

Comments

The Androgyny Dimension: A Comment on Stokes, Childs, and Fuehrer

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Stokes, Childs, and Fuehrer (1981) have recently studied the relationship between the Bem Sex-Role Inventory (BSRI; Bem, 1974) and certain indices of "self disclosure." However, the Stokes et al. study contains a critical methodological flaw; their multiple regression analyses were not performed in the appropriate hierarchical fashion (the main effects were not partialled from the interaction term), and their results are uninterpretable. The purpose of this note is to point out what went wrong in the Stokes et al. study and to suggest an alternative technique. Particular attention will be devoted to the relevance hierarchical multiple regression analysis (with interaction terms) has as a general data-analytic device for investigating the psychometric properties of the contemporary sex role inventories. In addition, the current status of the contemporary sex role literature is briefly reviewed.

This note is a comment on the recently published study by Stokes, Childs, and Fuehrer (1981) inquiring into the relationship between the Bem Sex-Role Inventory (BSRI; Bem, 1974) and certain indices of "self-disclosure." It is the purpose of this note to show that although the objectives of Stokes et al. (1981) have merit and are potentially valuable in view of the theoretical considerations to be discussed shortly, their regression analyses were not performed in the appropriate fashion. Among other things, Stokes et al. (1981) were interested in assessing the interactive relationships between the BSRI masculinity and femininity scales and self-disclosure. However, to assess interactions with multiple regression analysis, one must first partial out the variance the main effects share with the criterion and then, in a hierarchical fashion, enter the interaction terms of interest (see Cohen, 1968; 1978). This procedure was not employed by Stokes et al. (1981), and as a result their findings are uninterpretable. However, before proceeding to analyze the methodology of the Stokes et al. (1981) study, some introductory comments regarding the historical development and current status of the sex role literature might be helpful.

Ever since the realization that masculinity and femininity are not bipolar ends of a single continuum (e.g., Constantinople, 1973) several investigators have scrutinized the multidimensionality of the traditionally defined M-F "dimension." What has evolved is a fourfold classification system whereby the masculinity and femininity dimensions, using a median split technique, are replaced by four concepts—that is, feminine (high F, low M), masculine (high M, low F), androgynous (high M, high F), and undifferentiated (low M, low F). See Bem (1974) and Spence, Helmreich, and Stapp (1974, 1975).

Androgyny, the concept of primary interest within this typology, is typically viewed in two ways; first, as a concept carrying "surplus" meaning, relative to masculinity and femininity (Heilbrun, 1978, p. 106; Kaplan & Bean, 1976, p. 383; and Spence, Helmreich, & Holahan, 1979, pp. 1674-1675), and second, as an "ideal psychological state" indicative of psychological health (e.g., Gilbert, 1981; Kaplan, 1976; Osofsky & Osofsky, 1972; Rebecca, Hefner, & Oleshansky, 1976; and Sturdevant, 1980). Bem (1979a) illustrates these two defining characteristics by writing

it would also seem to be the case that masculinity and femininity may each become negative and even destructive when they are represented in extreme and unadulterated form. . . . Thus, for fully effective and healthy human functioning, both masculinity and femininity must each be tempered by the other, and the two must be integrated into a more balanced, a more fully human, a truly androgynous personality. An androgynous personality would thus represent the very best of what masculinity and femininity have each come

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to represent, and the more negative exaggerations of masculinity and femininity would tend to be cancelled out. (p. 7)

In view of the above considerations, Lubinski, Tellegen, and Butcher (1981) set out to determine the validity of *adding a concept* such as androgyny to the masculinity-femininity domain. In this study, particular attention was given to the empirical assessment of androgyny as a distinct concept, with the hope of determining its construct validity as an indicator of psychological health. To accomplish this, Lubinski et al. (1981) operationalized androgyny as a dimension itself, distinct from masculinity and femininity. And, since Bem's (1979a) "tempering process" seems to imply that being androgynous transcends masculinity and femininity per se, since it involves a mutual mitigation of M and F, we cast androgyny as a linear-by-linear $M \times F$ interaction.

Before going on, I should mention that even though androgyny has been construed as a distinct concept by several contemporary sex role theorists, any formulation that expands masculinity and femininity into a fourfold typological classification must, by implication, posit some surplus properties of androgyny to justify the expansion of the two variables into four. Without this justification, such fourfold typological classifications would be predictively and conceptually redundant (Lubinski et al. 1981, p. 722), and it would be sufficient to interpret findings using only the concepts M and F (ideally in a "simple" additive multiple regression analysis).

