

RELATIONSHIP BETWEEN GENDER TRAITS AND LONELINESS:
THE ROLE OF SELF-ESTEEM

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Jiong Yang

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ABSTRACT

Relationship between Gender Traits and Loneliness: The Role of Self-Esteem

A thesis presented to the psychology department

Graduate School of Arts and Sciences
Brandeis University
Waltham, Massachusetts

By Jiong Yang

Research has shown that gender and gender-linked traits may contribute to individuals' loneliness. This study examined the relations between gender, gender traits and various types of loneliness. It also addressed whether self-esteem might mediate such relations. Measures included a Demographic Questionnaire, the Bem Sex Role Inventory, Rosenberg's Self-Esteem Scale, the Revised UCLA Loneliness Scale, and the Social and Emotional Loneliness Scale for Adults – SF. The final sample consisted of 76 females and 44 males. Men had higher global loneliness scores than women. For females, higher levels of masculinity were associated with reduced loneliness feelings, but the effect of masculinity was mediated by self-esteem. For males, neither gender roles nor self-esteem explained the degree of loneliness. Relative to undifferentiated-types, androgynous individuals tended to show the lowest levels of global loneliness. Masculinity and self-esteem was important in reducing loneliness for females, but future studies should continue to explore other factors that might contribute to males' loneliness.

Relationship between Gender Traits and Loneliness: The Role of Self-Esteem

Loneliness is a common feeling. Knox, Vail-Smith & Zusman (2007) found that 25.9% college men and 16.7 % of college women had severe loneliness feelings. While this theme is common in literature and art, it was not until the 1970s that this phenomenon began to receive intense empirical exploration (Marangoni & Ickes, 1989). Although loneliness is a common experience for human beings, defining loneliness in a clear and accurate way is difficult. Dozens of definitions have been proposed using different perspectives and emphases. According to Peplau and Perlman's (1982) summary, some have focused on inherent human needs for intimacy (Weiss, 1973), some have emphasized the discrepancy between the desired and existing social relations (Lopata, 1969), and yet others argued that loneliness might result from insufficient social reinforcement (Young, 1982). Peplau and Perlman (1982) also noted that most definitions in social sciences shared three characteristics: loneliness resulted from deficient social relationships; loneliness was subjective; and the experience was negative.

Many factors may contribute to an individual's loneliness. Personal characteristics, cultural and situational environments, changes in an individual's real social relations and changes in a person's social needs can all be antecedents of loneliness (Peplau & Perlman, 1982). Loneliness has been linked with various negative emotions and behaviors such as depression, suicide and suicide ideation, anxiety and alcohol abuse (for a review, see McWhirter, 1990). Therefore, it is of great value to investigate the predictors of loneliness and find effective ways to reduce lonely feelings among men and women.

Perspectives on Loneliness

Two perspectives exist concerning the dimensions of loneliness. The unidimensional model posits that loneliness is unitary, varying only in intensity, and is the result of deficits in a variety of relationships (Russell, 1982; Russell, 1996; Russell, Peplau, & Cutrona, 1980). This unidimensional conceptualization has guided most researchers' study of loneliness, as evidenced by the preponderance of global loneliness measures that have been developed and the widespread use of the unidimensional UCLA Scale in empirical research (Marangoni & Ickes, 1989).

The second perspective postulates that loneliness is multidimensional and may contain anywhere from two (Weiss, 1973) to twelve (Young, 1982) distinct subtypes. Solano (1980) argued that the UCLA loneliness scale only emphasized a subjective lack of connection and failed to include other kinds of loneliness, particularly pathological types. Among the multidimensional perspectives, Weiss's classification has been used widely in research. Weiss (1973) identified two types of loneliness: the 'loneliness of emotional isolation' and the 'loneliness of social isolation.' According to Weiss (1973), emotional loneliness is related to absence of close, intimate emotional attachment, whereas social loneliness results from a lack of an engaging social network (such as meaningful friendships, collegial relationships, or other linkages to a coherent community). Some studies have provided empirical support for Weiss's typology through principle components analyses of loneliness (DiTommaso & Spinner, 1993; DiTommaso, Brannen, & Best, 2004).

Gender Differences in Loneliness

Gender differences in loneliness have been examined widely. Unfortunately, the findings are ambiguous at best. Whereas several studies have found no significant gender differences (Archibald, Bartholomew, & Marx, 1995; Berg & Peplau, 1982), others have shown that males were lonelier than females (Avery, 1982; Booth, 1983; Russell et al., 1980; Schultz & Moore, 1986; Solano, Batten, & Parish, 1982; Stokes & Levin, 1986). Borys and Perlman (1985) found differentiated results of gender differences in loneliness using different measures. When loneliness was measured using the direct self-labeling measurement (e.g., “do you often feel lonely?”), females reported higher level of loneliness, but males were lonelier when the UCLA Loneliness Scale was used. As Lau and Gruen (1992) suggested, this may be because “the negative connotations and social consequences of being lonely may inhibit people from admitting that they are lonely, and this may be more so for men” (p. 188).

