these factors using measures of association: absolute risk, relative risk, risk difference, attributable risk, and odds ratios (Lilienfeld & Lilienfeld, 1980). For example, if one examined the population of people in the United States who are HIV+, one would find that the prevalence (or point prevalence) of HIV is higher among men who have sex with men or individuals who inject drugs (e.g., heroin users) than among men who have sex with women or individuals who do not inject drugs, and these various measures of association could be used to quantify the degree of risk associated with these behavioral characteristics.

GENDER IDENTITY DISORDER AND EPIDEMIOLOGY

Over the past couple of decades, the use of epidemiological methods has become more common in behavioral sexology (Zucker, 2007). For example, in the 1980s, with the outbreak of the AIDS epidemic, it became increasingly important to know about the prevalence of homosexuality in men because it was recognized, at least in Western countries, that the occurrence of HIV was disproportionately high among men who had sex with men. As a result, many national surveys, using a variety of sexual orientation metrics, attempted to ascertain the prevalence of homosexuality (and, of course, its inverse; namely, heterosexuality; Laumann, Gagnon, Michael, & Michaels, 1994). More recently, with the increased attention given to the sexual dysfunctions (sparked by the serendipitous discovery of Viagra as a method of treatment for erectile dysfunction), many studies have attempted to identify their prevalence and the various factors associated with them (e.g., Laumann, Paik, & Rosen, 1999).

In behavioral sexology, it is important to recognize that prevalence and incidence can be greatly affected by the precision in which one measures the construct of interest. Cruder measures are likely to yield higher prevalence rates than measures that are more comprehensive. One also, of course, has to recognize that some behaviors (particularly if they are subject to social sanction) may be underreported. As an example, if one was interested in assessing the prevalence of pedophilia, there could well be an underreporting, particularly if the respondent was not completely assured of anonymity.

Regarding gender identity disorder (GID) in children, adolescents, and adults, behavioral sexology has lagged behind in conducting true epidemiological research. It is probably fair to say that it has not been formally studied by epidemiological methods. Accordingly, this article has had to cull material from sources that are less than ideal and thus the conclusions drawn here should only be considered provisional.

GENDER IDENTITY DISORDER IN CHILDREN

Prevalence

To our knowledge, none of the numerous contemporary epidemiological studies on the prevalence of psychiatric disorders in children and

TABLE 1. Percentage of U.S. Nonreferred Children Whose Mothers Endorsed Child Behavior Checklist Items Relevant to Cross-Gender Identification

Sex of Child	Age Grouping (in Years)								Total
	Behaves Like Opposite Sex (Item 5)								
	4	5	6	7	8	9	10	11	
Boys									
Rating of "1"	6.1	4.0	6.0	4.0	2.0	2.0	6.0	0.0	3.8
Rating of "2"	0.0	0.0	0.0	2.0	2.0	0.0	4.0	0.0	1.0
Girls									
Rating of "1"	2.0	12.0	6.1	4.0	12.0	8.0	12.0	10.0	8.3
Rating of "2"	4.1	2.0	2.0	8.0	0.0	2.0	0.0	0.0	2.3
	Wishes to Be of Opposite Sex (Item 110)								
	4	5	6	7	8	9	10	11	
Boys									
Rating of "1"	2.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	1.0
Rating of "2"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Girls									
Rating of "1"	6.1	2.0	2.0	2.0	2.0	2.0	4.0	0.0	2.5
Rating of "2"	2.0	2.0	2.0	0.0	2.0	0.0	0.0	0.0	1.0

Note. Data from Achenbach and Edelbrock (1981) and reported in Zucker et al. (1997). The CBCL raw data were provided on a diskette by T. M. Achenbach, Ph.D. For each Sex × Age cell, $N = 50$ except in a few cases where there was one missing data point.

youth have examined GID. Accordingly, estimates of prevalence have had to rely on less sophisticated approaches.

Parent-Report

Parent-report questionnaires are widely used in clinical child psychology and psychiatry to establish the prevalence of various behavioral phenomena. The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1981), a parent-report behavior problem questionnaire with excellent psychometric properties, is one of the most widely used measures of this type.

