

Gender-Related Traits in Transsexuals and Nontranssexuals

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Thirty-eight male-to-female (M-to-F) transsexuals, 7 female-to-male (F-to-M) transsexuals, 13S nontranssexual men, and 225 nontranssexual women were assessed on the following: gender diagnosticity (GD) measures, which assessed male- vs. female-typical occupational and hobby preferences; instrumentality; expressiveness; self-ascribed masculinity; and self-ascribed femininity. M-to-F transsexuals differed strongly and significantly from nontranssexual men on GD and self-ascribed femininity (effect sizes from 1.84 to 3.40) and more weakly on instrumentality, expressiveness, and self-ascribed masculinity (effect sizes from 0.40 to 0.56). F-to-M transsexuals differed strongly and significantly from nontranssexual women on GD and on self-ascribed masculinity and femininity (effect sizes from 2.45 to 3.97), but not on instrumentality or expressiveness (effect sizes of 0.07 and 0.39). The degree to which the six assessed gender-related traits distinguished transsexual from nontranssexuals was strongly correlated with the degree to which these same traits distinguished nontranssexual men from nontranssexual women. Using comparison data from past research, M-to-F transsexuals were quite similar to gay men on all gender-related traits except self-ascribed femininity, but F-to-M transsexuals were considerably more masculine than lesbian women on all gender-related traits except for instrumentality and expressiveness.

KEY WORDS: transsexuals; gender-related traits; masculinity; femininity; gender differences.

INTRODUCTION

Many studies have contrasted the personalities of transsexual and nontranssexual individuals, often with the goal of diagnosing transsexualism and understanding its origins (Blanchard and Freund, 1983; Bodlund and Armelius, 1995; Freund et al., 1977; Johnson and Hunt, 1990; Leavitt and Berger, 1990; Lothstein, 1984; Midence and Hargreaves, 1997). The current research extends this work by focusing specifically on whether transsexual and nontranssexual individuals differ on gender-related interests, on instrumentality and expressiveness, and on self-ascribed masculinity and femininity. Studying the relationship between gender-related traits and individuals' status as transsexual or nontranssexual not only has the potential

to yield information about the nature of transsexualism, but it may also provide new information about the nature of gender-related traits. For just as men and women differ more strongly on some gender-related traits than others (Lippa, 2001), transsexuals may similarly differ from nontranssexuals more strongly on some gender-related traits than others.

The Measurement of Gender-Related Traits

In seminal work, Terman and Miles (1936) developed a bipolar masculinity--femininity (M--F) scale, which included diverse items showing large gender differences in normative populations. A number of other M--F scales were developed in this tradition, including the M--F scale of the Strong Vocational Interest Blank (Strong, 1943), the Fe scale of the California Psychological Inventory (Gough, 1987), and the Mf scale of the MMPI (Hathaway, 1980). These scales typically included a variety of items that assessed gender-related interests, occupational preferences, personality traits, emotional styles, and sexual preferences (see Constantinople, 1973; Lippa, 2001).

In the early 1970s a two-dimensional conception of masculinity and femininity supplanted the earlier bipolar approach to M--F. This newer approach held that masculinity and femininity are separate dimensions, with masculinity defined in terms of instrumental personality traits (e.g., dominance, independence) and femininity defined in terms of expressive traits (warmth, compassion). A number of self-report inventories were developed to assess instrumentality and expressiveness, including the Bem Sex-Role Inventory (BSRI; Bem, 1974, 1981) and the Personal Attributes Questionnaire (PAQ; Spence et al., 1974; Spence and Helmreich, 1978). Although instrumentality and expressiveness scales continue to be widely used in gender research, considerable evidence suggests that these scales do not measure masculinity and femininity per se, but rather dominance and nurturance (Lubinski et al., 1983; Paulbus, 1987; Spence and Buckner, 1995; Spence and Helmreich, 1980). Recent research shows further that instrumentality and expressiveness overlap substantially with the Big Five traits (Lippa, 1991, 1995b, 2001).

The gender diagnosticity approach was developed to address some of the limitations of instrumentality and expressiveness scales (see Lippa, 1991, 1995a,b, in press; Lippa and Connelly, 1990). Gender diagnosticity (GD) refers to the Bayesian probability that an individual is predicted to be male or female based on gender-related interests. GD is formally computed through the application of discriminant analyses (see Lippa, 1991, 1995b; Lippa and Connelly, 1990; this process will be described more fully later in this paper). Discriminant analysis identifies the linear combination of predictor variables--the discriminant function--that optimally predicts group membership (in this case, being male or female). Bayes' theorem is then applied to individuals' discriminant function scores to compute the probability that an individual is

male or female.