In a meta-analytic study of predictors of loneliness during adolescence, Mahon, A. Yarcheski, T.J. Yarcheski, Cannella and Hanks (2006) found that 19 of the 31 studies showed no significant gender differences. Of the remaining 12 studies, nine studies showed boys were significantly lonelier than girls were, two studies showed girls were significantly lonelier than boys were, and one study did not report gender differences. This meta-analysis only included studies using unidimensional measure of loneliness. The average unweighted effect size for gender across these studies was 0.58 (Mahon et al., 2006).

Several studies indicated that men may feel lonely more often than women because they are not as well socialized in the social-emotional area (Bloom, Asher, &

White, 1978; Hill, Rubin, & Peplau, 1976) and, as a result may deal with their loneliness in ways that alienate them even further from social contact (Jones, Sansone, & Helm, 1983). Alternatively, females may more successfully buffer loneliness, especially in the social-emotional areas of life (Borys & Perlman, 1985; Wheeler, Reis, & Nezlek, 1983). For example, Knox, Vail-Smith & Zusman (2007) found that among freshman and sophomore students, men were less likely to be in a romantic relationship and to know how to make friends, and these same men were more likely to drink more alcohol and to regard themselves as “losers” relative to female students. Such coping styles are likely to put them at even greater risk of loneliness.

However, until now, few studies have examined gender differences using the two-factor loneliness approach, which is based on Weiss’s typology (Weiss, 1973). Using the Revised UCLA Loneliness Scale measuring global loneliness and a self-compiled scale measuring social and emotional loneliness, Wittenberg (1987) found males had significant higher scores on global, social and emotional loneliness than females had. In an African American undergraduate sample, Clinton and Anderson (1999) found no significant gender differences in social loneliness when controlling for age and emotional loneliness, and no significant gender differences in emotional loneliness when controlling for age and social loneliness. However, they measured social and emotional loneliness using the revised UCLA Loneliness Scale, on which the two subscales were highly correlated and therefore had to treat either social or emotional loneliness as a covariate. Having recognized this problem, they suggested that more reliable and valid scales be produced to assess the two distinctive dimensions of loneliness.

Fortunately, a few such scales have been developed, one of which is the Social and Emotional Loneliness Scale for Adults (SELSA; DiTommaso, & Spinner, 1993), which makes it possible to distinguish differential aspects of loneliness. DiTommaso and Spinner (1993) reported no sex differences on family emotional loneliness, but they did find that males were lonelier than females on social loneliness and romantic emotional loneliness.

Gender Roles and Loneliness

The inconsistent results of the relationship between gender and loneliness lead to consideration of other variables such as gender role. While gender, per se, is only a biological indicator, gender roles (namely, masculinity and femininity) contain more connotations that are social. Traits like assertiveness and dominance are often viewed as masculine, whereas qualities such as emotionality and understanding are more likely to be regarded as feminine (Bem, 1981).

Masculinity and femininity may help prevent loneliness via two independent sets of social attitudes: the masculine set (including assertion and dating skills) and the feminine set (including providing advice and guidance, conflict resolution, and more positive perceptions of others), both of which are important in alleviating loneliness (Wittenberg & Reis, 1986). Comparing the masculine/feminine set and the definitions of social and emotional loneliness suggests that it is likely that masculinity may be negatively associated with social loneliness and femininity may be associated with emotional loneliness more.

Wittenberg (1987) found that for males, masculinity was negatively correlated with social loneliness, but both masculinity and femininity were negatively correlated with emotional loneliness; for females, masculinity was negatively correlated with social loneliness and femininity tended to negatively correlated with emotional loneliness. These results generally support the inferences above. Although one study showed that higher masculinity level was linked with deeper loneliness feelings (Johnson, McNair, Volick, Congdon, Monacelli & Lamont, 2006), such studies are few and have received little empirical verification.

For decades, masculinity and femininity were conceptualized as bipolar ends of a single continuum (from high levels of masculinity to high levels of femininity); therefore, an individual was seen as either masculine or feminine, but not both (Bem, 1974). However, Bem (1974) argued that individuals might possess both masculine and feminine traits, which represented a significant revision to the traditional gender role conception. Based on this, Bem designed a survey that assessed masculinity and femininity as two orthogonal dimensions: the Bem Sex Role Inventory (BSRI; Bem, 1974). Following this new focus, a number of researchers examined the functions of gender roles and gender role types, especially the role of androgyny (being high in both masculine and feminine characteristics).

The BSRI consists of three sub-scales measuring masculinity, femininity and social desirability. An individual can be classified into one of four gender role categories in terms of their relative scores on masculine and feminine subscales: Masculine (high in masculine and low in feminine); Feminine (high in feminine and low in masculine);

Androgynous (high in both traits) and Undifferentiated (low in both traits) (Bem, 1981).

