Gender-role traits and depression: Self-esteem and control as mediators.

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Abstract:

Presents a questionnaire study that empirically tested a proposed investigative model of gender-role (sex-role) traits and depression, using
clinical nurses in Taiwan as the test population. Self-esteem and control as possible mediators; Relationship between masculinity and femininity traits; Gender-role traits and depression.
GENDER-ROLE TRAITS AND DEPRESSION: SELF-ESTEEM AND CONTROL AS MEDIATORS
### ASTRACT

Three hundred and one clinical nurses in Taiwan participated in a questionnaire study to empirically test a proposed integrative model of gender-role traits and depression. Measurements of masculinity, femininity, self-esteem, locus of control and depression were taken. Using multivariate analysis and structural modelling, we found that (1) masculinity and femininity were significantly correlated with each other; (2) masculinity and femininity were related negatively to depression, but only indirectly; and (3) self-esteem and locus of control were important and necessary mediators between gender-role traits and depression. Relationships between gender-role traits, self-esteem, locus of control and depression were further discussed and re-examined.

### Introduction

Gender-role traits and depression

The female preponderance in depression has been well-established in epidemiological studies in the West (Weissman & Klerman, 1977; Boyd & Weissman, 1981) and in Taiwan (Cheng, 1989); among clinical patients and normal populations; across different countries, different geographical regions, different demographic groups, and different age cohorts (Nolen-Heoksema, 1987). Furthermore, suspicions that this female preponderance was an artifact due to gender-related response bias (Clancy & Gove, 1974; Gove & Geerken, 1976), help-seeking behaviours (Parlesky & Hammen, 1977; Amenson & Lewinsohn, 1981), or was an expression of psychological distress (Cleary, 1987; Nolen-Heoksema, 1987) were not substantiated with empirical evidence. An intriguing question, then, is how to account for this striking gender difference. Evidence has
shown that culturally defined gender-role characteristics may be more important than biological sex with respect to subjective experiences in depression in normal young adults (Sanfilipo, 1994). The purpose of this study was to investigate these relations, as well as possible psychological mediators among normal working women in Taiwan.

Based on the psychological awareness of being 'male' or 'female', through the process of socialization individuals acquire and internalize gender-role characteristics (Spence, 1984). Masculinity and femininity refer to the degree to which individuals adopt various traits traditionally associated with men and women. Spence and Helmreich (1978) have proposed that masculinity and femininity are two clusters of trait predispositions that correspond to the socially sanctioned and expected behavioural differences between men and women. Masculinity and femininity also correspond to the different gender roles most societies ascribe to men and women: instrumental-agenic (masculine) versus expressive-communal (feminine) (Baken, 1966). Androgyny, on the other hand, refers to high levels of both masculinity and femininity traits (Bem, 1974; Spence & Helmreich, 1978).

Theories and evidence concerning the relationship between gender-role traits and psychological adjustment (and depression in particular) are quite varied. Congruence, androgyny and masculinity are the three main models in the area. According to the congruence model, individuals who possess more gender-congruent gender-role traits should be able to achieve better psychological adjustment than those who possess fewer. The underlying belief is that the fit between societal demands and individual personality traits should promote psychological adjustment (Whitley, 1983, 1985). Research evidence, however, is not so straightforward. When gender-based suitability of jobs was taken into account, the congruence model was supported (Long, 1989); otherwise, research generally indicated that masculinity was more important to psychological adjustment (Whitley, 1988; Markstrom-Adams, 1989; Allgood-Merten & Stockard, 1991).

