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**Sex, sex role, and the expression of depression**

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**The University of Arizona, 1988**

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SEX, SEX ROLE, AND THE EXPRESSION OF DEPRESSION

by

David Curtis Mohr

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A Thesis Submitted to the Faculty of the

DEPARTMENT OF PSYCHOLOGY

In Partial Fulfillment of the Requirments  
For the Degree of

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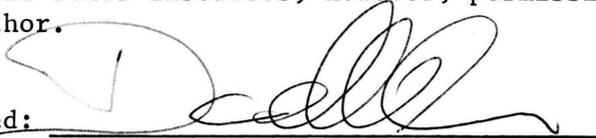
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I would like to thank Hal Arkowitz for his help in getting me started on this project. Dr. Arkowitz introduced me to clinical research, and helped me get through my initial years of graduate school. I would also like to thank Jack Bergan, whose interest in statistics and research design is infectious.

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## ABSTRACT

This study examined the relationship between sex, sex role and expression of depression. The Beck Depression Inventory, The Bem Sex Role Inventory, and a modified version of the Inventory of Depressive Behaviors were administered to 589 college students. The Inventory of Depressive Behaviors was factor analyzed cross-validated. The sex differences in the expression of depression were similar to the findings of previous studies. Sex role differences in the expression of depression were found. Masculine sex role individuals were found to employ some expressive coping strategies along with instrumental strategies. Feminine sex role individuals also displayed some behavioral and cognitive coping along with their more expressive behaviors. The variance in expression of depression accounted for by sex was only partially accounted for by sex role. Undifferentiated individuals were significantly more depressed than Masculine, Feminine or Androgynous individuals, but there were no differences between the latter three groups. Thus, there was no support for either the androgynous or the masculine models of mental health. Either masculine sex role or feminine sex role appears to be associated with lower levels of depression.

## INTRODUCTION

A large body of literature is fairly consistent in affirming the existence of sex differences in depression. Epidemiological studies (Silverman, 1978; Weissman & Klerman, 1977; Amenson & Lewinsohn, 1981; Boyd & Weissman, 1981; Hirschfeld & Cross, 1982; Weissman, Kidd & Prusoff, 1982) have found a much higher incidence of depression among females than among males. Recent studies have also found significant sex differences in the expression of depression (Hammen & Padesky, 1977; Chevron, Quinlan, & Blatt, 1978; Funabiki, Bologna, Pepping, & Fitzgerald, 1980; Padesky & Hammen, 1981; Chino & Funabiki, 1984). These studies focus on the symptomatology of depression rather than the frequency. The present study proposes that much of the sex difference in expression of depression can be accounted for by sex role rather than actual sex.

Because the amount of literature on expression of depression is limited, hypotheses are not well developed. A brief review of the literature on sex differences in depression will help to clarify the place this study has within that field. There are several hypotheses currently being explored as possible causes for sex differences in depression.

The biological hypotheses center around genetic and hormonal explanations. To date there is no direct or consistent evidence that

sex differences in depression are due to genetic factors (Merikangas, Weissman, & Pauls, 1985). There appears to be more evidence supporting a relationship with hormonal factors.

Thase, Frank and Kupfer (1985) note that depression is a common side effect of oral contraceptives, particularly those products with high levels of progesterone. It has also been found that progesterone increases serotonin uptake (Cone, Davis, & Coy, 1981). Yet depression has been associated with decreases - not increases - in serotonin uptake (Nolan-Hoeksema, in press). The evidence for post-partum and premenstrual depression are only slightly more convincing. Premenstrual depression has been found to affect as many as 43% of all women (Halbreich, 1983). The incidence of post-partum depression ranges from 30-60% (Sherman, 1971). But premenstrual depression is by definition short lived and post-partum depression rarely lasts for more than one day (Pitt, 1973). Where women do remain depressed for several weeks post-partum, they generally were already depressed before giving birth (Atkinson & Rickel, 1984). Thus while it can be shown that hormonal fluctuations do affect mood, there is little evidence that hormonal fluctuations in women account for any depression beyond a few days, and certainly not for the large sex differences in frequency found in epidemiological studies.