Bem (1974, 1977) argued that androgynous individuals have behavior that is more flexible when a situation calls for such flexibility; thus, they may be more adaptive.

In general, studies have shown that androgynous people possessing both masculine and feminine characteristics were less likely to be lonely than other types of individuals (Avery, 1982; Berg & Peplau, 1982; Jones, Bloys, & Wood, 1990; Rotenberg, 1997; Wittenberg & Reis, 1986; Wittenberg, 1987). Jones et al. (1990) also found that undifferentiated individuals were the loneliest among the four gender role types. As mentioned earlier, the importance of both masculinity and femininity provided reasonable explanations for findings on gender role types. However, few studies have examined how gender role types may be linked with social and emotional loneliness differentially.

Self-esteem as a Potential Mediator

Self-esteem is an important component of self-concept. Androgynous individuals have been found to have highest levels of self-esteem whereas the undifferentiated ones had the lowest (Spence, Helmreich, & Stapp, 1975). This suggests that both masculinity and femininity might contribute to personal effective functioning, which was consistent with Bem's contention.

However, empirical studies have not always supported this result. Instead, in most studies, while androgynous women were often better adjusted than feminine women, androgynous men's adjustment were just the same as that of masculine men (Silvern & Ryan, 1979). Adams & Sherer (1985) developed a "masculinity model" to explain the positive relationship between masculinity and adjustment. This model is likely to be

applicable to self-esteem as well. Whitley (1983)'s meta-analytic review indicated that masculinity was more important in predicting self-esteem. Actually, as Cook (1987) suggested, the finding that "masculinity was more strongly related to self-esteem than femininity" was one of the most stable findings in androgyny research.

Self-esteem has been regarded as an essential component of mental health (Taylor & Brown, 1988). Many studies showed that self-esteem was negatively correlated with loneliness (e.g., Davis, Hanson, Edson, & Ziegler, 1992; Jackson & Cochran, 1991). Mahon et al.'s (2006) meta-analytic study also showed that self-esteem was an important predictor of loneliness (with average unweighted effect size of 0.45). From the multidimensional perspective, McWhirter (1997) found that self-esteem not only negatively predicted global loneliness, but also predicted lower levels of social and emotional loneliness. It seems clear that self-esteem is related both to gender roles (especially masculinity) and to loneliness. Higher masculinity is likely to be linked with higher self-esteem, and higher self-esteem may be further related to lower global, social and emotional loneliness. Therefore, self-esteem is a potential mediator between masculinity and different types of loneliness.

A number of researchers have studied gender differences in self-esteem, but the results are inconsistent. Using three large, nationally representative data sets from that national Center for Education Statistics, Kling, Hyde, Showers & Buswell (1999) conducted a meta-analysis on this issue and found that males had higher global self-esteem than females, but the difference was small. Therefore, self-esteem is an unlikely mediator between gender and loneliness.

The Gaps in Existing Studies

To date, only a small number of studies on loneliness have comprehensively included the effects of both gender and gender roles. Further, few studies have differentiated social and emotional loneliness when considering the predictive nature of gender and gender roles, and the role of self-esteem in these relationships have not been fully investigated. Studies examining whether there were gender differences or gender role differences in loneliness, have often used unidimensional scales that do not differentiate social and emotional loneliness and the UCLA Loneliness Scale is best regarded as a unitary scale (Russell, 1996).

The Present Study

The primary aim of this study was to investigate whether and how gender, gender roles and self-esteem predict loneliness. The role of self-esteem was examined as a potential mediator between gender and loneliness, and between gender roles and loneliness. Both unitary and multidimensional perspectives of loneliness (i.e., global loneliness, emotional loneliness and social loneliness) were considered.

The hypotheses of this study were as follows. First, based on the study of DiTommaso and Spinner (1993), and given that males might not be as well socialized in the social-emotional area as females (Bloom, et al., 1978; Hill et al., 1976), I hypothesized that males would experience more global, social and romantic emotional loneliness than females. Second, based on the characteristics of each gender role set, as well as Weiss' (1973) definitions on social and emotional loneliness, I predicted that masculinity and femininity would be negatively associated with global loneliness;

masculinity would negatively predict social loneliness whereas femininity would negatively predict emotional loneliness. Third, androgynous individuals were expected to be less lonely than participants having the other gender roles were, and undifferentiated people were expected to have the highest loneliness scores regardless of the specific domain of loneliness. Fourth, I expected that self-esteem would mediate the relationship between masculinity (not femininity) and different types of loneliness because femininity was not a strong predictor of self-esteem. Self-esteem was not expected to mediate the relationship between gender and different types of loneliness because gender differences on self-esteem were very small (Kling et al., 1999).

Method

Participants

Participants were recruited from several undergraduate psychology classes as well as the student residence hall at Brandeis University. The sample consisted of 120 students, of which 76 were female, 44 were male, and 75% were white, with a substantial subsample of Asian participants (16.7%). No participants were married, and the mean age (for those who provided age data) was 19.34 (SD = 0.98). All participants gave informed consent to participate and received debriefing at the end of the study.