For our data analysis we employed the following hierarchical multiple regression equation, with interaction terms, to predict certain measures of subjective psychological well-being (taken from the Differential Personality Questionnaire, DPQ; Tellegen, Note 1):

$$\hat{Y} = [B_1(M) + B_2(F) + B_3(S)] \quad \text{Step 1} \\ + [B_4(M \times F) + B_5(M \times S) + B_6(F \times S)] \quad \text{Step 2} \\ + C$$

The above equation contains the terms that enabled us to test concurrently (a) the construct validity of masculinity (M) and femininity (F) as linear predictors of psychological well-being (Y), namely, B_1M and B_2F ; (b) the validity of the concept of androgyny conceived as an intrinsically interactive concept, endowed as such with "surplus" meaning (relative to M and F), namely, $B_4(M \times F)$; and (c) the validity of the traditional notion that it is the masculine male and feminine female who typify psychological well-being, namely, $B_5(M \times S)$ and $B_6(F \times S)$, respectively, where S refers to gender.

In Step 1, masculinity (M), femininity (F), and gender (S) are entered in an incremental stepwise fashion. This first step enables one to determine the extent to which the three main effects, M, F, and S, are linearly related to the criterion under consideration. In Step 2, all possible pairwise interaction terms are entered after controlling for, or partialing out, the variance accounted for by the three main effects (i.e., M, F, & S). This step allows one to determine the amount of variance accounted for by interaction terms representing the androgynous variable and the variables representing the traditional masculinity and femininity concepts of psychological health (i.e., $M \times F$, $M \times S$, and $F \times S$, respectively). The traditional view would receive empirical support if the ($F \times S$) interaction term is positively correlated with indicators of psychological health, and the ($M \times S$) interaction term is negatively correlated with these indices (i.e., when gender is coded: females $S = 2$, males $S = 1$). Moreover, under the traditional view ($M \times F$) should not display a significant interaction with measures of psychological health.

Based on our studies (Lubinski et al., 1981, and Lubinski, Tellegen, & Butcher, 1983) using the two most widely cited inventories that purport to measure androgyny, the Short BSRI and the Extended Personal Attributes Questionnaire (EPAQ; Spence, Helmreich, & Holahan, 1979), we have found no empirical support for either the contemporary formulations of androgyny or the traditional assumptions regarding sex-role identification in connection with psychological well-being.¹ Moreover, the general findings of the contemporary sex role literature, taken collectively (e.g., Antill & Cunningham, 1979; Bernard, 1980; Degregorio & Carver, 1980; Spence et al., 1979; and Wiggins & Holzmuller, 1978), indicate that although masculinity (as measured by the BSRI and EPAQ) is a salient marker of indices of psychological well-being, the femininity scales of these instruments typically display small or no discernible relationships with such measures. (For a discussion of the possible implications of these findings, see Lubinski et al., 1983.)

Nonetheless, even though our studies seem to disconfirm the idea that M and F mitigate one another in a synergistic fashion to produce a psychologically important third dimension of

¹ By indices of psychological well-being, I am referring to markers of the two (relatively independent) higher-order dimensions of positive and negative affectivity which, according to Costa and McGree (1980), reflect the "logical space" of subjective psychological well-being (see also Tellegen, Note 1).

androgyny, the possibility remains that $M \times F$ shares variance with other relevant psychological criteria outside the domain of psychological health. In fact, investigators are currently looking at relationships between androgyny and criteria such as "creativity" (Harrington & Anderson, 1981), "attitudes toward women" (Spence & Helmreich, 1979), and "self disclosure" (Stokes et al., 1981), to mention a few. In addition it would appear, in view of the foregoing comments, that the same hierarchical multiple regression analysis we employed to determine the relationship between androgyny and psychological well-being would be relevant for other criteria as well, inasmuch as it enables one to capture the unique properties of androgyny.