Another argument is that there are no differences in the frequency of depression and that differences found in epidemiological studies are artifacts either of reporting bias or of differences in the expression of depression. Accusations of reporting bias have not been

well supported. Studies of help seeking behavior have found that men and women with similar levels of self-reported depressive symptoms are equally likely to seek out help from either a mental health professional or a general practitioner and that they are equally likely to be diagnosed depressed in a clinical interview (Amenson & Lewinsohn, 1981). The study however, was marred by procedural problems, viz., the subjects were recruited through advertising, thus creating a self-selected sample. In addition, the finding that psychosocial variables were not related to the diagnosis of depression was done by observing if the extraction of the variance due to psychosocial variables would alter the magnitude of the sex difference. But the psychosocial variables used were demographic in nature (e.g., marital or employment status). While these may affect depression, they are not representative of the class of variables we call "psychosocial." Surely there are many other psychosocial variables such as social mindedness, introversion and extroversion, or sex role which were not addressed in the study.

The observed sex differences in depression may be due to differences in the manner of expression rather than any real difference in frequency. One such explanation was put forward by Winokur and Clayton (1967) who suggested that men express depression through alcoholism. Indeed family history studies show that rates of alcoholism are higher in families with high rates of depression and rates of depression are higher where alcoholism is present (Cadoret & Winokur, 1974). But perhaps the most dramatic evidence comes from an epidemiological survey of the prevalence of affective disorders in the

Amish, a culture in which consumption of alcohol and antisocial behavior are prohibited (Egeland & Hostetter, 1983). Using the SADS/RDC criteria, the ratio of males and females diagnosed as depressed was 1:1. It would be noted that while provocative, this cannot be considered evidence in support of any lack of sex differences in the frequency of affliction or of the role of psychosocial variables. For roughly 300 years virtually nobody has joined the Amish and few have left. This created a closed gene pool which makes the drawing of inferences from them as a group to a broader conception of the human race a rather precarious undertaking.

Radloff (1975), in an epidemiological study, found that while females did exhibit more depression than males under many circumstances, there were certain groups, such as among the widowed or never married, where men were found to be more depressed. Radloff and Rae (1979) concluded that the differences in exposure to situational or precipitating factors was related to the differential rates of depression found in men and women. Nevertheless, the data also suggested that sex differences in depression are unlikely to be entirely due to variation in exposure to precipitating factors. Learned susceptibility, along with biological susceptibility were suggested as possible contributors to sex differences.

Hammen and Padesky (1977) began a new line of studies which explored differential patterns in the expression of depression for men and women. In the study, college students were administered the Beck Depression Inventory (BDI); Beck, Ward, Mendelson, Mock, & Erbaugh,

1961) which samples a range of symptoms in depression. No sex difference in the frequency of depression was found. It is possible that the differential rates of depression found in the general population are not present in this sub-group. Discriminant Function Analyses revealed distinct patterns of responding in the BDI. Depressed men tended to respond to items reflecting and inability to cry, loss of interest in other people, a sense of failure, and a variety of somatic complaints. Women tended to endorse items which reflect indecisiveness and self-dislike. There have been some claims that such studies are relevant to Radloff and Rae's (1979) conception of learned susceptibility (Chino & Funabiki, 1984) which may be true in as much as they begin to address the same issue.

Padesky and Hammen (1981) replicated their initial findings administering the D-30 subscale of the Depression scale of the MMPI (Dempsey, 1964) instead of the BDI, again to college students. Men tended to acknowledge social withdrawal, memory and concentration problems, motivational deficits, and somatic concerns. Women lacked confidence, did not care what happened to themselves and tended to more hurt by criticism than men. It was also found, as noted above that while there was no difference in willingness to report depression, men were more reluctant to seek help, which is congruent with earlier findings of social withdrawal but contradicts Amenson and Lewinsohn's (1981) findings that there is no difference in help seeking behavior. The difference may be due in part to the different populations used in the two studies. Amenson and Lewinsohn used the general population,

while Padesky and Hammen used college students. However, their findings can probably be better attributed to a few of the aforementioned procedural flaws in the experiment, namely that the group under study was self-selected.