According to the androgyny model, possessing both masculinity and femininity traits should lead to more flexibility in and adaptability to various situations than high levels of either masculinity or femininity traits alone (Bem, 1974, 1981). There is some affirmative evidence for this (Bem, 1974; Jose & McCarthy, 1988). However, meta-analyses of the literature have revealed that higher levels of masculinity are associated with lower levels of depression (Whitley, 1985) and
greater psychological adjustment in general (Bassoff & Glass, 1982; Taylor & Hall, 1982; Whitley, 1983, 1985), whereas higher levels of femininity are unrelated to depression, and either weakly associated with or unrelated to better psychological adjustment (Waelde et al., 1994). Consequently, the masculinity model asserts that masculinity is a more powerful predictor of psychological adjustment than androgyny, and evidence did show that masculine individuals had the same level of self-esteem as androgynous individuals (Stein et al., 1992). In fact, feminine traits have been observed to be associated with greater responsiveness to experimentally induced forms of depression (Ingham et al., 1986).

Overall, gender-role traits have been found to be related to depression (Roberts & O'Keefe, 1981; Krause, 1983); however, the quest for the gender-types or gender-role traits that are resistant to depression remains illusive. The masculinity model seems to have received more support than the other two alternative models, namely, masculinity traits may reduce the likelihood of depression. Nonetheless, the effects of femininity traits on depression seems to vary in different situations. Researchers have suspected that gender-role traits may have no direct effects on depression (Flett et al., 1985), rather, they may assert indirect effects through some mediating factors. 

Self-esteem and control as possible mediators

Self-esteem has been found to be related to both gender-role traits and depression (Feather, 1985; Whitley, 1985). Meta-analyses indicated that masculinity rather than androgynous traits could better predict self-esteem (Whitley, 1983). Other supportive evidence is also available (Bassoff & Glass, 1982; Taylor & Hall, 1982; Whitley, 1985; Allgood-Merten & Stockard, 1991). It seems that masculinity traits are conducive to self-esteem, whereas the utility of femininity traits requires more research.

Traditionally, self-esteem has been closely linked with depression (Beck, 1967; Rosenberg, 1965). However, the causal relationship between the two are still hotly debated (Ormel & Sanderman, 1989; Roberts & Monroe, 1992). Some researchers regard low self-esteem as one of the depressive symptoms (Lewinsohn et al., 1981; Ingham et al., 1986), whereas others regard low self-esteem as an antecedent to depression (Hammen et al., 1985; Brown et al., 1986; Miller et al., 1989). A 10-year longitudinal study found that 60% of the variance in negative affect (including depression) could be attributed to a common factor, which strongly correlated with low self-esteem (Ormel & Schaufeli, 1989). Based on the existing literature, self-
esteem seems to be a possible mediator between gender-role traits and depression.

With obvious similarities between agenic masculinity traits and beliefs of internal control (Rotter, 1966), some research has investigated the relationship between gender-role traits and locus of control. Zeldow et al. (1985) found that masculinity traits were strongly related to internal control. Johnson and Black (1981) also found higher levels of internal control for masculinity-type or androgyny-type male students; however, these relations were weaker for female students. On the other hand, Mullis and McKinley (1989) failed to find any differences on I-E control across the four gender-types. Although the above studies all used student samples, masculinity traits have nonetheless shown a tentative relation with internal control, and femininity traits seem unrelated to beliefs of control.

Research has repeatedly found that individuals with stronger beliefs in internal control were more resistant to depression (Wheaton, 1980; Kohn & Schooler, 1982; Mirowsky & Ross, 1986; Benassi et al., 1988). Once again, internal-external control seemed to be a possible mediator between gender-role traits and depression.

Based on the above critical review, a tentative model was proposed to integrate research pertaining to gender-role traits, self-esteem, control and depression. As depicted in Figure 1, in addition to direct effects, masculinity and femininity may each have indirect effects on depression, through the mediation of self-esteem or control; self-esteem may help to shape beliefs of control, and each is related to depression directly. The purpose of this study was to empirically test the model, using a sample of working women in Taiwan.