Measures

Demographic Questionnaire. This questionnaire was designed to obtain participants' basic demographic information, including age, gender, ethnicity and marital status.

Bem Sex Role Inventory (BSRI). The BSRI (Bem, 1981) was used to measure dimensional levels of participants' masculinity and femininity levels and to determine their gender role types. This inventory was selected because of its prevalence in gender role research and its greater appropriateness to measure independent domains of masculine and feminine identity (Gross, Batlis, Small, & Erdwins, 1979). Participants were asked to rate different characteristics on a scale from '1' ('Never or almost never true') to '7' ('Always or almost always true'). A higher score on one item represented more endorsement of that trait. The masculine scale (20 items) contains characteristics that are perceived as traditional males' characteristics (e.g., assertive and dominant). The feminine scale (20 items) includes characteristics that are perceived as traditional females

characteristics (e.g., emotional, and understanding). The rest of the inventory (20 items) is composed of neutral items, which are perceived neither as traditional masculine nor feminine traits (e.g., conscientious). Research on the BSRI has provided considerable evidence for its reliability (alphas ranging from 0.75 to 0.87 and test-retest reliability ranging from 0.76 to 0.94; Bem, 1981) and validity (such as correlations between the classifications and expected social behavior; Bem & Lenney, 1976; Bem, Martyna & Wayson, 1976). In this study, the Cronbach alphas for the masculine and feminine scales were 0.84 and 0.83, respectively.

Self-Esteem Scale. The 10-item Self-Esteem Scale (SES; Rosenberg, 1989) was used to measure global self-esteem. The SES uses a 4-point Likert-type response format ranging from ‘1’ = strongly disagree to ‘4’ = strongly agree. Higher scores denote greater self-esteem. Robinson & Shaver (1973) reported that the reproducibility coefficient of the SES was 0.92 and the test-retest correlation over 2 weeks was 0.85. Silber and Tippett (1965) reported that the convergent validity was between 0.56 and 0.83. In this study, the internal consistency was good ($\alpha = 0.84$).

Revised UCLA Loneliness Scale¹. The 20-item UCLA Loneliness Scale (Russell, Peplau and Cutrona, 1980) was used to assess participants’ degree of global loneliness. Participants rated the items from ‘1’ (‘never’) to ‘4’ (‘always’), thus the total score ranged from 20 to 80 (with higher scores indicating greater loneliness after reversely scoring positively worded items). Russell (1980) reported excellent internal consistency

¹ The scale used here was slightly different from the one published by Russell et al., 1980. Item 9 became “I am not an outgoing person” and item 13 became “No one really knows me” in the scale used for this study, which originally were “I am an outgoing person” and “No one really knows me well”, respectively. Therefore, item 9 in this study was not reverse scored.

($\alpha = 0.94$) as well as desirable concurrent and discriminant validity for the scale. In this study, the alpha for the scale is 0.89, suggesting that the measure is reliable and useful.

Social and Emotional Loneliness Scale for Adults-short form (SELSA-S). This 15-item scale is designed to measure social and emotional loneliness. In this scale, emotional loneliness is further divided into romantic and family emotional loneliness.

Consequently, the whole scale consists of three subscales: social loneliness, romantic emotional loneliness and family emotional loneliness. Participants rated statements on a 7-point scale ranging from '1' (strongly disagree) to '7' (strongly agree). DiTommaso et al. (2004) reported high internal consistency, with alpha coefficients ranging from 0.80 to 0.90. Results from exploratory and confirmatory factor analyses indicated that the three-factor model was the best fit for the data (DiTommaso et al., 2004). The internal consistencies for social, family emotional and romantic emotional subscales in the current study were 0.82, 0.93 and 0.94, respectively.

Procedure

Participants were recruited from several undergraduate psychology classes as well as the student residence hall at Brandeis University. All measures were administered in small group sessions. Participants were told that the purpose for this study was to investigate how people's personal characteristics might be related to various subjective feelings. They were also told to answer each question honestly. To avoid social desirability effects, titles of the scales were not displayed. When the survey ended, all participants were debriefed about the purpose and hypotheses of this study.

Data Analyses

All data were entered in Excel and then transferred to SPSS 16.0 for analyses. First, after reverse scoring some items, missing data were treated as follows. In the demographic questionnaire, "age" contained four missing data points; the values on all other variables were complete. As only gender was used in the correlational analyses, participants with missing data on "age" were retained. For the other questionnaires, if a participant had missing values on more than 10% of total items on each sub-scale, that participant was excluded from all analyses. If the missing items were less than or equal to 10%, the mean of the remaining values in that subscale was substituted for the missing values. For example, there were 10 items in the Self-Esteem Scale, $20 * 10\% = 2$, so if a respondent missed one item in this scale, the mean score of remaining 19 items was used as the value of the missing item. If two or more items were missing, then this participant was excluded for all analyses. Consequently, four participants were excluded according to these criteria, leaving 120 participants for the data analyses.