A number of studies have demonstrated that GD can be measured reliably, both within and across the sexes, from self-report data such as occupational preference ratings. Furthermore, GD measures assessed from interests prove to be distinct from instrumentality and expressiveness (Lippa, 1991, 1995b; Lippa and Connelly, 1990). Interest-based GD measures also prove to be independent of the Big Five personality traits (Lippa, 1991, 1995b), and they often predict varied gender-related behaviors and attitudes better than instrumentality and expressiveness do (Lippa, 2001).

Lippa and Arad (1997) found that GD was more strongly associated with men's sexual orientation than were instrumentality or expressiveness. In three additional studies Lippa (2000) found that men's and women's sexual orientations were much more strongly related to GD measures than to measures of instrumentality and expressiveness. Differences between homosexual and heterosexual individuals on GD measures showed effect sizes ranging from 0.96 to 2.70, with gay men more female-typical than heterosexual men and lesbian women more male-typical than heterosexual women in their occupational and hobby preferences.

GD, instrumentality, and expressiveness can be conceptualized in terms of broader structural models of individual differences (Lippa, 2001). For example, instrumentality and expressiveness are, in essence, gender-linked Big Five traits. GD assesses M--F in terms of gender-linked vocational preferences and interests, and it can be conceptualized as a trait that overlaps substantially with the People--Things dimension of vocational interests (see, Holland, 1992, 1996; Lippa, 1998c; Prediger, 1982). On average, women and female-typical individuals are more interested in occupations that are people-oriented (e.g., teacher, counselor, manager), whereas men and male-typical individuals are more interested in occupations that are thing-oriented (e.g., engineer, mechanic, farmer).

Masculinity and femininity can be directly assessed in terms of individuals' conscious self-concepts. For example, Storms (1979) developed a six-item scale that asked respondents to rate their degree of agreement with the following questions: "How masculine (feminine) is your personality?" "How masculine (feminine) do you act, appear, and come across to others?" "In general, how masculine (feminine) do you think you are?"

Previous research on gender-related traits in transsexuals and nontranssexuals has often inadvertently combined the various approaches to masculinity and femininity just described. For example, studies have used multifaceted "gender identity scales" (e.g., Blanchard and Freund, 1983; Freund et al., 1977; see Bailey, 1996, for a broad discussion of gender identity) and the Mf scale of the MMPI (see Lothstein, 1984). However,

because these scales contain multidimensional content, research has not identified which kinds of content (e.g., Big Five items, occupational preferences and interests, self-ascribed masculinity and femininity) best distinguish transsexuals from nontranssexuals. By employing relatively pure measures of gender-related traits, the current research sought to clarify which gender-related traits best distinguish transsexual from nontranssexual individuals.

METHOD

Participants

Transsexual participants were volunteers recruited from two support groups for transsexuals in Orange County and Los Angeles, California. (2) Participants received questionnaires, which they completed privately and mailed back anonymously in stamped addressed envelopes attached to questionnaires. Thirty-eight M-to-F transsexuals participated, ranging in age from 22 to 57 (median age = 37). Seven F-to-M transsexuals participated, ranging in age from 24 to 42 (median age = 34).

Heterosexual, nontranssexual participants were volunteers recruited from several human sexuality classes at California State University, Fullerton. One hundred and thirty-six men participated, ranging in age from 22 to 57 (median age = 23), and 225 women participated, ranging in age from 18 to 49 (median age = 22). Although transsexual participants were older than nontranssexual participants on average, none of the results that follow were much changed when older (> 30 years old) transsexuals were excluded from analyses or when older heterosexuals (groups with mean ages similar to those of transsexual groups) were used as comparisons. Accordingly, the results that follow make use of the full samples of transsexual and nontranssexual participants.