Funabiki, Bologna, Pepping and Fitzgerald (1980) began the development of a self-report instrument to tap the dimensions of depression. Using earlier versions to test college students, this study reiterated the general theme of Hammen and Padesky's (1977) work. Women were found to endorse items indicating increased food consumption, writing to express feelings, verbal hostility, self deprecation, seeking social support, and social withdrawal. The finding that women tend to withdraw socially stands in juxtaposition to Hammen and Padesky's (1977) findings. Funabiki et al. (1980) suggest that women may be more selective in their interpersonal encounters since, in addition to finding that women withdraw more, he also found they tend to seek out help more often. Funabiki et al. also found that women tend to cope on a cognitive level while men tend to cope on a behavioral level.

Chino and Funabiki (1984) refined their measure of depressive symptomatology with the creation of the Inventory of Depressive Behavior (IDB). Using the BDI to measure the level of depression and the IDB to measure the manner of expressing depression, Chino and Funabiki cross validated their earlier findings. Women were found to endorse items representative of increased food intake, writing to express feelings, physiological disturbances, and seeking personal support. Men tend to endorse items pertaining to smoking, and items in a category called

"misery loves company" which is composed of items reflecting either the desire to be with other depressed people or to make others depressed.

Several studies have begun to address sex role differences and depression. Chevron, Quinlan, and Blatt (1978), using the Sex Role Stereotype Questionnaire, the Zung Self-Rating Depression Scale and the Depressive Experience Questionnaire found that a lack of congruence with positively valued traits of one's own sex appears to be related to depression. Conforming to expectations about sex role stereotypes, men were consistently higher than women on competency and lower on Warmth Expressiveness. In examining sex role congruence it was found that women who rated low on warmth and expressiveness and men who rated low on competence scored higher on the depression scale than those women who scored high on Warmth-Expressiveness and the men who scored high on Competency. Concerning the depression scale, females tended to have higher levels of experiences associated with dependency while male depressive experiences centered around self-criticism. This is only in partial agreement with Chino and Funabiki (1984). Women were found to seek out personal support, which may be related to the experiences associated with dependency ascribed to depressed women. But Chino and Funabiki could not find evidence that self-deprecation items could significantly discriminate between men and women.

Nezu and Nezu (1987) attempted to address the part played by sex role in distress and coping. Using the Bem Sex Role Inventory (BSRI; Bem, 1981), and the Beck Depression Inventory (BDI; 1961) and the State-Trait Anxiety Inventory (Spielberger, Gorusch, & Lushcene, 1970).

Subjects who scored high on the masculine sex role scale of the BSRI, as compared to low masculine scorers regardless of sex, reported lower levels of depression, higher levels of self-appraised coping skills, greater active, behavioral coping reactions and lower frequencies of avoidance and emotionally focused coping strategies.

Stoppard and Paisley (1987) examined the effects of sex role and stress upon depression. Life stress was found to account for the largest proportion of the variance of level of depression. If life stress is taken into account, masculine sex role and to a lesser extent, feminine sex role, were found to predict the level of depression. The interaction between masculine sex role and life stress was not a significant predictor of depression.

Sex differences in the expression were found to exist not only in student populations, but also in a population of clinically depressed patients. Vredenberg, Krames, and Flett (1987) performed a discriminant function analysis on the items of the BDI. Men tended more than women to endorse items reflecting a lack of satisfaction, suicidal wishes, work inhibition, somatic preoccupation and indecisiveness. Women endorsed items reflecting self-dislike, crying spells, a distortion of body image, fatigability, and irritability.