Then, the normality of each variable was examined. In general, the data distributions of most variables did not violate the normality assumptions, but the distribution of family emotional loneliness deviated greatly from normal distribution (skewness = 1.81 associated with the standard error of 0.22; Kurtosis = 3.27 associated with the standard error of 0.44). Therefore, a logarithm transformation was conducted for this variable (log base 2 transformation) to normalize it.

To determine each participant's gender role type, the median-split method was used. Given the small sample size in this study, the normative medians of masculinity and

femininity in the BSRI manual (Bem, 1981) were used. “High” versus “low” level of either masculinity or femininity was determined by comparing the participants’ masculinity and femininity medians with the normative medians (“High” represented scores above the normative median and “low” stands for scores below the normative median). The criterion for classifying gender role types was as follows: Masculine (high in masculinity and low in femininity); Feminine (high on femininity and low on masculinity); Androgynous (high on both traits) and Undifferentiated (low on both traits).

Results

Descriptive Statistics

Table 1 displays the distribution of gender role types according to this criterion. Feminine type was dominant among females, but undifferentiated type was the most common for males. Chi-Square test suggested that the distribution of gender role types among males and females was significantly different ($\chi^2 = 19.97, p < 0.001$)

Descriptive statistics for all outcome and predictor variables by gender and gender role types across gender are shown in Table 2 and Table 3, respectively. As expected, males had higher masculinity and lower femininity scores than females. Men and women had similar scores on self-esteem. Males had higher loneliness scores than females regardless of the type of loneliness, but females had larger standard deviations on all loneliness measures, indicating that the loneliness scores of females were more scattered compared with the male counterpart. Indeed, both the minimum and maximum loneliness scores usually belonged to females (see Table 2).

Androgynous people had highest self-esteem score and lowest loneliness score except romantic emotional loneliness, on which feminine-typed individuals had the lowest score. Feminine-typed participants had lowest self-esteem level. Undifferentiated people had the highest global loneliness score, but masculine-typed individuals had the highest social and emotional loneliness scores (see Table 3).

First-Order Correlations

When examining the first-order correlations for the whole sample (see Table 4), as expected, global loneliness was correlated positively with social and emotional loneliness with the exception of romantic emotional loneliness, which was not correlated significantly with any other variable. Predictor variables showed some interesting patterns: self-esteem was correlated negatively with global loneliness, social loneliness and family emotional loneliness. It also correlated positively with masculinity, but not with femininity. Levels of masculinity correlated negatively with global loneliness, but not with any measure of social or emotional loneliness. However, femininity was not related to any outcome variables or to self-esteem.

Because gender was expected to affect outcomes of interest, separate first-order correlations also were undertaken and presented in Tables 5 and 6. When first-order correlations were conducted separately, different patterns emerged. For female participants, the results were very similar to those of the whole sample except that masculinity also negatively correlated with social loneliness (see Table 5). Surprisingly, for male students, neither gender roles nor self-esteem was linked with any type of loneliness (see Table 6).

Gender Differences in Loneliness

To test the hypothesis that males would experience more global, social and romantic emotional loneliness than females, mean gender differences in loneliness were investigated. Consistent with this hypothesis, males had higher global loneliness ($M = 39.48$, $SD = 6.82$) than did females ($M = 36.36$, $SD = 8.39$). This difference was significant ($t(118) = 2.10$, $p = 0.038$, partial $\eta^2 = 0.036$, observed power = 0.548). However, no significant gender differences were obtained on social ($t(118) = 1.35$, $p = 0.178$, partial $\eta^2 = 0.015$, observed power = 0.269), family emotional ($t(118) = 0.24$, $p = 0.811$, partial $\eta^2 = 0.000$, observed power = 0.057) and romantic emotional loneliness ($t(118) = 0.58$, $p = 0.562$, partial $\eta^2 = 0.003$, observed power = 0.085). Nevertheless, males had slightly higher scores on all these loneliness measures (see Table 2).

Masculinity, Femininity and Loneliness

To test the hypothesis that masculinity and femininity would be negatively associated with global loneliness; masculinity would negatively predict social loneliness whereas femininity would predict emotional loneliness, first order correlations between these variables were conducted for the whole sample and for females and males separately. Consistent with the hypothesis, for the whole sample, masculinity predicted global loneliness ($r = -0.261$, $p = 0.004$). However, masculinity was only marginally correlated with social loneliness ($r = -0.172$, $p = 0.060$) and femininity failed to predict either global loneliness ($r = -0.169$, $p = 0.065$) or emotional loneliness ($r = -0.097$, $p = 0.292$ for FEL and $r = -0.100$, $p = 0.275$ for REL). For females, consistent with the hypothesis, masculinity was negatively associated with both global ($r = -0.357$, $p =$

0.002) and social loneliness ($r = -0.243, p = 0.034$). However, femininity was not significantly correlated with global ($r = -0.067, p = 0.564$) or emotional loneliness ($r = -0.075, p = 0.520$ for FEL and $r = -0.144, p = 0.216$ for REL) for females. For males, no evidence was found to support the original hypothesis. Masculinity did not relate significantly to global loneliness ($r = -0.162, p = 0.295$) or social loneliness ($r = -0.085, p = 0.583$), and femininity did not relate significantly to global loneliness ($r = -0.232, p = 0.130$), or emotional loneliness ($r = -0.092, p = 0.551$ for FEL and $r = 0.081, p = 0.600$ for REL) for male participants.