**Methods**

**Subjects**

Respondents in this study were clinical nurses working in six different hospitals in Kaohsiung, Taiwan. These establishments included five large regional teaching hospitals and a medical centre. The majority (82.72%) of the sample were recruited at the medical centre. Fifteen departments were randomly chosen by researchers; supervisors and head nurses were then asked to distribute questionnaires to all full-time qualified nurses at these stations. There were 252 returned questionnaires, with a response rate of 84.56%. Researchers also collected responses through personal networks. Fifty-two questionnaires were completed in this manner in the remaining five hospitals. Excluding three questionnaires with excessive missing data, a final sample of 301 was used for all analyses reported here below.
Measures

A structured questionnaire was completed by every subject containing five parts described as follows.

(a) Gender-role traits. The Chinese ‘Sex Role Inventory’ (Lee, 1992) was initially based on the theory and measurement developed by Bem (1974), and reconstructed with Chinese materials and subjects. The inventory has a 20-item Masculinity (M) scale pertaining to instrumental-agenic traits, and a 20-item Femininity (F) scale pertaining to expressive-communal traits. The 10-week test-retest reliability was 0.86 for the M scale and 0.81 for the F scale (Lee, 1992). In this study, item analyses and informal interviews during the pretest (random community sample of N = 48, aged between 19 and 71 years, F:M = 1:1) identified one item each in the M and F scales with ambiguous wordings, which were deleted. The Cronbach alphas were 0.90 for the M scale and 0.89 for the F scale. There were also evidence supporting construct validity of these two scales (Lee, 1992).

(b) Self-esteem was measured by adopting the Rosenberg’s Self-esteem Scale (1965), which has proven validity. In this study, item analyses and informal interviews during the pretest resulted in a deletion of two original items, forming a revised 8-item scale. In order to remedy the shortened scale on the one hand, and to reflect the emphasis of Confucius’ work ethics on one’s self-esteem on the other hand, four more items were added. They were: (1) My importance is irreplaceable at work; (2) I can generally do things my way at work; (3) Even if others may not recognize my achievements, I still reckon that I am doing well; and (4) I think I am a clumsy person. In accordance with Rosenberg's original definition, the newly added items (1) and (3) used internal criteria, whereas items (2) and (4) used external criteria to arrive at self-evaluations. Overall, the final 12-item Self-esteem Scale was balanced in positive and negative items, and had a Cronbach alpha of 0.88.

(c) Locus of control was measured by a Chinese adaptation of Sphere of Control Inventory (Paulhus, 1983). Reliability and validity of the scale have been supported in various community studies (e.g. Lu, 1994, 1995). In this study, the Cronbach alpha for the 15-item scale was 0.83.

(d) Depression was measured by the CES-D (Radloff, 1977). As a well-researched self-report scale for depression symptomatology, its validity has also been affirmed in Taiwanese studies (Chien & Cheng, 1985). In this study, the Cronbach alpha for the 20-item scale was 0.91.
(e) Demographic information was recorded including age, education, marital status, and other family as well as job information.

**Results**

Sample characteristics

Although there was no a priori basis to infer systematic differences on research variables across different work settings, a series of t-tests were nonetheless conducted to compare the two samples. To avoid statistical pitfalls, a computer randomly selected 52 subjects from the larger sample, so that t-tests were conducted with equal sample sizes (N = 52). Results from several trials were very consistent: no difference was found between the two samples on masculinity, femininity, self-esteem, control and depression. Consequently, these two samples were pooled to form a total sample of 301 subjects.

Table I presents a summary of the main demographic information about the sample. As can been seen, most subjects were in their early adulthood. The mean age for the sample was 25.6 years. All subjects were practicing nurses, with a minimum educational attainment of vocational schools. In fact, most subjects had junior college qualifications. Possibly due to their young age, a large majority of the subjects were not married. There were nearly equal numbers of nurses and staff nurses, with very few (only 9) occupying managerial positions (mostly lower-level posts). Also related to their young age, over half of the subjects had worked for less than 5 years in their present posts. Overall, this was a group of young, well-educated, professional junior clinical nurses.