The CBCL includes two items (out of 118) that pertain to cross-gender identification: "behaves like opposite sex" and "wishes to be of opposite sex." Table 1 shows the percentage of U.S. nonreferred children whose mothers endorsed the two CBCL gender items. As reported by Zucker, Bradley, and Sanikhani (1997), among non-referred boys (ages 4–11 years), 3.8% received a rating of a 1 and 1.0% received a rating of a 2 for the item "behaves like opposite sex," but only 1.0% received a rating of a 1 and 0.0% received a rating of a 2 for the item "wishes to be of opposite sex." The comparable percentages among non-referred girls were 8.3, 2.3, 2.5, and 1.0%, respectively. Thus, in a sample of non-referred boys and girls, the percentage of children whose mothers endorsed extreme cross-gender behavior (i.e., ratings of a 2) was quite low. The data also suggest that there is a sex difference in the occurrence of mild displays of cross-gender behavior but not with regard to more extreme cross-gender behavior.

These findings were largely replicated in a recent large-scale study of Dutch twins ($N =$ 23,393) at ages 7 and 10 years (van Beijsterveldt, Hudziak, & Boomsma, 2006). At both ages and for both sexes, behaving like the opposite sex was more common than wishing to be of the opposite sex (ratings of 1 and 2 combined); in general, more girls than boys were rated as showing these behaviors. Again, the percentage of both boys and girls who wished to be of the opposite sex was quite low (range, 0.9–1.7% by sex and age; see Table 2).

Behavioral Observations

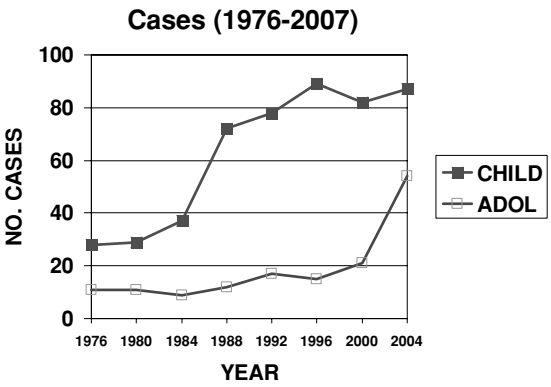
Other estimates of prevalence might be derived from behavioral observation studies of children in whom specific cross-gender behaviors were assessed. Fagot (1977), for example, attempted to identify statistically preschool children with "moderate" levels of cross-gender behavior. Such children were defined as obtaining

TABLE 2. Percentage of Dutch Twins (7 and 10 Years) Whose Mothers Endorsed Child Behavior Checklist Items Relevant to Cross-Gender Identification

Sex of Child	Age Group (in Years)	
Behaves Like Opposite Sex (Item 5)		
Boys	7 ($n = 7202$)	10 ($n = 4266$)
Rating of "1" or "2"	3.4	2.4
Girls	7 ($n = 7395$)	10 ($n = 4530$)
Rating of "1" or "2"	5.2	3.4
Wishes to Be of Opposite Sex (Item 110)		
Boys	7 ($n = 7202$)	10 ($n = 4266$)
Rating of "1" or "2"	1.0	1.0
Girls	7 ($n = 7395$)	10 ($n = 4530$)
Rating of "1" or "2"	1.7	0.9

Note. Data from van Beijsterveldt et al. (2006).

FIGURE 1.



Note. From Zucker, Bradley, Owen-Anderson, Kibblewhite, and Cantor (2008)

preference scores for opposite-sex activities that were at least 1 SD above the mean of the opposite sex and preference scores for same-sex activities that were at least 1 SD below the mean of their own sex. Based on this criterion, 7 (6.6%) of 106 boys and 5 (4.9%) of 101 girls displayed moderate cross-gender preferences (for other approaches, see Iervolino, Hines, Golombok, Rust, & Plomin, 2005; Zucker, 1985, pp. 87–95).

One limitation of these data is that they do not identify adequately patterns of cross-gender behavior that would be of use in determining "caseness"; i.e., the presence or absence of disorder using *DSM* criteria (see, e.g., Goodman, Yude, Richards, & Taylor, 1996; Wing, Bebbington, & Robins, 1981). Thus, such data may be best viewed as screening devices for more intensive evaluation (cf. Pleak, Meyer-Bahlburg, O'Brien, Bowen, & Morganstein, 1989; Sandberg, Meyer-Bahlburg, Ehrhardt, & Yager, 1993).