Gender Role Types and Loneliness

To test the hypothesis that androgynous individuals were expected to be less lonely than participants having the other gender roles were and undifferentiated people were expected to have the highest loneliness scores regardless of the specific domain of loneliness, a one-factor, (gender role type) MANOVA was used. Table 3 showed the means and standard deviations of loneliness scores for each of gender role types. Gender role differences were obtained on global loneliness ($F(3,116) = 2.70, p = 0.049$, partial $\eta^2 = 0.065$, observed power = 0.644). There were no gender role differences on social loneliness ($F(3,116) = 0.49, p = 0.688$, partial $\eta^2 = 0.013$, observed power = 0.147), family emotional loneliness ($F(3,116) = 0.91, p = 0.439$, partial $\eta^2 = 0.023$, observed power = 0.244) and romantic emotional loneliness ($F(3,116) = 0.20, p = 0.896$, partial $\eta^2 = 0.005$, observed power = 0.087). The simple a priori comparison between androgynous type and each of the other three types showed that androgynous people were less lonely on Global Loneliness than undifferentiated people ($p = 0.006$). Androgynous people

tended to have lower GL scores than feminine participants ($p = 0.057$) and masculine respondents ($p = 0.068$). The a priori comparison between undifferentiated type and each of the other three types showed that undifferentiated people had significant higher global loneliness score than androgynous people ($p = 0.006$). However, there was no evidence that undifferentiated people were lonelier than feminine or masculine participants were ($p = 0.252$ and 0.650 on global loneliness).

Further, main and interaction effects of gender and gender role types on loneliness variables were examined using a 2×4 MANOVA. No main or interaction effects were obtained except a main effect of gender on global loneliness ($F(1,112) = 4.32, p = 0.040$, partial $\eta^2 = 0.037$, observed power = 0.540). However, there was a trend that gender role had a main effect on global loneliness ($F(1,112) = 2.13, p = 0.101$, partial $\eta^2 = 0.054$, observed power = 0.530).

Testing of Mediating Role of Self-Esteem

To test whether self-esteem mediated the relationship between masculinity and loneliness, a series of regression analyses were conducted. For the whole sample, masculinity positively predicted self-esteem (unstandardized coefficient = 1.305, $p = 0.022$) and negatively predicted global loneliness (unstandardized coefficient = -3.043, $p = 0.004$). After controlling for self-esteem, masculinity still predicted global loneliness, but the unstandardized coefficient decreased to -1.877 ($p = 0.046$), and self-esteem still significantly predicted global loneliness (unstandardized coefficient = -0.893, $p < 0.001$). This model showed a partial mediation. Therefore, it is possible that masculinity could be linked with global loneliness either directly or through its association with self-esteem.

Because of gender differences in the relations between masculinity, self-esteem and loneliness for males and for females, and given that masculinity and self-esteem did not predict any loneliness type for males, further mediation effects were examined for females. For females, masculinity positively predicted self-esteem (unstandardized coefficient = 2.008, $p = 0.011$) and negatively predicted global loneliness (unstandardized coefficient = -4.465, $p = 0.002$) and social loneliness (unstandardized coefficient = -1.806, $p = 0.034$). Therefore, two mediating models regarding global loneliness and social loneliness were examined. In the global loneliness model, after controlling for self-esteem, masculinity still predicted global loneliness but its effect was reduced (unstandardized coefficient = -2.413, $p = 0.042$), and the effect of self-esteem on global loneliness continued to be significant (unstandardized coefficient = -1.022, $p < 0.001$). Therefore, this model for females was similar to that of the whole sample. For females' social loneliness model, after controlling for self-esteem, the effect of masculinity on social loneliness became non-significant (unstandardized coefficient = -0.656, $p = 0.383$) and the effect of self-esteem remained significant (unstandardized coefficient = -0.572, $p < 0.001$). As with the whole sample, masculinity may influence global loneliness both directly and indirectly through its association with self-esteem for females. However, a main effect on social loneliness for masculinity was not obtained when controlling for the effect of self-esteem.

As gender failed to predict self-esteem ($t(118) = 0.19$, $p = 0.846$), self-esteem was unlikely to mediate between gender and loneliness. This is consistent with the initial hypothesis.