With the above theoretical considerations in mind, the recent study by Stokes et al. (1981) is of appreciable interest. Although their theoretical rationale for employing hierarchical multiple regression analyses was not stated explicitly, Stokes et al. (1981) employed what seems to be a variant of the above regression analysis to scrutinize the relationship between the BSRI scales and certain indices of "self disclosure."²

One of the problems with this study is that in one of their analyses Stokes et al. (1981, p. 513) report what appears to be a significant $M \times F$ interaction in the prediction of "disclosing to intimates." Unfortunately, their stepwise regression analyses were not performed in the appropriate hierarchical sequence. Although the product term $M \times F$ "carries" the linear-by-linear interaction of M and F , the interaction itself can only be assessed after its constituents (i.e., M and F) have been partialled out (see Cohen, 1968, 1978; and Lubinski et al., 1981, pp. 724-725). Stokes et al. (1981), however, entered the product term *first*, found it to be significant, and on that basis reported a significant interaction. Even though this result is actually uninterpretable, the authors conclude, "the data show that the interaction of $M \times F$ predicts disclosure to intimates" (p. 513).

Another problem is encountered in Stokes et al.'s Table 4. Although the authors performed a hierarchical analysis, the sequence they implemented left many relevant hypotheses untested. Stokes et al. entered gender first and then entered all the BSRI variables (M , F , and $M \times F$) simultaneously (hence, again, the main effects were not partialled from the $M \times F$ interaction). Although this sequence does enable one to conclude that the BSRI variables contribute to the prediction of self-disclosure (after controlling for gender), it fails to test the following relevant hypotheses: (a) which BSRI variables contribute significantly to the prediction of self-disclosure after gender has

been controlled (i.e., M , F , $M \times F$, two of them, or all of them). And (b) again, because the $M \times F$ interaction term was not partialled from the main effects, the process of "tempering" (as discussed by Bem, 1979a) was not tested.

To circumvent these drawbacks, a three-stage hierarchical analyses is called for: First gender and then, secondly, M and F should be added as main effects (ideally, in an incremental stepwise fashion); finally, in the third stage, the $M \times F$ interaction term should be entered (to test for the tempering process). This procedure would enable one to determine, first, the predictive (linear) contribution of F and M to self-disclosure (or any relevant criterion, for that matter) after controlling for gender, and next, the contribution of the $M \times F$ interaction.

In view of the efficacy of multiple regression procedures for capturing and highlighting the theoretical considerations discussed in this article, it is suggested that researchers continue to employ this data-analytic technique for determining the relationships between the Short BSRI (and other sex role inventories) and relevant psychological criteria. The purpose of this comment is to prompt researchers to conduct these analyses in the appropriate manner. For further and more detailed exposition of these matters, see Lubinski et al. (1981) and Lubinski et al. (1983). These articles include discussions regarding the possibility of M and F functioning as moderator variables, androgyny operating in one gender (but not the other), and how certain higher order concepts of the "fulfillment" or "self-actualization" variety may be assessed empirically through interaction terms in a hierarchical regression analysis.

² Although Stokes et al. (1981) chose to employ the BSRI "old version" (Bem, 1974), Bem has recently refined her instrument (i.e., the Short BSRI; Bem, 1978, 1979b). The items omitted on the Short BSRI were those which defined a factor correlated with gender, and a cluster of feminine items with low social desirability (e.g., "Gullible," "Childlike," and "Yielding"). Researchers interested in investigating further the psychometric properties of the BSRI should be alerted to this refinement. In addition, this refinement has prompted Tellegen and me to suggest relabeling the masculinity and femininity scales of the Short BSRI to "dominance-poise" and "nurturance-warmth," respectively (cf. Tellegen & Lubinski, 1983).