Incidence

Over two decades ago, Lothstein (1983) speculated that parents who had been influenced by the cultural Zeitgeist to use "nonsexist" socialization techniques may have inadvertently induced gender identity conflict in their children. There are, however, no systematic data regarding changes, or the lack thereof, in the incidence of GID over the past several decades.

Figure 1 shows the number of referrals of children to the first author's clinic since its inception in the mid-1970s, grouped at 4-year intervals. Starting in 1989, the referral rate appeared to increase and has remained reasonably stable over the past 10 years. Of course, it is impossible to know whether this has any bearing on incidence, which can only be studied epidemiologically. The increased referral rate may simply reflect changes in "local conditions." It is possible, for example, that our clinic now has more visibility. It has been our impression that general practitioners, pediatricians, and school psychologists have become more sensitive to gender identity issues in children, perhaps because, over time, its "official" standing of GID in the *DSM* has become more widely known. Parents may also have become more sensitive to gender identity issues, given that so much more is now being written about these matters in the popular press, magazines for parents, and so on.

Sex Differences in Referral Rates

Among children between the ages of 3–12, it has been found that boys are referred clinically more often than girls for concerns regarding gender identity. From the first author's specialty clinic in Toronto, Canada, Cohen-Kettenis, Owen, Kaijser, Bradley, and Zucker (2003) reported a sex ratio of 5.75:1 ($N = 358$) of boys to girls based on consecutive referrals from 1975 to 2000. In this study, comparative

data were also available on children evaluated at the sole gender identity clinic for children in Utrecht, The Netherlands. Although the sex ratio was significantly smaller at 2.93:1 ($N = 130$), it still favored referral of boys over girls.

Because we do not really know the true prevalence of GID in boys and girls, it is unclear whether the sex difference in referral rates reflects this or whether other factors are involved. It is possible, for example, that there is a greater biological vulnerability for GID in males. It has been noted that, among mammals, development along male lines is dependent on the production of androgen during early fetal development. If appropriate androgen secretion does not occur, or if cell receptors do not respond to circulating androgen, then fetal development proceeds along female lines, despite the presence of XY sex chromosomes. The androgen-insensitivity (testicular feminization) syndrome (see, e.g., Perez-Palacios, Chavez, Mendez, Imperato-McGinley, & Ulloa-Aguirre, 1987) in genetic males is the most poignant illustration of this possibility. Accordingly, it has been suggested that male fetal development is more "complex" than female fetal development and thus more susceptible to errors that may affect postnatal psychosexual differentiation (e.g., Gadpaille, 1972; Money & Ehrhardt, 1972; Stoller, 1972).

Whatever the contribution of biological events, social factors appear to play a role in accounting for the sex difference in referral rates. For example, the peer group is less tolerant of cross-gender behavior in boys than in girls, as shown in both observational studies of typical children and in experimental analogue research (reviewed by Zucker, 1985; see also Zucker, Wilson-Smith, Kurita, & Stern, 1995).

More direct clinical evidence for the differential reaction to cross-gender behavior in boys vs. girls comes from Green's studies of feminine boys and masculine girls. Green (1976) and Green, Williams, and Harper (1980) obtained parental assessments of the male peer group relations of 55 feminine and 45 control boys (all of whom proved conventionally masculine). The former had been referred by various professionals for participation in a research study. Green, Williams, and Goodman (1982) also obtained parental assessments of the female peer group relations of 50 masculine ("tomboy") girls and 49 feminine ("non-tomboy") girls, who were solicited through newspaper advertisements.

Green found that the masculine boys were more likely to have good same-sex peer group relations than were the feminine boys, especially as judged by the "good mixer" category. The masculine girls tended to do less well than the feminine girls with female peers, although this trend was not confirmed in the analysis of paternal ratings (Green et al., 1982). Masculine girls were less likely to be "rejected" by same-sex peers than were the feminine boys and were more likely to be regarded as "leaders" or good mixers. One caveat in interpreting these differences is that the masculine girls, unlike the feminine boys, were not referred through clinical channels.