Discussion

As hypothesized, this study showed that men were lonelier than females, indicated by their higher global loneliness scores. However, no significant gender differences on either social or emotional loneliness were obtained. Although research findings concerning gender differences on loneliness are still not quite consistent, this study provided evidence for males' stronger loneliness than females when using multiple-item scales. As suggested by Knox et al.'s (2007), social learning may make most men value the importance of independence rather than seeking help from others, which could easily isolate themselves. Although men may be more likely to feel lonely, they are more unwilling to admit their loneliness because of the possible negative evaluations (Lau & Gruen, 1992). Such inhibition of negative emotions, together with some unhealthy coping styles (such as drinking alcohol heavily), could make them even lonelier. From this point of view, it may be helpful for men to hold flexible gender concepts and learn to connect with others.

This study also examined whether masculinity, femininity and self-esteem played important roles in predicting loneliness. As expected, masculinity predicted global and social loneliness for female participants. However, masculinity failed to predict any type of loneliness for males. In addition, femininity did not predict any type of loneliness for either males or females, which is inconsistent with the hypothesis and literature. It seems that the masculinity level was important for females in reducing loneliness experiences in general, except emotional loneliness. However, for males, factors other than gender roles may be more important in predicting loneliness. Nevertheless, these findings added to

evidence that masculinity might be a more important factor in individuals' psychological adjustment (Adams et al., 1985).

The comparisons among four gender role types partially supported the hypothesis that high levels of masculinity and femininity are important in reducing loneliness. Androgynous individuals appear to be less lonely than people of other three types do. Although the statistical significance was obtained only between androgynous-typed and undifferentiated-typed individuals, and only for global loneliness, the marginal significance indicated that androgynous people were probably also less lonely than masculine and feminine individuals were. This finding is more or less consistent with Bem's argument (Bem, 1974, 1977) that androgynous individuals' behavior is more flexible and therefore they tend to be more adaptive in the society. This finding also supported Wittenberg and Reis' (1986) statement that both masculinity and femininity sets were important in reducing loneliness feelings. The results on undifferentiated-typed people provided less support for the hypothesis. While undifferentiated individuals did experience more global loneliness than their androgynous counterparts did, they may be equally lonely as masculine-typed and feminine-typed individuals. This result was somewhat different from some previous research, which postulated that undifferentiated people were lonelier than all other gender role types (e.g., Jones et al., 1990). Future research need to be done to provide more evidence on whether gender role types are linked with social and emotional loneliness, and whether undifferentiated-typed people are really not the most vulnerable type in experiencing loneliness.

Self-esteem was correlated negatively with global loneliness, social loneliness and family emotional loneliness, and correlated positively with masculinity for the whole sample. Self-esteem also mediated masculinity and loneliness for the whole sample, although this was not the only path. For females, self-esteem was not only highly negatively related with global, social, and family emotional loneliness, but also tended to mediate the relationship between masculinity and loneliness, especially social loneliness. That is to say, higher levels of masculinity were associated with higher self-esteem for women, and this high self-esteem contributed to less social loneliness. This indicates that self-esteem plays an important role in reducing loneliness among females. This finding suggests that an important way for reducing loneliness for females is to increase their masculinity levels, which would further strengthen their self-esteem and enhancing females' positive view of self. This may be an effective strategy in psychotherapies. For men, self-esteem was not linked with any other variables, which suggested that the effect of self-esteem in the whole sample is probably carried by the effect in females. As gender roles and self-esteem failed to explain gender differences on loneliness in this study, future studies should continue to investigate the mechanism of males' higher levels of loneliness.

This study was limited in several ways. First, the sample size of male participants was small, which might have affected the significant levels. For example, males had slightly higher scores on social, family emotional and romantic emotional loneliness than females did, gender differences may become significant in social and emotional loneliness in a larger sample set given the small power values on social and emotional

loneliness in this study. In addition, future studies could be done on samples of young adults who are not attending college to examine loneliness in various settings.

Second, masculinity and femininity in BSRI only refer to positive traits of stereotyped men and women, which may have limited the understanding of gender roles. Therefore, gender roles in this study and many other studies actually only represent “positive gender roles”. It could be interesting to see the effect of negative gender role traits on loneliness. For example, overly sensitive or overly aggressive is likely to contribute to one’s loneliness.

Third, while this study found that males were lonelier than females, it provided little evidence of the mechanism for men’s loneliness. If neither gender roles nor self-esteem were related with men’s loneliness, then other variables may be more important in predicting their loneliness. What is more, the effect sizes of gender and gender role type on loneliness were both small in this study, which suggested their limitation in explaining loneliness. Mahon et al.’s (2006) meta-analytic study suggested that depression and shyness were very important predictors for adolescence’s loneliness (with the unweighted effect sizes of 0.61 and 0.51, respectively). These variables could also be examined in college students or other adults. Wittenberg and Reis (1986) found that both deficient social skills and negative attitudes towards others could contribute to one’s loneliness. Further examination of gender differences on these two variables may be able to provide valuable implications for men’s loneliness.