MacCoby and Jacklin (1974) have found that sex differences in behavior have very little to do with biological differences, rather they reflect differences in socialization (see Appendix A). In examining variability in behavior it may be more important to know about an individual sex role socialization than it is to know which sex the

person is. Thus it is likely that the sex differences in the expression of depression are being mediated by intervening psychosocial variables. One variable of importance, it was proposed here, is sex role.

It is hypothesized that masculine and feminine sex roles are associated with significantly discriminable ways of expressing depression. Additionally, this study will 1) cross validate the IDB and 2) test a corollary hypothesis that a significant amount of the variability in expression of depression which can be accounted for by sex can also be accounted for by sex role.

## Method

### Subjects

The subjects were 601 introductory psychology students at the University of Arizona. Due to improper filling out of forms, 22 had to be eliminated from the final sample. This left a total of 589 subjects (206 males and 383 females). Subjects volunteered for this study as one option for fulfilling a research participation requirement for the course.

### Measurement Instruments

Three instruments were selected. The Beck Depression Inventory (BDI; Beck, et al. 1961) was used to measure the level of depression, as it has been found to be effective in discriminating depressed and mildly depressed from non-depressed college students (Bumberry, et al. 1978). There is a considerable body of research supporting the reliability and validity of the BDI as a measure of depth of depression (Beck, Steer, & Garbin, 1988). The Bem Sex Role Inventory (BSRI; Bem, 1974) was

administered to determine the sex role characteristics of each subject. The BSRI was chosen due to the ease of administration and the data on its strengths and weaknesses (Deaux, 1985; Whetton & Seindells, 1977; Pedhazur & Tenenbaum, 1979; Wheelless & Dierks-Steward, 1981; also see Appendix A). The Inventory of Depressive Behaviors (IDB; Chino & Funabiki, 1984) was used to measure depressive symptomatology. It was selected because it includes items reflecting both symptomatology and coping strategies. Items reflecting coping strategies are not included in the BDI or other measures of depression. The IDB was slightly modified by adding two questions regarding changes in the frequency and amount of alcohol consumption. These additions were made to examine the hypothesis that men, more than women, tend to mask or self-medicate depression with alcohol. Chino & Funabiki (1984) have found the IDB to be a reliable instrument. Due to changes made in the instrument and the relative lack of data, the IDB's reliability was examined for this sample.

### Analysis

Initial analyses were performed to assess the reliability of the data using cronbach's alpha. Correlations between the measures using the Pearson  $r$  and a point-biserial correlation were calculated to assess the degree of collinearity. BDI scores were then analyzed using  $t$ -tests to examine sex differences in level of depression.

The IDB was factor analyzed using a principal components analysis in the initial extraction to obtain orthogonal components. In this method of extraction no portion of any variable is assumed to be

influenced by shared determinants. Varimax rotations were performed to obtain and maximize orthogonal factors. An eigenvalue of greater than one was used as the criterion for inclusion.

A stepwise multiple regression procedure was used to examine the relationship between expression of depression, sex and sex role. Stepwise regression was selected because the nature of this study was primarily exploratory in nature. IDB factors were regressed onto sex, the masculine sex role scale of the BSRI (BSRI-M) and the feminine sex role scale of the BSRI (BSRI-F). The regression of IDB factors onto sex both replicates Chino and Funabiki's (1984) procedures and serves as a basis for comparison with analyses using sex role as the dependent variable. In examining sex role, the analyses using the BSRI-M and BSRI-F were performed independently. Masculine sex role and feminine sex role, once regarded as a single bipolar variable, have come to be conceptualized as two independent constructs (see Appendix A). The analyses described here will provide information on what kinds of expression of depression occur due to biological sex as well as masculine and feminine sex role.

These analyses were performed first on the entire sample to assess the relationship between expression of depression and sex and sex role in the general population. Because, however, this work seeks on a broader scale to expand our understanding of depression, these analyses were subsequently performed on a depressed subgroup. It was thus expected to achieve results which allowed for more valid generalizations to a depressed populations. The depressed group was isolated using a

cutoff score of 10 on the BDI. This score has been demonstrated to be effective in discriminating mildly depressed from non-depressed college students (Bumberry, et al., 1978).

