

BRIEF COMMUNICATION

Testosterone and Sex Role Identification in Lesbian Couples

SHARON M. PEARCEY, KAREN J. DOCHERTY AND JAMES M. DABBS, JR.¹

Department of Psychology, Georgia State University, University Plaza, Atlanta, GA 30303-3083 USA

Received 27 December 1995

PEARCEY, S. M., K. J. DOCHERTY AND J. M. DABBS, JR. *Testosterone and sex role identification in lesbian couples.* *PHYSIOL BEHAV* 60(3) 1033–1035, 1996.—Within the lesbian community there exists a common perception that lesbians comprise two types, “butch,” having more masculine characteristics, and “femme,” having more feminine characteristics. The present study investigated the question of whether these perceptions are reflected in different levels of the predominantly male hormone testosterone. Salivatory testosterone levels and “butch/femme” ratings were obtained from 28 lesbian couples. Individuals within couples tended to be opposite in “butch/femme” ratings [intra-class $r(26) = -0.77, p < 0.001$] but similar in testosterone levels [intra-class $r(26) = 0.47, p < 0.01$]. Also within couples, individuals with higher “butch” ratings had significantly higher testosterone levels, although across all individuals as a whole (ignoring couple pairing) there was no correlation between testosterone and “butch/femme” ratings. The results indicate that testosterone is related to “butch/femme” characteristics, but only when regarded within the couple relationship.

Testosterone Hormones Lesbianism Sex roles Women

MANY studies have investigated sex role diversity among lesbians. In a study of heterosexual and homosexual women, Finlay and Scheltema (6) found that lesbians scored higher on a masculinity scale than heterosexual women, although the difference was due solely to scores on the masculine trait of independence. More useful information comes from studies of differences among subgroups of lesbians. There is a common perception that lesbians fall into two categories, “butch,” exhibiting more masculine characteristics, and “femme,” exhibiting more feminine characteristics. Using the Bem Sex Role Inventory (BSRI), Loulan (10) characterized “femmes” as cheerful, yielding, shy, affectionate, flatterable, feminine, sympathetic, sensitive to needs of others, understanding, compassionate, eager to soothe hurt feelings, soft spoken, warm, tender, gullible, childlike, not using harsh language, loving children, and gentle. She characterized “butches” as being like traditional males, athletic, assertive, forceful, dominant, masculine, aggressive, competitive, acting as leaders, and having a strong personality. Consistent with this stereotype, Singh found more masculine waist/hip ratios and sexual style characteristics in “butch” than in “femme” subgroups. Singh also found clear differences between “butches” and “femmes” in childhood gender memory and desire to give birth (16).

“Butch” and “femme” personality characteristics are partly learned, but they also have biological determinants, as do other personality and individual difference characteristics. Bouchard (1) found that variance in personality traits such as dominance, authoritarianism, and aggression is heavily determined by genetic factors. Using the Multidimensional Personality Questionnaire, Tellegen et al. (17) concluded that approximately 50% of personality diversity can be attributed to genetic components. Hormones provide a proximal physical link between genes and personality, and they have been related to personality characteristics and behaviors in women and men. Specifically, high levels of testosterone, the predominant male sex hormone, have been associated with masculine traits such as dominance and competitiveness in men (11). Women with higher testosterone levels have more interest in sex (15), higher levels of sexual arousal (14), higher assertiveness, and a greater number of sexual partners (3). They also make different career choices, with higher levels of testosterone being associated with professional, managerial, lawyers, athletes, and technical occupations, and lower levels associated with clerical positions, teachers, nurses, and housewives (12,13).

Research exploring differences in testosterone among women who differ in sexual orientation have produced conflicting re-

¹To whom requests for reprints should be addressed.

sults. Some studies suggest that lesbians have higher levels of testosterone than heterosexual women (7,9) whereas other studies have found no difference between the groups (4,5). Although there is no clear difference between lesbians and heterosexual women in their testosterone levels, testosterone differences among subgroups of lesbians have not been studied. The purpose of this study was to determine whether "butchness," which is associated with more masculine traits, is related to higher testosterone levels in lesbian couples.

METHOD

Testosterone measurements and questionnaire responses were obtained from 28 lesbian couples. The average length of relationship for the couples was highly variable, ranging from a few months to over 10 years. The majority of the subjects were Caucasian, and they ranged in age from 18 to 42 years. The couples included acquaintances of the experimenters and members of an organized softball league.

The questionnaire contained items on which subjects rated themselves and their partners with respect to the terms "butch" and "femme." The items were nine-point Likert scales anchored at the ends with the terms "butch" and "femme." A "butch/femme" difference score was calculated by subtracting the first subject's "butch/femme" score from her partner's score. Each subject also placed herself into one of the four categories, "butch," "femme," "androgenous," or "other."

Testosterone was measured from saliva samples. Salivary measurements are convenient in studying subjects outside the laboratory, and saliva and serum testosterone concentrations are highly correlated (19). Each subject chewed a stick of sugar-free gum to stimulate the flow of saliva and collected a 3-ml saliva sample in a small plastic vial. Samples were always collected from both members of a couple at the same time of day, to control for a diurnal decline in testosterone levels. Subjects who were acquaintances of the researchers collected samples in the early morning. The softball players collected midday samples at their game and were given vials to collect an additional early morning sample at home. Whenever early morning samples were available from both members of a couple, these are the samples that were used.