Distributions and correlations

Before proceeding with further analyses, distributions of the main research variables were checked first. Descriptive analyses showed that the masculinity (M) scale was slightly negatively skewed (skewness = -0.24, kurtosis = -0.01), with a scoring range of 42-129 (mean = 85.51, S.D. = 14.50); the femininity (F) scale was slightly negatively skewed and had a strong tendency to cluster around the central point (skewness = -0.87, kurtosis = 1.02), with a scoring range of 58-127 (mean = 100.53, S.D. = 12.28); the self-esteem scale was slightly negatively skewed (skewness = -0.45, kurtosis = -0.29), with a scoring range of 27-84 (mean= 63.98, S.D. = 11.16); the locus of control scale had a slight tendency to cluster around the central point (skewness = -0.02, kurtosis = -0.82), with a scoring range of 50-102 (mean = 77.52, S.D. = 11.31); the depression scale was slightly positively skewed (skewness = 0.68, kurtosis = 0.21), with a scoring range of 0-45 (mean = 14.62,
S.D. = 8.79). Overall, the five main research variables all demonstrated reasonable normal distributions, which enabled further correlational analyses to proceed. In order to construct a correlation matrix, education attainment was converted into years of formal education; marital status was treated as a dummy variable ('single' was coded as 1, and 'married' was coded as 2); and higher scores in the locus of control scale indicated higher tendency of internal control. Table II presents the Pearson correlation matrix.

Among demographic variables, age and seniority were each positively correlated with self-esteem but negatively correlated with depression; education was positively correlated with masculinity. Masculinity and femininity were each positively correlated with self-esteem and internal control, but negatively correlated with depression; masculinity and femininity were also positively correlated. Self-esteem was positively correlated with internal control, and each was also negatively correlated with depression. Overall, age and seniority, masculinity and femininity, self-esteem and internal control seemed to form pairs sharing similar correlation patterns with other variables.

Structural modelling

Based on the correlation matrix shown in Table II, an exploratory path analysis was conducted using structural modelling techniques to test the empirical fit of the model proposed in Figure 1. The hypothesized relationships between the five observed measurements were all confirmed by significant bivariant correlations; therefore, a saturated model was first estimated. In this model, depression was destined as the outcome variable (Y3), self-esteem (Y1) and control (Y2) as mediating variables, whereas masculinity (X1) and femininity (X2) as exogenous variables.

Preliminary descriptive analyses showed that none of the five observed variables had an ideal normal distribution of variance, as required by the normality hypothesis underlying many multivariate statistical methods. However, slight to moderate departure from normality can be tolerated with the maximum likelihood procedure in LISREL, but the chi-square and standard errors are in these cases to be interpreted with caution (Raykov et al., 1991). This was the case in the present study, hence, the path analysis was conducted using the Maximum Likelihood techniques provided in LISREL 7.

Three estimated path coefficients failed to reach statistical significance (preset at P = 0.05). They were direct paths from masculinity and femininity to depression,
and femininity to control. Consequently, these were excluded from further model
testing, and a revised model was shown in Figure 2. Specifically, six routes leading
to depression were estimated, identified by letters above the arrows: (a)
masculinity indirectly leads to depression through self-esteem; (b) femininity
indirectly leads to depression through self-esteem; (c) masculinity indirectly leads
to depression through control; (d) self-esteem leads to control; (e) self-esteem
directly leads to depression; and (f) control directly leads to depression. This time,
all estimated path coefficients reached statistical significance at the P < 0.001 level,
and are given in Figure 2 with standard errors in brackets.

Judging from the magnitude of path coefficients and decomposition of effects on
depression (presented in the first three columns of Table III), self-esteem had the
strongest beneficial effects on depression, followed by masculinity, mainly through
its indirect beneficial effects through self-esteem (-0.16). The third and fourth
contributors were control and femininity.