The aforementioned analyses compare the ability of expressions of depression to discriminate sex and level of masculine and feminine sex role. A corollary hypothesis of this study is to examine how much of the variability in expressions of depression accounted for by sex, could also be accounted for by sex role. To this end a forced entry multiple regression of the BSRI-M, the BSRI-F, and sex onto each individual IDB factor was performed. The BSRI-M and BSRI-F scores were entered first. Sex was entered second. The  $R^2$  change when sex was entered was subtracted from the total amount accounted for by sex leaving the amount of variation explained by both sex and sex role.

In addition to the analyses surrounding the expression of depression this study used the data gathered to examine the relationship between sex role and depression. The BSRI was analyzed for sex differences in masculine and feminine sex roles. Using a median split, subjects were sorted according to sex role type (androgynous, masculine, feminine, and undifferentiated). The BDI scores sorted by sex role type were then compared using the Bonferroni inequality to assess differences in level of depression between sex role types.

## Results

### Preliminary Analyses

Reliabilities assessed using Chronbach's alpha revealed the BDI to have an alpha coefficient of .90. The entire BSRI had an alpha coefficient of .85, while for the BSRI-M alpha = .88 and for the BSRI-F alpha = .81. The IDB had an alpha coefficient of .95. Thus the measures employed were acceptably reliable. The correlations between sex, the BDI, the BSRI-M and the BSRI-F are presented in Table 1. The BSRI-M and BSRI-F were only minimally correlated. Men were higher in masculine sex role and women were higher in feminine sex role. Thus the variables are interacting with each other in expected ways.

The mean BDI scores for males ( $n = 206$ ) was 6.31 ( $SD = 5.36$ ) and the mean BDI score for females ( $n = 383$ ) was 7.01 ( $SD = 5.43$ ). This difference failed to reach significance (see Table 2). Utilizing the cutoff of 10 on the BDI, 18.4% of the males and 25.6% of the females were depressed. These rates, and proportions of males to females, are consistent with other findings using these criteria (e.g. Funabiki, et al., 1980; Chino & Funabiki, 1984). In the depressed subgroup the mean BDI score for males ( $n = 38$ ) was 15.03 ( $SD = 5.76$ ) and the means for females ( $n = 98$ ) was 14.38 ( $SD = 4.63$ ). This difference was not significant. Thus, while there are sex differences in the frequency of depression, there are none in severity. More women may be depressed, but they are not more depressed than men.

The factor analysis of the IDB found 18 factors accounting for 60.3% of the variance. Of these, 16 were interpretable (see Table 3).

The largest factor, accounting for 25.7% of the variance, was labeled General, and appears to be a mixed factor containing many symptoms generally associated with depression such as feelings of failure, alienation, negative rumination, and lack of energy. The other 15 factors were more specific and were labeled Hostility, Somatic Complaints, Social Withdrawal, Cognitive Coping, Sleep Disturbances, Drugs and Drink, Increased Eating, Misery Loves Company (a factor reflecting the desire either to be around other depressed people or to make others depressed), Morbidity and Suicidal Gestures, Self-preoccupation, Seeking Social Support, Behavioral Coping, Writing to Express Feelings, Blaming God, and Vomiting. The first 14 factors resemble closely those found by Chino and Funabiki (1984). The last two, Blaming God and Vomiting were not reported by Chino & Funabiki (see Table 4 for a list of items loading onto each factor). These two factors had eigenvalues of close to 1.00 in this sample and may have failed to reach criteria for inclusion in Chino & Funabiki's sample. The factor scores obtained on each factor were retained for each subject and used on all subsequent analyses. Factor scores were retained as they represent the latent trait with less error than simply adding up items contained in each of the factors.

#### Analysis on the entire sample

The first question to be addressed concerns sex differences in the expression of depression. To examine this question the 16 IDB "expression of depression" factors were regressed onto sex to determine what combination of these factors could discriminate men from women.