Adults (e.g., parents, teachers) are also less tolerant of cross-gender behavior in boys than in girls (e.g., Fagot, 1977, 1985; Langlois & Downs, 1980). Weisz and Weiss (1991) devised a "referability index" (RI) that reflected the frequency with which a child problem, adjusted for its prevalence in the general population, resulted in a clinic referral. All 118 items from the CBCL were analyzed in a comparison of clinic-referred and non-referred children. Among parents in the United States, the 20 most referable problems (e.g., vandalism, poor schoolwork, attacks people) appeared to be relatively serious. In contrast, the 20 least referable problems (e.g., bragging, teases a lot, likes to be alone) appeared less so. Weiss (personal communication, March 4, 1992) indicated that, for boys, the CBCL item "wishes to be of opposite sex" had an RI of 91/118 (i.e., in the upper quartile) and "behaves like opposite sex" had an RI of 80/118. For girls, the RI was lower: 55/118 for "wishes to be of opposite sex" and 14/118 for "behaves like opposite sex." In addition to their immediate differential reactions to cross-gender behavior in boys and girls, adults are more likely to predict long-term atypical outcomes, such as homosexuality, in feminine boys than in masculine girls (Antill, 1987; Martin, 1990).

These studies, particularly that of Weisz and Weiss (1991), led us to predict that girls would be required to display more extreme cross-gender

behavior than boys before parents sought out a clinical assessment. Two studies provided data that supported this prediction (Cohen-Kettenis et al., 2003; Zucker et al., 1997). This higher threshold for referral appeared consistent with the fact that, in both the Toronto and Utrecht clinics, girls were referred, on average, about 10 months later than were boys (M age, 8.1 years vs. 7.3 years, respectively), a significant difference, despite the fact that the girls showed, on average, higher levels of cross-gender behavior than the boys (Cohen-Kettenis et al., 2003). However, it is important to note that the sexes did not differ in the percentage who met the complete *DSM* criteria for GID; thus, there was no gross evidence for a sex difference in false-positive referrals.

GENDER IDENTITY DISORDER IN ADOLESCENTS

Like their child counterparts, there are no formal epidemiological studies on GID in youth. Also like their child counterparts, data from measures like the CBCL show very low base rates of cross-gender behavior in non-referred youth (Achenbach & Edelbrock, 1981).

In the first author's clinic, the number of referred adolescents for gender identity concerns has been lower than that for children. At the end of 2007, for example, there had been a total of 502 gender-referred children (both threshold and subthreshold for the GID diagnosis) compared to a total of 150 adolescents (both threshold and subthreshold for the GID diagnosis) (see also Figure 1). There are several possible explanations for this: (a) the prevalence of GID is higher in children than adolescents, reflecting the fact that GID does not necessarily persist between childhood and adolescence and/or adulthood (Zucker, 2005); (b) there are barriers to referrals of adolescents; or (d) adolescents may be seen in a greater variety of clinical settings (e.g., community care centers for transgendered youth).

The sex ratio in adolescent referrals favored boys to girls (1.75:1), but this was considerably more narrow than the sex ratio among gender-referred children; however, it was not that much different from the sex ratio of 1.20:1 ($N = 133$) ratio of male to female adolescents reported by Cohen-Kettenis and Pfäfflin (2003) in The Netherlands.

GENDER IDENTITY DISORDER IN ADULTS

Prevalence

As is the case with children and adolescents, there are also no formal epidemiological studies on GID in adults. The most common indirect method that has been used to gauge the prevalence of GID in adults has been to rely on the number of persons who attend specialty hospital- and university-based clinics serving as gateways for surgical and hormonal sex reassignment. There are, of course, obvious problems with such a method: not all adults with gender dysphoria may seek out assistance from such specialty clinics, so gauging prevalence from this source of information may underestimate prevalence; nowadays, with the increase in community-based or alternative care settings for transgendered people, many adults with GID may simply escape notice because care providers in these settings are probably less likely to publish information on the number of clients served.