Measures

Questionnaires completed by transsexual and nontranssexual participants included a cover sheet that asked for demographic information as well as a series of personality and attitude scales. The scales most relevant to the current study were several scales assessing gender-related traits. These included the PAQ instrumentality and expressiveness scales (as presented in Spence and Helmreich, 1978) and questionnaires that asked participants to rate their degree of preference for 74 occupations and for 60 hobbies. Occupational and hobby preference ratings were made on a 5-point scale ranging from 1 - strongly dislike to 5 - strongly like and were used to compute GD measures. The questionnaire packet also included Storms' (1979) 6-item scale of self-ascribed masculinity (3 items) and self-ascribed femininity (3 items). Participants were also asked to rate their degree of sexual attraction

to men and to women on a 7-point scale.

Participants reported which of the following labels they used to describe themselves: Heterosexual ("straight"), Gay, Lesbian, Bisexual, or Transsexual or Transgender. They did so by checking "True" or "False" to the question, "I currently use this label to describe myself." Participants also reported their gender ("male" or "female"). All individuals categorized as nontranssexuals in subsequent analyses were heterosexual in self-reported sexual orientation and did not label themselves as transsexual or transgendered. All M-to-F and F-to-M transsexuals were individuals who labeled themselves as such.

RESULTS

Computation and Reliability of Gender-Related Trait Measures

Gender diagnostic probabilities were computed by applying seven discriminant analyses to seven nonoverlapping subsets of participants' 74 occupational preference ratings and similarly, by applying six discriminant analyses to six nonoverlapping subsets of participants' 60 hobby preference ratings (see Lippa, 1995b; Lippa and Connelly, 1990, for a more complete discussion of computation methods). Biological sex of participant was the grouping variable in these analyses. Thus, heterosexual nontranssexual men and M-to-F transsexuals were treated as biological males, and heterosexual nontranssexual women and F-to-M transsexuals were treated as biological females. Each discriminant analysis yielded the probability that a given participant was classified as "biological male" or "biological female," based on his or her preference ratings. An individual's overall GD score based on occupational preferences was simply the mean of the seven probabilities computed by discriminant analyses conducted on occupational preference item packets. Similarly, an individual's overall GD score based on hobby preferences was the mean of the six probabilities computed by the discriminant analyses conducted on hobby preference item packets. In essence, GD measures give the probability that an individual is predicted to be male or female based on his or her pattern of occupational (or hobby) preference ratings.

The multiple discriminant analyses conducted on item packets permitted assessment of the reliability of gender diagnostic probabilities. These reliabilities were acceptably high. For GD based on occupation preferences, reliabilities (alpha coefficient) were 0.90 for all participants, 0.84 for biological males, and 0.81 for biological females. For GD based on hobby preferences, reliabilities were 0.88 for all participants, 0.78 for biological males, and 0.72 for biological females. PAQ instrumentality and expressiveness scales were scored in standard ways (however, items were averaged rather than summed), and their reliabilities were respectively 0.73 and 0.77. The three items assessing self-ascribed masculinity from Storms's scale were averaged

(Storm, 1979), as were the three items assessing self-ascribed femininity. The reliability of self-ascribed masculinity was 0.88 for all participants, 0.77 for males, and 0.83 for females. The reliability of self-ascribed femininity was 0.96 for all participants, 0.94 for males, and 0.87 for females. (3)

Contrasting Gender-Related Traits in Transsexuals and Nontranssexuals

Table I presents mean scores on the six assessed gender-related traits for four groups: M-to-F transsexuals, F-to-M transsexuals, heterosexual nontranssexual men, and heterosexual nontranssexual women. Table II presents effect sizes for three group contrasts: (1) differences between M-to-F transsexuals and nontranssexual men, (2) differences between F-to-M transsexuals and nontranssexual women, and (3) differences between nontranssexual men and nontranssexual women. Table II also indicates differences that were statistically significant, based on t-tests between contrasted groups.

As Tables I and II show, differences between M-to-F transsexuals and nontranssexual men were significant for all gender-related traits. Effect sizes were very large for GD based on occupational preferences, GD based on hobby preferences, and self-ascribed femininity, but were moderate for instrumentality, expressiveness, and self-ascribed masculinity. Despite the small sample of F-to-M transsexuals ($N = 7$), four gender-related traits showed significant differences between F-to-M transsexuals and nontranssexual women: GD based on occupational preferences, GD based on hobby preferences, self-ascribed masculinity, and self-ascribed femininity. In contrast, instrumentality and expressiveness did not show significant differences. Differences between F-to-M transsexuals and nontranssexual women were very large for GD based on occupational preferences, GD based on hobby preferences, self-ascribed masculinity, and self-ascribed femininity, but were much smaller for instrumentality and expressiveness.