Overall, this study added evidence on gender/gender role differences on loneliness, and strengthened our understanding of females’ loneliness. Being female or

androgynous seemed advantageous in reducing the intensity of loneliness feelings, and higher masculine and self-esteem levels were likely to make females less lonely. Future research may focus on men and on other potentially more important variables. Such research could contribute to our understanding of gender differences on loneliness, and may provide meaningful suggestions for interventions and treatments.

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Table 1

Distribution of gender role types among female and male participants

	Feminine	Masculine	Androgynous	Undifferentiated
Females	39 (51.3%)	5 (6.6%)	13 (17.1%)	19 (25%)
Males	6 (13.6%)	10 (22.7%)	8 (18.2%)	20 (45.5%)
Total	45	15	21	39

(37.5%)

(12.5%)

(17.5%)

(32.5%)

Table 2

Descriptive Statistics for female and male participants

	Total Range	Total Mean (SD)	Female Range.	Female Mean (SD)	Male Range	Male Mean (SD)
Masculinity	2.65-6.42	4.66 (0.68)	2.65-6.05	4.60 (0.67)	3.25-6.42	4.76 (0.70)
Femininity	3.30-6.00	4.83 (0.63)	3.30-6.00	4.98 (0.62)	3.45-5.55	4.56 (0.57)
SE	21-40	31.15 (4.27)	21-40	31.09 (4.65)	23-39	31.25 (3.58)
GL	21-64	37.50 (7.97)	21-64	36.36 (8.39)	28-54	39.48 (6.82)
SL	5-28	11.53 (4.71)	5-28	11.09 (4.97)	6-20	12.30 (4.15)
FEL	2.32-5.13	3.12 (0.75)	2.32-5.13	3.11 (0.81)	2.32-4.58	3.15 (0.65)
REL	5-35	22.93 (10.54)	5-35	22.53 (11.21)	5-35	23.64 (9.35)

Table 3

Descriptive statistics for participants with different gender role types (Means and SDs)

	SE	GL	SL	FEL	REL
Feminine	30.64 (4.36)	37.44 (8.68)	11.20 (5.22)	3.10 (0.81)	22.04 (11.89)
Masculine	30.80 (3.36)	38.33 (7.62)	12.20 (4.26)	3.40 (0.78)	24.20 (9.80)
Androgynous	32.57 (4.73)	33.48 (6.45)	10.81 (4.26)	3.00 (0.79)	23.48 (9.51)
Undifferentiated	31.10 (4.21)	39.41 (7.43)	12.05 (4.55)	3.11 (0.64)	23.18 (9.97)
Total	31.15 (4.27)	37.50 (7.97)	11.53 (4.71)	3.12 (0.75)	22.93 (10.54)

Table 4

First order correlations among predictors and loneliness outcomes (for the whole sample, N = 120)

	Masculinity	Femininity	SE	GL	SL	FEL	REL
Masculinity	1.000	.005	.209*	-.261**	-.172	-.016	.042
Femininity	.005	1.000	.035	-.169	-.129	-.097	-.100
SE	.209*	.035	1.000	-.513**	-.439**	-.304**	-.049
GL	-.261**	-.169	-.513**	1.000	.794**	.384**	.167
SL	-.172	-.129	-.439**	.794**	1.000	.408**	.034
FEL	-.016	-.097	-.304**	.384**	.408**	1.000	-.118
REL	.042	-.100	-.049	.167	.034	-.118	1.000

* $p < .05$

** $p < .01$

Table 5

First order correlations among predictors and loneliness outcomes (for females, N = 76)

	Masculinity	Femininity	SE	GL	SL	FEL	REL
Masculinity	1.000	-.153	.290*	-.357**	-.243*	-.073	.014
Femininity	-.153	1.000	.047	-.067	-.076	-.075	-.144
SE	.290*	.047	1.000	-.622**	-.561**	-.349**	-.106
GL	-.357**	-.067	-.622**	1.000	.812**	.433**	.130
SL	-.243*	-.076	-.561**	.812**	1.000	.412**	.002
FEL	-.073	-.075	-.349**	.433**	.412**	1.000	-.124
REL	.014	-.144	-.106	.130	.002	-.124	1.000

* $p < .05$

** $p < .01$

Table 6

First order correlations among predictors and loneliness outcomes (for males, N = 44)

	Masculinity	Femininity	SE	GL	SL	FEL	REL
Masculinity	1.000	.408**	.039	-.162	-.085	.092	.081
Femininity	.408**	1.000	.035	-.232	-.139	-.143	.036
SE	.039	.035	1.000	-.258	-.130	-.178	.102
GL	-.162	-.232	-.258	1.000	.738**	.265	.238
SL	-.085	-.139	-.130	.738**	1.000	.401**	.092
FEL	.092	-.143	-.178	.265	.401**	1.000	-.108
REL	.081	.036	.102	.238	.092	-.108	1.000

*P < .05

** p < .01