Reference Note

1. Tellegen, A. *Differential Personality Questionnaire*. Unpublished manuscript, 1979. University of Minnesota.

References

- Antill, J. K. & Cunningham, J. D. Self-esteem as a function of masculinity in both sexes. *Journal of Consulting and Clinical Psychology*, 1979, 47, 783-785.
- Bakan, D. *The duality of human existence*. Chicago: Rand McNally, 1966.
- Bem, S. L. The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 1974, 42, 155-162.
- Bem, S. L. *The Short Bem Sex-Role Inventory*. Consulting Psychologists Press, Inc., 1978.
- Bem, S. L. Beyond androgyny: Some presumptuous prescriptions for a liberated sexual identity. In J. Sherman & F. Denmark (Eds.), *Psychology of women: Issues in psychology*. New York: Psychological Dimensions, 1979. (a)
- Bem, S. L. Theory and measurement of androgyny: A reply to Pédhazur-Telenbaum and Locksley-Colten critiques. *Journal of Personality and Social Psychology*, 1979, 37, 1047-1054. (b)
- Bernard, L. C. Multivariate analysis of new sex-role formulations and personality. *Journal of Personality and Social Psychology*, 1980, 38, 323-336.
- Cohen, J. Multiple regression as a general data-analytic system. *Psychological Bulletin*, 1968, 70, 426-443.
- Cohen, J. Partialled products are interactions; partialled powers are curve components. *Psychological Bulletin*, 1978, 85, 858-866.
- Constantinople, A. Masculinity-femininity: An exception to a famous dictum? *Psychological Bulletin*, 1973, 80, 389-407.
- Costa, P. & McGree, R. Influence of Extraversion & Neuroticism on subjective well being: Happy & Unhappy people. *Journal of Personality and Social Psychology* 1980, 38, 668-678.
- DeGregario, E. & Carver, C. S. Type A behavior pattern, sex role orientation, and psychological adjustment. *Journal of Personality and Social Psychology*, 1980, 27, 157-165.
- Gilbert, L. A. Toward mental health: The benefits of psychological androgyny. *Professional Psychology*, 1981, 12, 29-38.
- Harrington, D. M., & Anderson, S. M. Creativity, masculinity, femininity, and three models of psychological androgyny. *Journal of Personality and Social Psychology*, 1981, 41, 744-757.
- Heilbrun, A. B. An exploration of antecedents and attributes of androgynous and undifferentiated sex roles. *The Journal of Genetic Psychology*, 1978, 132, 97-107.
- Kaplan, A. G. Androgyny as a model of mental health for women: From theory to therapy. In *Beyond sex-role stereotypes: Readings toward a psychology of androgyny*. Boston: Little Brown, 1976.
- Kaplan, A. G. & Bean, J. P. (Eds.), *Beyond sex-role stereotypes: Readings toward a psychology of androgyny*. Boston: Little Brown, 1976.
- Lubinski, D., Tellegen, A., & Butcher, J. N. The relationship between androgyny and subjective indicators of emotional well-being. *Journal of Personality and Social Psychology*, 1981, 40, 722-730.
- Lubinski, D., Tellegen, A., & Butcher, J. N. Masculinity, femininity and androgyny viewed and assessed as distinct concepts. *Journal of Personality and Social Psychology*, 1983, 44, 428-439.
- Osofsky, J. D., & Osofsky, H. J. Androgyny as a lifestyle. *Family Coordinator*, 1972, 21, 411-419.
- Rawlings, E. L., & Carter, D. K. *Psychotherapy for women: Toward equality*. Charles C Thomas, 1977.
- Rebecca, M., Hefner, R., & Oleshansky, B. A model of sex-role transcendence. *Journal of Social Issues*, 1976, 32, 197-206.
- Spence, J. T., & Helmreich, R. L. On assessing "Androgyny." *Sex Roles*, 1979, 5, 721-738.
- Spence, J. T., Helmreich, R., & Holahan, C. K. Negative and positive components of psychological masculinity and femininity and their relationships to neurotic and acting out behaviors. *Journal of Personality and Social Psychology*, 1979, 37, 1673-1682.
- Spence, J. T., Helmreich, R., & Stapp, J. The Personal Attributes Questionnaire: A measure of sex-role stereotypes and masculinity-femininity. *JSAS Catalog of Selected Documents in Psychology*, 1974, 4, 127.
- Spence, J. T., Helmreich, R., & Stapp, J. Ratings of self and peers on sex role attributes and their relation to self-esteem and conceptions of masculinity and femininity. *Journal of Personality and Social Psychology*, 1975, 32, 29-39.
- Stokes, J., Childs, L., & Fuehrer, A. Gender and sex roles as predictors of self-disclosure. *Journal of Counseling Psychology*, 1981, 28, 510-514.
- Sturdevant, S. *Therapy with women: A feminist philosophy of treatment*. New York: Springer Publishing Co., 1980.
- Tellegen, A., & Lubinski, D. Some methodological comments on labels, traits, interaction, and types in the study of "femininity" and "masculinity": Reply to Spence. *Journal of Personality and Social Psychology*, 1983, 44, 447-455.
- Wiggins, J. S. & Holzmuller, A. Psychological androgyny and interpersonal behavior. *Journal of Consulting and Clinical Psychology*, 1978, 46, 40-52.

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