Nontranssexual men and nontranssexual women differed significantly on all six gender-related traits. However, effect sizes again varied substantially across traits. Male-female differences were very large for GD measures and for self-ascribed masculinity and femininity, but were more modest for instrumentality and expressiveness. To determine how well transsexual versus nontranssexual differences mirrored male versus female differences on gender-related traits, the first two effect-size column vectors in Table II were correlated with the last column. The two resulting correlations were -0.96 and 0.95 (two-tailed p 's < 0.01), indicating that gender-related traits that strongly distinguished transsexuals from nontranssexuals (e.g., GD measures, self-ascribed femininity) also strongly distinguished nontranssexual men from nontranssexual women, whereas traits that more modestly distinguished transsexuals from nontranssexuals (e.g., instrumentality and expressiveness) also modestly distinguished nontranssexual men from nontranssexual women.

As noted before, Lippa (2000) assessed gender-related traits in large samples of gay men and lesbian women. In Table III, the pooled data for gay men ($N = 189$) and for lesbian women ($N = 132$) are contrasted with the current results for M-to-F and F-to-M transsexuals. Table IV presents effect sizes and significance tests for two group contrasts: (1) M-to-F transsexuals vs. gay men and (2) F-to-M transsexuals vs. lesbian women. In general, these contrasts show that M-to-F transsexuals scored similarly to gay men on all measures except for self-ascribed femininity, which was considerably higher for transsexuals. In contrast, F-to-M transsexuals were significantly more masculine than lesbian women on all measures except for instrumentality and expressiveness.

DISCUSSION

The current findings add to existing evidence that GD measures and scales of self-ascribed masculinity and femininity more validly assess masculinity and femininity than do instrumentality and expressiveness scales. Certainly, if any groups (other than men and women) might be expected, a priori, to differ strongly on measures of masculinity and femininity, it would be transsexuals and nontranssexuals. In the current study, instrumentality and expressiveness scales did not strongly distinguish transsexuals from nontranssexuals nor did they most strongly distinguish men from women. In contrast, GD measures and self-ascribed masculinity and femininity scales strongly distinguished transsexuals from nontranssexuals, and they also strongly distinguished men from women. Stated in terms of the broader structural models described at the start of this paper, Big Five measures of masculinity and femininity (instrumentality and expressiveness scales) did not strongly differentiate transsexuals from nontranssexuals. However, GD measures (which are linked to the vocational/interest circumplex) and measures of self-ascribed masculinity and femininity did strongly differentiate transsexuals from nontranssexuals.

Although the current study documented large mean GD differences between transsexual and nontranssexual individuals, transsexuals were by no means homogeneous on GD measures. In fact, the GD scores of M-to-F transsexuals varied widely, showing a range of 0.18-0.80 for GD based on occupational preferences and a range of 0.17-0.76 for GD based on hobby preferences. The mean GD scores of M-to-F transsexuals were 0.45 for GD based on occupational preferences and 0.46 for GD measures based on hobby preferences. Thus these individuals were, on average, slightly more female-typical than male-typical in their occupational and hobby preferences. However, the mean GD scores of M-to-F transsexuals were not as low as those of nontranssexual women (whose mean GD score were respectively 0.35 and 0.32). Thus the mean GD scores of M-to-F transsexuals were intermediate between the corresponding mean scores for nontranssexual men and women, but closer to women's than to men's mean scores.

In comparison, the mean GD scores of F-to-M transsexuals were 0.68 for GD based on occupational preferences and 0.69 for measures based on hobby preferences. Thus F-to-M transsexuals displayed extremely male-typical patterns of occupational and hobby preferences. Indeed, F-to-M transsexuals' GD means were very close to the GD means of nontranssexual men (which were respectively 0.68 and 0.71) and very dissimilar from the GD means of nontranssexual women.

Despite the small sample of F-to-M, their GD scores also showed substantial variation, ranging from 0.51 to 0.86 for GD based on occupational preferences and from 0.41 to 0.90 for GD based on hobby preferences.