In this article, we have relied on specialty clinic data that have provided some crude estimates of prevalence. Table 3 shows information from 25 clinics, of which some attempted to estimate prevalence. Across these clinics, the data in Table 3 show several commonalities: with only a couple of exceptions, the number of male-to-female transsexuals was more common than female-to-male transsexuals; the mean age at presentation was younger in female-to-male transsexuals than in male-to-female transsexuals; and the percentage of transsexuals (vis-à-vis one's birth sex) with an exclusive sexual attraction (or sexual orientation) to members of their birth sex (in females, a gynephilic sexual orientation; in males, an androphilic sexual orientation) was higher among natal females than among natal males.

These data suggest that the "true" prevalence of GID in natal males may be higher than that in

TABLE 3. Prevalence of Gender Identity Disorder in Adults

Authors	Period Reported	Country	Inclusion Criteria	*N*	MtF: FtM	Prevalence[a]	Annual Incidence[a]	Mean Age at Presentation (in Yrs)	% Exclusively Homosexual[b]
Sørensen & Hertoft (1982)	1951–1981	Denmark	Diagnosis of transsexualism	37	3.6:1	—	—	—	MtF: 67%[c] FtM: 100%[c]
Hoenig & Kenna (1974)	1958–1968	England and Wales	Diagnosis of transsexualism	66	2.9:1	MtF: 1:34,000 FtM: 1:108,000	0.2–0.3 per 100,000[d]	—	—
Wålinder (1971)	1967–1970	Sweden	Diagnosis of transsexualism	27	1:1	—	0.15 per 100,000	—	—
Dixen, Maddever, Van Maasdam, & Edwards (1984)	circa 1967–1979	USA	Applicants for sex reassignment	764	1.7:1	—	—	MtF: 29.0 FtM: 27.3	MtF: 47%[c] FtM: 51%[c]
Pauly (1968)	1968	USA	Diagnosis of transsexualism	—	4:1[e]	MtF: 1:100,000[e] FtM: 1:400,000[e]	—	—	—
O'Gorman (1982)	circa 1968–1981	Northern Ireland	Diagnosis of transsexualism	28	3:1	MtF: 1:35,000[f] FtM: 1:100,000[f]	—	MtF: 26.7 FtM: 24.5	—
Sørensen & Hertoft (1980)	1970–1977	Denmark	Applicants for sex reassignment	65	2.8:1	—	0.21 per 100,000	—	—
Garrels et al. (2000)	1970–1998	Germany	Diagnosis of transsexualism	1773	2:1[g]	—	—	MtF: 32.2 FtM: 27.6	—
Tsoi (1988)	1972–1986	Singapore	Diagnosis of transsexualism	458	3:1	MtF: 1:2900 FtM: 1:8300	—	MtF: 24.1 FtM: 24.1	—
Landén, Wålinder, & Lundström (1996, 1998)	1972–1992	Sweden	Applicants for sex reassignment	233	1.4:1	—	0.17 per 100,000	MtF: 32.2 FtM: 29.3	MtF: 79% FtM: 97%
Eklund, Gooren, & Bezemer (1988)	1976–1986	Netherlands	Receiving hormone therapy	538	3:1	MtF: 1:18,000 FtM: 1:54,000	—	—	—
Ross, Wålinder, Lundström, & Thuwe (1981)	1979–1981	Australia	Diagnosis of transsexualism	243	6.1:1	MtF: 1:24,000 FtM: 1:150,000	—	—	—
Blanchard, Clemmensen, & Steiner (1987)	1980–1984	Canada	Gender dysphoria	197	1.7:1	—	—	MtF: 30.6 FtM: 25.3	MtF: 42% FtM: 99%
Dulko (2000)[h]	1980–1998	Poland	Diagnosis of transsexualism	not stated	1:3.4	—	0.26 per 100,000	—	—