Model evaluation is usually not a simple procedure, and not a single descriptive
index of fit seems to be superior to the others and impeccable in this regard (Bentler,
1990; Raykov et al., 1991). Fortunately, LISREL does offer several indices to help
with interpretation of congruence between a proposed model and empirical data.
Specifically, acceptable models are usually associated with (a) a low chi-square
value with a nonsignificant P value for a given level of degree of freedom and a
predetermined level of statistical significance; (b) high descriptive indices, namely,
goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI); and (C) a
low root-mean-square residual (RMSR). Judging from these criteria, and bearing
in mind that some variables did not have perfect normal distributions, the overall
fitness of the model was quite acceptable. The present model had a nonsignificant
value of chi-square, high descriptive fitness indices, and a low residual term. In
other words, the revised model was not significantly different from the underlying
structure of the empirical data.

Regarding the internal structure of the model, $R^2$ for Y variables are presented in
the fourth column of Table III. A respective 49%, 48% and 44% of variance in self-
esteeem, control and depression could be explained by the present model. Taking
into account the small number of variables included and the complex nature of self-
esteeem, control and depression constructs, such a model structure seemed
acceptable.

**Discussion**
The present study set out to empirically test an integrative model of depression (Figure 1), and concluded with a more parsimonious model (Figure 2). This study found that masculinity and femininity were significantly correlated with each other; neither directly influenced depression, but both demonstrated indirect effects through the mediation of self-esteem and internal locus of control. These results were somewhat inconsistent with the literature, and deserve careful contemplations.

The relationship between masculinity and femininity traits

Bem (1974) postulated masculinity and femininity as two independent personality dimensions, with zero correlation in theory. However, in the present sample of clinical nurses, these two were significantly correlated ($r = 0.32, P < 0.001$), albeit small in magnitude. Nonetheless, this relationship may be an artifact due to response bias. Since the two clusters of gender-role traits were both measured in the positive connotation, i.e. only socially desirable traits were listed in the 'Sex Role Inventory', social desirability could systematically bias responses on the M and F scales. For instance, people with high levels of social desirability may endorse more traits on both the M and F scales, causing a spurious positive correlation between the two scores. Unfortunately, this potential confounding variable was not measured in this study, and warrants serious consideration in any future attempts.

Of course, masculinity and femininity traits may be truly related, as suggested by Spence (1984). Both masculinity and femininity may promote personal adjustment, especially when one travels across diverse situations and juggles with different social roles. To put another way, a well-adjusted person may possess a high level of both masculinity and femininity traits, whereas a maladjusted person may possess a low level of both. If so, a positive relation between masculinity and femininity should be observed in the empirical data. Furthermore, continuing to distinguish between masculinity and femininity would be less meaningful than searching for a constellation of 'adjustment-enhancing traits'.

Gender-role traits and depression

Although masculinity and femininity were correlated with depression, as repeatedly found in the literature, they had only indirect effects in the structural model. Furthermore, when the nature of these relations were inspected, femininity traits seemed actually protective, i.e. reducing the risks of depression.
Existing literature consistently indicated that masculinity traits were conducive to psychological adjustment. The present study further extended this finding by unravelling three possible routes underlying the observed relationship. First, masculinity traits may enhance one’s self-esteem, hence reducing the risk of depression; second, masculinity traits may shape one’s beliefs in internal control, hence reducing the risk of depression; finally, masculinity traits may enhance one’s self-esteem, which further strengthens one’s beliefs in internal control, hence reducing the risk of depression. As Whitley (1988) observed, masculinity traits were not only instrumental-agenic characteristics, but also represent the culturally sanctioned virtues of positive self-regard and beliefs in self-efficacy, which are reflected in both self-esteem and internal locus of control. Therefore, the above three paths from masculinity traits to (reduced) depression are theoretically plausible.