M-to-F transsexuals proved to be relatively similar to gay men, except for their higher level of self-ascribed femininity. Storms' scale of self-ascribed femininity includes the item, "How feminine do you act, appear, and come across to others?" Because M-to-F transsexuals more often attempt to appear physically female than do gay men, this one item may help explain why M-to-F transsexuals scored substantially higher than gay men on self-ascribed femininity. Despite the difference between M-to-F transsexuals and gay men on self-ascribed femininity, the current findings indicate that on other gender-related traits, there was substantial similarity between M-to-F transsexuals and gay men. This finding provides at least circumstantial evidence that some varieties of M-to-F transsexualism may share psychological similarities with male homosexuality.

In contrast, F-to-M transsexuals were more masculine than lesbian women on GD measures and on self-ascribed masculinity and femininity. Given the small sample of F-to-M transsexuals in the current study, these findings must be regarded as tentative. However, if replicated, the current findings suggest that F-to-M transsexualism and lesbianism may have less in common--in terms of psychological profile--than do M-to-F transsexualism and male homosexuality. One possible explanation for the differing results for men and women may be that the social construction of lesbianism is more complex and multifaceted than that of male homosexuality (see Baumeister, 2000; Bohan, 1996; Brown, 1995; Golden, 1996).

The current findings are potentially relevant to counseling and screening of transsexual individuals, for they suggest that GD measures and scales of self-ascribed masculinity and femininity are much more valid as indicators of transsexual and nontranssexual status than are instrumentality and expressiveness scales. Just as some gender-related traits are better than others at distinguishing transsexuals from nontranssexuals, it may similarly be true that some gender-related traits are better than others at distinguishing among subtypes of transsexuals. Blanchard (1985, 1988, 1989a,b, 1990) has described two subtypes of M-to-F transsexuals: (1) the "homosexual" M-to-F transsexual, who is characterized by early effeminate

behavior, early transsexual identity, and erotic attraction to men, and (2) the autogynephilic M-to-F transsexual, who is characterized by more masculine childhood behavior, later realization of transsexual identity, and more variable sexual orientation, which often includes sexual arousal to the fantasy of one's self as female. Because of the relatively small numbers of transsexuals assessed in the current research, it was not possible to compare with adequate statistical power whether various gender-related traits distinguish these proposed subtypes. (4) However, given the strength of the current results, this would be an intriguing topic for further research.

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(2.) I express great appreciation to members of "LOTS" (Loved Ones of Transsexuals) and "Under Construction" for welcoming me to their meetings and for participating in the current research.

(3.) Both transsexuals and nontranssexuals were included in the discriminant analyses used to compute GD scores as this permitted computation of GD scores for transsexuals as well as for nontranssexuals. Because the number of nontranssexual individuals ($n = 360$) was so much larger than the number of transsexual individuals ($n = 45$), gender differences in item responses were overwhelmingly determined by nontranssexual participants. In previous studies (e.g., Lippa, 2000; Lippa and Tan, 2001), when very large samples of gay and lesbian individuals were compared with roughly equivalently sized samples of heterosexual men and women, the heterosexual samples were multiplied in size before computing GD measures. Otherwise, as the number of gay and lesbian participants increased, "gender diagnosticity" scores would increasingly become "gay male-lesbian woman" diagnosticity scores. In the current study, multiplying the nontranssexual sample was unnecessary, because it was large to start with. If anything, the inclusion of small numbers of transsexual participants in the current discriminant analyses would tend to dilute (albeit very slightly) gender differences in item responses and GD scores, and it would also serve to reduce transsexual versus nontranssexual differences on GD. The strong differences observed between transsexuals' and nontranssexuals' GD scores are thus all the more impressive.

GD scores of nontranssexual men and women in the current study were quite similar to mean GD scores for samples of men and women assessed in previous GD studies. This suggests that including small numbers of transsexuals did not have much effect on the computed GD scores of nontranssexuals.

Bailey, J. M. (1996). Gender identity. In Savin-Willaims, R. C., and Cohen, K. M. (eds.), *The Lives of Lesbians, Gays, and Bisexuals: Children to Adults*, Harcourt Brace, Fort Worth, TX.

(4.) Correlations were computed between self-reported degree of sexual attraction to men and to women and gender-related traits in M-to-F transsexuals. None of these correlations was significant.

REFERENCES

Baumeister, R. F. (2000). Gender differences in erotic plasticity: The female sex drive as socially flexible and responsive. *Psychol. Bull.* 126: 347-274.

Bem, S. L. (1974). The measurement of psychological androgyny. *J. Consult. Clin. Psychol.* 42: 165-172.