Verschoor & Poortinga (1988)	7-yr period, before 1988	Netherlands	Receiving hormone therapy	223	3.4:1	—	—	—	MtF: 37%[c] FtM: 39%[c]
Weitze & Osburg (1996)	1981–1990	Germany	Granted legal change of name or gender status	1047	2.3:1	MtF: 1:42,000 FtM: 1:104,000	0.21 per 100,000	MtF: 34 FtM: 30	—
De Cuypere et al. (2007)	1985–2003	Belgium	Completed sex reassignment surgery	412	2.4:1	MtF: 1:12,900 FtM: 1:33,800	—	MtF: 32.7 FtM: 28.5	—
Bakker, van Kesteren, Gooren, & Bezemer (1993)	1986–1990	Netherlands	Receiving hormone therapy	713	2.5:1	MtF: 1:11,900 FtM: 1:30,400	—	—	—
De Cuypere, Jannes, & Rubens (1995)	1986- 1994	Belgium	Diagnosis of transsexualism	35	1.7:1	—	—	—	MtF: 46% FtM: 85%
Olsson & Möller (2003)	1992–2002	Sweden	Applicants for sex reassignment	169	1.9:1	—	0.24 per 100,000	MtF: 36.5 FtM: 30.0	—
Gómez Gil et al. (2006)	1996–2004	Spain	Diagnosis of transsexualism	161	2.6:1	MtF: 1:21,000 FtM: 1:48,100	0.73 per 100,000[i]	—	—
Wilson, Sharp, & Carr (1999)	circa 1998	Scotland	Gender dysphoria	273	4:1	MtF: 1:7400 FtM: 1:31,200	—	—	—
Wilson, Sharp, & Carr (1999)	circa 1998	Scotland	Receiving hormone therapy or post-surgery	160	3.8:1	MtF: 1:12,800 FtM: 1:52,100	—	—	—
Smith, van Goozen, Kuiper, & Cohen-Kettenis (2005)	before 2003	Netherlands	Completed sex reassignment	187	1.5:1	—	—	MtF: 32.2 FtM: 24.2	MtF: 54% FtM: 70%
Dulko & Imielinski (2004)	not stated	Poland	Diagnosis of transsexualism	1454	1:3.4	—	—	—	—

[a]Calculation based on population over 15 years of age, unless. otherwise noted.
[b]Relative to birth sex; based on self-reported sexual attraction, unless otherwise noted.
[c]Based on sexual experience.
[d]Estimated figures.
[e]Estimated figure; calculation based on entire population.
[f] Calculation based on entire population.
[g]For period 1970-1994; for period 1995-1998, the ratio was 1.2:1.
[h]Results summarized in Herman-Jegliñska, Grabowska, & Dulko (2002).
[i]For period 2000-2004.

natal females. This might be explained by at least two factors: males are more vulnerable to GID than females (for both biological and psychosocial reasons); the higher number of natal males may be related to the greater percentage of males than females who are not exclusively homosexual (in relation to one's birth sex). The older age at presentation in natal males is likely associated with sexual orientation. There are a number of studies that show that non-androphilic males with GID present at an older age than those who are androphilic (e.g., Blanchard, 1994).

Based on the studies reported in Table 3, it appears that the "prevalence" of GID in adults is increasing. In the *DSM-IV* (American Psychiatric Association, 1994), prevalence was reported to be 1:30,000 males and 1:100,000 females, which may have been drawn from the data reported by Hoenig and Kenna (1974) over 30 years ago for patients assessed between 1958 and 1968. Between the 1960s and 1990s, there appears to be at least a threefold increase (and as high as an eightfold increase) in patients presenting to clinics in Western Europe. Of note, the study by Tsoi (1988) suggests that the prevalence of GID in Singapore is considerably higher than in any Western country. This finding is consistent with the impression of Winter (2006), who has argued that the prevalence of male-to-female transsexualism in Thailand is remarkably more common than it is in the West, with estimates as high as 1:180 to 1:3000.

SUMMARY

Because formal epidemiological studies on GID in children, adolescents, and adults are lacking, no strong conclusion about its prevalence can be drawn. We also can say very little about evidence for changes in incidence. Nonetheless, it is probably fair to say that Meyer-Bahlburg's (1985) characterization of GID as a "rare phenomenon" is not unreasonable. At the present time, it is certainly the case that "consciousness" about GID has increased: in professional circles, in the mass media, and within the lay public. GID can be conceptualized as an end-point of a continuum of cross-gender identification and it is conceivable that there are now more individuals who identify within this broader spectrum of cross-gender identity (under the rubric of terms like *transgenderism* or even *gender queer*). Until population-based studies are carried out with the appropriate methodological rigor, we can only speculate on the number of individuals whose subjective gender identity departs from the traditional male-female binary.

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