As for femininity traits, the results were intriguing. Although existing literature was inconsistent in this regard, most did find weak (positive) or no relation between femininity traits and depression, which was quite discrepant from the negative relation we found in this study. In fact, like masculinity traits, the protective effects of femininity traits against depression were entirely attributable to their effects on improving self-esteem. In addition to the proportion that both masculinity and femininity traits are protective to depression, as elaborated earlier, other sample-related characteristics should also be considered.

In the current gender-typed labour market, nursing is usually regarded as a female trade, which is thought to require a lot of femininity traits, such as caring, nurturing, carefulness, obedience, tidiness, etc. From the perspective of person-environment fit, nurses with high levels of femininity traits should be better adjusted to their jobs, hence reducing the risk of depression. This interpretation was consistent with one previous study (Rendely et al., 1984).

To conclude, the present study found that both masculinity and femininity traits may be protective against depression in a group of female nurses; nonetheless, these effects were indirect. Self-esteem and internal locus of control were important and necessary mediators. Indeed, decomposition of the structural model showed that self-esteem had the strongest total effect on depression, nearly three times of that of masculinity traits. It is high time, therefore, to focus more research efforts to unravel the underlying mechanisms of gender-role traits to psychological adjustment.
A final note of caution must be added. This was a cross-sectional study and therefore no firm causal inference is possible, not even with the help of the structural modelling technique. The revised model in Figure 2 may be the best to fit the data, however, alternative interpretations cannot be ruled out completely. For instance, self-esteem may have the strongest total effects on depression; it is also possible that high levels of depression lead to low self-esteem. This inherent weakness in the present study design serves to underline the necessity and urgency of longitudinal studies in this area.

* a Correspondence to: Professor Luo Lu, The Graduate Institute of Behavioral Sciences, Kaohsiung Medical College, Kaohsiung, Taiwan (ROC).

**TABLE I.** Sample characteristics

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<td>31-40</td>
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Over 40                      9

3.0

Education

High school                26

8.6

Junior college             250

83.1

College/university         25

8.3

Marital status

Single                     233

77.4
Married                        67

22.3

Unknown                         1

0.3

Job rank

Nurse                          139

46.2

Staff nurse                    153

50.8

Head nurse                     8

2.7

Supervisor                    0

0

Director                      1

0.3
### Seniority (in years)

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<td>6 - 10</td>
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<td>11 - 15</td>
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<td>Over 16</td>
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**TABLE II.** Correlation matrix (N = 301)

Legend for Chart:

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- B - 2
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1. Age  1.00  --
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<td>4. Marital status</td>
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<tr>
<td></td>
<td>0.69[**]</td>
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9. Depression

-0.18[*]    -0.05
-0.15[*]    -0.26[**]
-0.24[**]    -0.55[**]

1.00

**TABLE III.** Decomposition of effects on depression and indices of model fitting

Legend for Chart:

A - Variables

B - Direct effect (S.E.)

C - Indirect effect (S.E.)

D - Total effect (S.E.)
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculinity (X1)</td>
<td>--</td>
</tr>
<tr>
<td>0.235 (0.038)</td>
<td>-0.235 (0.038)</td>
</tr>
<tr>
<td>Femininity (X2)</td>
<td>--</td>
</tr>
<tr>
<td>0.167 (0.036)</td>
<td>-0.167 (0.036)</td>
</tr>
</tbody>
</table>

P = 0.512
Self-esteem (Y1)   -0.497 (0.060)   -
                  0.130 (0.039)
                  -0.627 (0.045)   0.49
GFI = 0.997,
AGFI = 0.985

Control (Y2)     -0.207 (0.060)   -
                  0.207 (0.060)
                  0.48
RMSR = 0.015

Depression (Y3)  --

0.44 N = 301

DIAGRAM: FIG. 1. A proposed integrative model of gender-role traits and depression.
DIAGRAM: FIG. 2. A revised model of gender-role traits and depression.
References


LU, L. (1994) University transition: major and minor life stressors, personality characteristics and mental health. Psychology Medicine, 24, 81-87.


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