Bem, S. L. (1981). *Bem Sex-Role Inventory Professional Manual*, Consulting Psychologists Press, Palo Alto, CA.

Blanchard, R. (1985). Typology of female-to-male transsexualism. *Arch. Sex. Behav.* 14: 247-261.

Blanchard, R. (1988). Nonhomosexual gender dysphoria. *J. Sex Res.* 24: 188-193.

Blanchard, R. (1989a). The classification and labeling of nonhomosexual gender dysphoria. *Arch. Sex. Behav.* 18: 315-334.

Blanchard, R. (1989b). The concept of autogynephilia and the typology of male gender dysphoria. *J. Nerv. Ment. Dis.* 177: 616-623.

Blanchard, R. (1990). Gender identity disorders in adult men. In Blanchard, R., and Steiner, B. W. (eds.), *Clinical Management of Gender Identity Disorders in Children and Adults*, American Psychiatric Press, Washington, DC, pp. 49-76.

Blanchard, R., and Freund, K. (1983). Measuring masculine gender identity in females. *J. Consult. Clin. Psychol.* 51: 205-214.

Bodlund, O., and Armelius, K. (1995). Self-image and personality traits in gender identity disorders: An empirical study. *J. Sex Marital Ther.* 26: 303-317.

Bohan, J. S. (1996). *Psychology and Sexual Orientation: Coming to Terms*, Routledge, New York.

Brown, L. S. (1995). Lesbian identities: Concepts and issues. In D'Augelli, A. R., and Patterson, C. J. (eds.), *Lesbian, Gay, and Bisexual Identities Over the Lifespan: Psychological Perspectives*, Oxford University Press, New York.

Constantinople, A. (1973). Masculinity-femininity: An exception to a famous dictum? *Psychol. Bull.* 80: 389-407.

Freund, K., Langevin, R., Satterberg, J., and Steiner, B. (1977). Extension of the gender identity scale for males. *Arch. Sex. Behav.* 6:507-519.

Golden, C. (1996). What's in a name? Sexual self-identification among women. In Savin-Williams, R. C., and Cohen, K. M. (eds.), *The Lives of Lesbians, Gays, and Bisexuals: Children to Adults*, Harcourt Brace, Fort Worth, TX, pp. 229-249.

Gough, H. B. (1987). *CPI Administrator's Guide*, Consulting Psychologists Press, Palo Alto, CA.

Hathaway, S. R. (1980). Scale 5 (Masculinity-Femininity), 6 (Paranoia), and 8 (Schizophrenia). In Dahlstrom, W. G., and Dahlstrom, L. E. (eds.), *Basic Readings on the MMPI*, University of Minnesota Press, Minneapolis, MN, pp. 104-111.

Holland, J. L. (1992). *Making Vocational Choices*, 2nd edn., Psychological Assessment Resources, Odessa, FL.

Holland, J. L. (1996). Exploring careers with a typology: What we have learned and some new directions. *Am. Psych.* 51: 397-406.

Johnson, S. L., and Hunt, D. D. (1990). The relationship of male transsexual typology to psychosocial adjustment. *Arch. Sex. Behav.* 19: 349-360.

Leavitt, F., and Berger, J. C. (1990). Clinical patterns among male transsexual candidates with erotic interest in males. *Arch. Sex. Behav.* 19:491-505.

Lippa, R. (1991). Some psychometric characteristics of gender diagnosticity measures: Reliability, validity, consistency across domains, and relationship to the Big Five. *J. Pers. Soc. Psychol.* 61: 1000-1011.

Lippa, R. (1995a). Do sex differences define gender-related individual differences within the sexes? Evidence from three studies. *Pers. Soc. Psychol. Bull.* 21: 349-355.

Lippa, R. (1995b). Gender-related individual differences and psychological adjustment in terms of the Big Five and circumplex models. *J. Pers. Soc. Psychol.* 69: 1184-1202.

Lippa, R. (1997). The display of masculinity, femininity, and gender diagnosticity in self-descriptive photo essays. *J. Pers.* 65: 139-169.

Lippa, R. (1998a). The nonverbal judgment and display of extraversion, masculinity, femininity, and gender diagnosticity: A lens model analysis. *J. Res. Pers.* 32: 80-107.