Samples were assayed in duplicate using a standard radioimmunoassay procedure with a [^{125}I] testosterone tracer, ether extraction, and charcoal separation. The mean coefficient of variation between sample duplicates was less than 10%. The overall mean testosterone concentration was 2.71 ng/100 ml (SD = 1.55), which is within the normal range for female subjects.

Testosterone scores were transformed to their logarithmic equivalents to normalize the distribution, which, like that of many hormones, is negatively skewed. A testosterone difference score for each pair was then calculated by subtracting the first subject's testosterone score from her partner's testosterone score.

RESULTS

On the questionnaire item regarding sex role type categories, 21% of the subjects identified themselves as "butch," 34% as "femme," 32% as "androgenous," and 11% as "other." On the eight-point "butch/femme" ratings scale, there was a significant correlation between each subject's self-rating and the partner's rating of the subject [intra-class $r(54) = 0.82, p < 0.001$], indicating that both partners within a pair agreed on the use of the terms.

There was a significant negative correlation between the self-rated "butch/femme" scores for the two members of a pair [intra-class $r(26) = -0.77, p < 0.001$], indicating attraction be-

tween individuals who were opposites in the way they saw themselves on this scale. At the same time, there was a positive correlation between the members of a pair in their testosterone levels [intra-class $r(26) = 0.47, p < 0.01$], indicating attraction between individuals who were similar in testosterone.

Although this initial analysis showed subjects were attracted to others who were similar in testosterone, a different picture emerged when relationships within couples were examined. There was a negative correlation between testosterone difference scores and "butch/femme" difference scores within the couples, with more "butch" members of couples being higher in testosterone. This correlation was marginally significant when all couples were included in the analysis, $r(26) = -0.35, p < 0.07$, but when one couple, whose data point fell three standard deviations away from the regression line, was removed from the analysis, the correlation was highly significant, $r(25) = -0.54, p < 0.01$. This relationship is shown in Fig. 1. These findings indicate that lesbians who rated themselves as more "butch" had higher testosterone levels than their partners, who rated themselves as more "femme." No relationship was found between "butch/femme" ratings and testosterone scores when data were analyzed at the individual, rather than the couple level, $r = -0.03, \text{NS}$.

DISCUSSION

Although the sample was small, the distribution among "butch," "femme," and "androgenous" types was remarkably even. The high correlation between subject's self-ratings and ratings of them made by their partners on the "butch/femme" scale indicated a mutual understanding of the "butch/femme" dimension, despite the fact these terms were never defined for the subjects.

The negative correlation between the ratings of the two subjects of a pair reflects a pattern of opposites attracted to opposites. That is, "butches" were paired with "femmes" rather than each being matched with similar types. This finding contradicts previous findings of married heterosexual and homosexual relationships, that couples are randomly paired on masculine, feminine, and androgenous dimensions (8). These results may have been due to the categorical nature of the BSRI used by Kurdek and

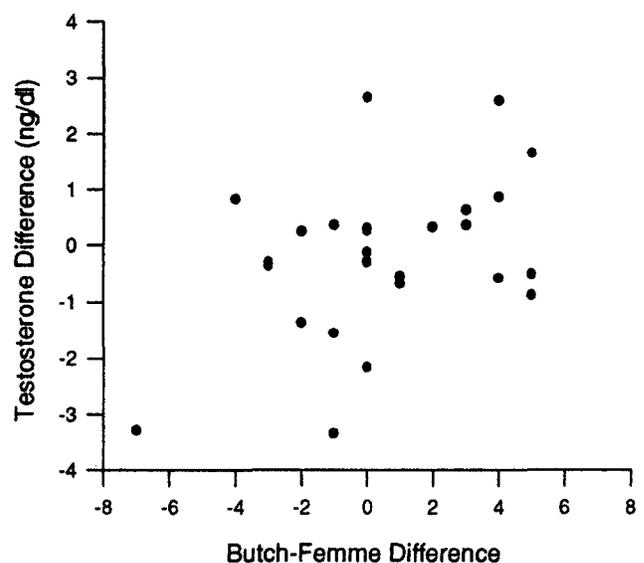


FIG. 1. Correlation between testosterone difference and "butch/femme" difference in couples.

Schmitt, which used predefined traditionally perceived masculine and feminine traits to assign respondents to categories.

Although individuals within couples rated themselves oppositely with regard to sex role identification, the positive correlation in testosterone levels indicated an element of similarity between them. This supports the notion that attraction is based on a variety of dimensions, in which some aspect of similarity is necessary. This finding concurs with previous findings where similarities between spouses were found in relation to age, education, race, religion, ethnic background, attitudes and opinions, mental abilities, and socioeconomic status (2).