Lippa, R. (1998b). Gender-related individual differences and National Merit Test performance: Girls who are "masculine" and boys who are "feminine" tend to do better. In Ellis, L., and Ebertz, L. (eds.), *Males, Females, and Behavior: Toward Biological Understanding*, Praeger, Westport, CN.

Lippa, R. A. (1998c). Gender-related individual differences and the structure of vocational interests: The importance of the "People-Things" dimension. *J. Pers. Soc. Psychol.* 74: 996-1009.

Lippa, R. A. (2000). Gender-related traits in gay men, lesbian women, and heterosexual men and women: The virtual identity of homosexual-heterosexual diagnosticity and gender diagnosticity. *J. Pers.*

Lippa, R. A. (2001). On deconstructing and reconstructing masculinity-femininity. *J. Res. Pers.* 35: 168-207.

Lippa, R., and Arad, S. (1997). The structure of sexual orientation and its relation to masculinity, femininity, and gender diagnosticity: Different for men and women. *Sex Roles* 37: 187-208.

Lippa, R., and Connelly, S. C. (1990). Gender diagnosticity: A new Bayesian approach to gender-related individual differences. *J. Pers. Soc. Psychol.* 59: 1051-1065.

Lippa, R. A., and Tan, F. D. (2001). Does culture moderate the relationship between sexual orientation and gender-related personality traits? *Cross-Cul. Res.* 35: 65-87.

Lothstein, L. M. (1984). Psychological testing with transsexuals: A 30-year review. *J. Pers. Assess.* 48: 500-507.

Lubinski, D., Tellegen, A., and Butcher, J. N. (1983). Masculinity, femininity, and androgyny viewed and assessed as distinct concepts. *J. Pers. Soc. Psychol.* 44: 428-439.

Midence, K., and Hargreaves, I. (1997). Psychosocial adjustment in male-to-female transsexuals: An overview of the research evidence. *J. Psychol.* 131: 602-614.

Paulhus, D. L. (1987). Effects of group selection on correlations and factor patterns in sex role research. *J. Pers. Soc. Psychol.* 53: 314-317.

Prediger, D. J. (1982). Dimensions underlying Holland's hexagon: Missing link between interests and occupations? *J. Vocation. Behav.* 21: 259-287.

Spence, J. T., and Buckner, C. (1995). Masculinity and femininity: Defining the undefinable. In Kalbfleisch, P. J., and Cody, M. J. (eds.), *Gender, Power, and Communication in Human Relationships*, Erlbaum, Hillsdale, NJ, pp. 105-138.

Spence, J. T., and Helmreich, R. L. (1978). *Masculinity and Femininity: Their Psychological Dimensions, Correlates, and Antecedents*, University of Texas Press, Austin, TX.

Spence, J. T., and Helmreich, R. L. (1980). Masculine instrumentality and feminine expressiveness: Their relationships with sex role attitudes and behaviors. *Psychol. Women Q.* 5: 147-163.

Spence, J. T., Helmreich, R. L., and Stapp, J. (1974). The Personal Attributes Questionnaire: A measure of sex role stereotypes and masculinity-femininity. *JSAS (Catalog of Selected Documents in Psychology)*, 4:43-44 (MS. No. 617).

Storms, M. D. (1979). Sex role identity and its relationship to sex role attributions and sex role stereotypes. *J. Pers. Soc. Psychol.* 37: 1779-1789.

Strong, E. K., Jr. (1943). *Vocational Interests of Men and Women*, Consulting Psychologists Press, Stanford, CA.

Terman, L. M., and Miles, C. C. (1936). *Sex and Personality: Studies in Masculinity and Femininity*, Russell and Russell, New York.

Table I.

Means of M-to-F Transsexuals, F-to-M Transsexuals, Nontranssexual Men, and Nontranssexual Women on Six Gender-Related Traits

| Assessed groups | M-to-F transsexuals (N = 37-38) | F-to-M transsexuals (N = 7) | Nontranssexual men (N = 133-136) |
|------------------------------------|---------------------------------|-----------------------------|----------------------------------|
| Gender-related traits | | | |
| GD-occupations | 0.45 (0.14) | 0.68 (0.14) | 0.68 (0.12) |
| GD-hobbies | 0.46 (0.14) | 0.69 (0.15) | 0.71 (0.13) |
| Self-ascribed masculinity | 3.05 (0.93) | 4.43 (0.60) | 3.48 (1.11) |
| Self-ascribed femininity | 3.96 (0.57) | 2.00 (0.77) | 1.66 (0.71) |
| PAQ instrumentality | 3.54 (0.60) | 3.64 (0.81) | 3.82 (0.49) |
| PAQ expressiveness | 4.08 (0.41) | 4.00 (0.40) | 3.80 (0.55) |
| Assessed groups | | | |
| Nontranssexual women (N = 221-225) | | | |
| Gender-related traits | | | |
| GD-occupations | 0.35 (0.13) | | |
| GD-hobbies | 0.32 (0.14) | | |
| Self-ascribed masculinity | 1.78 (0.67) | | |

Self-ascribed femininity 4.13 (0.72)

PAQ instrumentality 3.60 (0.55)

PAQ expressiveness 4.17 (0.46)

Note. Numbers in parentheses are standard deviations.

Table II.

Effect Sizes for Three Group Contrasts on Gender-Related Traits

Contrasted groups

M-to-F F-to-M

transsexuals vs. transsexuals vs.

nontranssexual men nontranssexual women

Gender-related traits

GD-occupations -1.84 (***) 2.45 (***)

GD-hobbies -1.93 (***) 2.71 (***)

Self-ascribed masculinity -0.40 (*) 3.97 (***)

Self-ascribed femininity 3.40 (***) -2.97 (***)

PAQ instrumentality -0.56 (**) 0.07

PAQ expressiveness 0.53 (**) -0.39

Contrasted groups

Nontranssexual

men vs.

nontranssexual women

Gender-related traits

GD-occupations 2.53 (***)

GD-hobbies 2.91 (***)

Self-ascribed masculinity 2.04 (***)

Self-ascribed femininity -3.46 (***)

PAQ instrumentality 0.42 (***)

PAQ expressiveness -0.75 (***)

Note. Positive effect sizes indicate that the first-listed group is higher on trait than the second-listed group; negative effect sizes indicate that second-listed group is higher on trait than first-listed group.

(*) $p < 0.05$, two-tailed (**) $p < 0.01$, two-tailed (***) $p < 0.001$, two-tailed.

Table III.

Means of M-to-F Transsexuals, Gay Men, F-to-M Transsexual Men, and Lesbian Women on Six Gender-Related Traits

Assessed groups

M-to-F transsexuals F-to-M transsexuals

(N = 37-38) (N = 7)

Gender-related traits

GD - occupations 0.45 (0.14) 0.68 (0.14)

GD - hobbies 0.46 (0.14) 0.69 (0.15)

Self-ascribed masculinity 3.05 (0.93) 4.43 (0.60)

Self-ascribed femininity 3.96 (0.57) 2.00 (0.77)

PAQ instrumentality 3.54 (0.60) 3.64 (0.81)

PAQ expressiveness 4.08 (0.41) 4.00 (0.40)

Assessed groups

Gay men Lesbian women

(N = 183-189) (N = 127-132)

Gender-related traits

GD - occupations 0.45 (0.17) 0.58 (0.21)

GD - hobbies 0.45 (0.16) 0.55 (0.14)

Self-ascribed masculinity 3.33 (0.75) 2.78 (0.91)

Self-ascribed femininity 2.26 (0.78) 2.93 (0.96)

PAQ instrumentality 3.55 (0.60) 3.75 (0.63)

PAQ expressiveness 4.02 (0.51) 3.86 (0.74)

Note. Numbers in parentheses are standard deviations.

Table IV.

Effect Sizes for Two Group Contrasts on Gender-Related Traits: M-to-F
Transsexuals vs. Gay Men and F-to-M Transsexuals vs. Lesbian Women

Contrasted groups

M-to-F transsexuals F-to-M transsexuals

vs. gay men vs. lesbian women

Gender-related traits

GD - occupations 0.03 0.43 (*)

GD - hobbies 0.10 1.00 (***)

Self-ascribed masculinity -0.39 (**) 1.84 (***)

Self-ascribed femininity 2.28 (***) -0.98 (***)

PAQ instrumentality -0.01 -0.17

PAQ expressiveness 0.12 0.19

Note. Positive effect sizes indicate that the first-listed group is higher on trait than the second-listed group; negative effect sizes indicate that second-listed group is higher on trait than first-listed group.

(*) $p < 0.05$, two-tailed; (**) $p < 0.01$, two-tailed; (***) $p < 0.001$,

two-tailed.

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