Whether "butchness" and "femmeness" are stable characteristics existing independently of the relationship must also be considered. Although we believe that the two roles are relatively stable, it is possible that the qualities of one's partner may influence one's role and therefore, the degree to which one identifies with "butchness" or "femmeness." Testosterone levels have been found to be relatively constant over long periods of time (18), indicating that a change in relationship is not likely to have much influence on them.

Although a degree of similarity is needed in forming a couple, oppositeness in sex role, a quality more routinely available in heterosexual couples, may also be desirable, at least when either partner departs from the midrange of the "butch/femme" dimension. Similar levels of testosterone then complement the "butch/femme" difference, leading to the consistent small dif-

ference in testosterone between the two members of the couple. This may round out the picture of pervasive similarity among heterosexual couples, where there is already present a massive dissimilarity of having two different sexes in the same couple (2).

Differences in "butch/femme" ratings were related to testosterone levels. Subjects with higher "butch" ratings than their partners had higher testosterone levels than these partners. The finding of no relationship between "butch/femme" self-ratings and testosterone at the overall group level, in contrast to the finding at the pair level, is of particular interest. "Butch" subjects overall did not have significantly higher testosterone levels than "femme" subjects, but subjects who were more "butch" were paired with partners who were less "butch" (or more "femme") and lower in testosterone.

Our findings support the hypothesis that more "butch" partners in lesbian couples have higher testosterone levels, although the findings are limited to "butchness" when considered within couples. It remains to be determined what cognitive or behavioral aspects of testosterone can lead, on the one hand, to the positive correlation between couples and, on the other hand, to differences within couples.

ACKNOWLEDGEMENTS

This research was supported in part by the NSF grant SBR-9511600 to J.M.D. The authors wish to thank Vicki L. Wilkerson and Sue Levine, L.C.S.W., for their assistance in collecting data.

REFERENCES

1. Bouchard, T. J., Jr. Genes, environment, and personality. *Science* 264:1700-1701; 1994.
2. Buss, D. M. Human mate selection. *Am. Sci.* 73:47-51; 1985.
3. Cashdan, E. Hormones, sex, and status in women. *Horm. Behav.* 29:354-366; 1995.
4. Dancey, C. P. Sexual orientation in women: An investigation of hormonal and personality variables. *Biol. Psychol.* 30:251-264; 1990.
5. Downey, J.; Ehrhardt, A. A.; Schiffman, M.; Dyrenfurth, I.; Becker, J. Sex hormones in lesbian and heterosexual women. *Horm. Behav.* 21:347-357; 1987.
6. Finlay, B.; Scheltema, K. E. The relation of gender and sexual orientation to measures of masculinity, femininity, and androgyny: A further analysis. *J. Homosex.* 21:71-85; 1991.
7. Gartrell, N. K.; Loriaux, D. L.; Chase T. N. Plasma testosterone in homosexual and heterosexual women. *Am. J. Psychiatry* 134:1117-1119; 1977.
8. Kurdek, L. A.; Schmitt, J. P. Interaction of sex role self-concept with relationship quality and relationship beliefs in married, heterosexual cohabiting, gay, and lesbian couples. *J. Pers. Soc. Psychol.* 51:365-370; 1986.
9. Loraine, J. A.; Adamopoulos, D. A.; Kirkham, K. E.; Ismail, A. A.; Dove, G. A. Patterns of hormone excretion in male and female homosexuals. *Nature* 234:552-555; 1971.
10. Loulan, J. *The lesbian erotic dance.* Minneapolis, MN: Spinsters Ink; 1990.
11. Mazur, A.; Booth, A. Testosterone and dominance in men. (submitted).
12. Purifoy, F. E.; Koopmans, L. H. Androstenedione, testosterone, and free testosterone concentration in women of various occupations. *Soc. Biol.* 26:179-187; 1979.
13. Schindler, G. L. Testosterone concentration, personality patterns, and occupational choice in women. Unpublished doctoral dissertation, University of Houston, Houston, TX; 1979.
14. Schreiner-Engel, P.; Schiavi, R.; Smith, H.; White, D. Sexual arousability and the menstrual cycle. *Psychosom. Med.* 43:199-214; 1981.
15. Sherwin, B. B.; Gelfand, M. M.; Brender, W. Androgen enhances Sexual motivation in females: A prospective, crossover study of sex steroid administration in the surgical menopause. *Psychosom. Med.* 47:339-351; 1985.
16. Singh, D. Personal communication; 1995.
17. Tellegen, A.; Lykken, D. T.; Bouchard, T. J.; Wilcox, K. J.; Segal, N. L.; Rich, S. Personality similarity in twins reared apart and together. *J. Pers. Soc. Psychol.* 54:1031-1039; 1988.
18. Vermeulen, A.; Verdonck, G. Representativeness of a single point plasma testosterone level for the long term hormonal milieu in men. *J. Clin. Endocrinol. Metab.* 74:939-942; 1992.
19. Vittek, J.; L'Hommedieu, D. G.; Gordon, G. G.; Rappaport, S. C.; Southren, A. L. Direct radioimmunoassay (RIA) of salivary testosterone: Correlations with free and total serum testosterone. *Life Sci.* 37:711-716; 1985.