This produced a six variable function which explained 28.7% of the variance,  $F = 39.02$ ,  $p < .001$  (see Table 5). The findings were fairly consistent with Chino & Funabiki's (1984) findings. Women demonstrated more expressive coping strategies such as seeking personal support and writing, as well as more physiological complaints. Women also tended to endorse more items included in the General factor. Drugs and Drink was the only factor predictive of males. The main difference from Chino & Funabiki's findings was that Misery Loves Company was not significantly related to sex in our sample.

To assess the relationship of level of masculine sex role and expression of depression, the IDB factors were regressed onto the BSRI-M. This resulted in a five-factor function explaining 17.8% of the variance,  $F = 25.26$ ,  $p < .001$  (Table 6). High masculine sex role individuals demonstrated better behavioral and cognitive coping skills while low masculine individuals were found to endorse the items reflected in the General factor. Low masculine individuals also demonstrated increased eating, and a desire to be around other depressed people.

Table 7 exhibits the regression of IDB factors onto the BSRI-F. A nine-variable function was revealed which explained 21.8% of the variance in the IDB,  $F = 16.61$ ,  $p < .001$ . Feminine sex role was associated with seeking interpersonal support and eschewing self-preoccupation, hostility, anger, and the use of drugs and alcohol. Feminine sex role was also associated with the General factor as well as with increased eating.

### Analyses on the depressed subgroup

To more precisely target the expression of depression in depressed individuals, the depressed subgroup was isolated. The same three analyses performed above were performed using this depressed subgroup. Sex differences in the expression of depression were analyzed by regressing the IDB factors onto sex. This produced the six variable function shown in Table 8 which accounted for 27.6% of the variance,  $F = 8.20$ ,  $p < .001$ . These findings were again fairly congruent with those of Chino & Funabiki (1984) with the exception that Misery Loves Company was not found to be correlated with sex. The depressed subgroup resembled the entire sample except that the General factor no longer was related to sex and self-preoccupation was found more often in women.

The relationship of level of masculine sex role to expression of depression was examined by regressing the IDB factors onto the BSRI-M. This revealed a five variable function which explained 22.6% of the variance,  $F = 7.58$ ,  $p < .001$  (Table 9). For the depressed subgroup, cognitive coping was utilized much more by high masculine individuals than in the entire sample. High masculine individuals in the depressed subgroup also demonstrated behavioral coping skills while low masculine individuals had the difficulties associated with the General factor and some gustatory difficulties.

The regression of the IDB factors onto feminine sex role for the depressed subgroup is displayed in Table 10. A four variable function was found which explained 23.9% of the variance,  $F = 10.27$ ,  $p < .001$ . The depressed subgroup was substantially different from the entire

sample in the relationship between feminine sex role and expression of depression. Feminine sex role in the depressed subgroup was associated with seeking emotional support, behavioral coping and eschewing drugs and drink.

#### Forced Entry Multiple Regression

The previous six analyses have examined the relationship of sex, masculine sex role and feminine sex role, each independently, to the expression of depression. Sex is a biological variable, while masculine sex role and feminine sex role are psychosocial variables. The following analysis examines the corollary hypothesis of this study that a substantial amount of the variability in expression of depression which is explained by sex can also be explained by sex role. That is, sex was pitted against sex role as a predictor of expression of depression. This was accomplished using forced entry multiple regression onto each IDB factor which provided the information necessary to derive the amount of shared variance for each IDB factor. The BSRI-M and BSRI-F were entered together first, followed by sex. The results can be seen in Tables 11 and 12. The fourth column of Tables 11 and 12 reflects the additional amount of variance accounted for when sex is added into the regression equation already containing sex role, subtracted from the total amount of variance accounted for by sex. This leaves us with the amount of variance accounted for by sex, which is also shared by sex role.

For the entire sample, 10 IDB factors of significance were found (see Table 11). Sex role accounted for some amount of the variance

accounted for by sex in five of those factors (General, Drugs and Drink, Increased Eating, Seeking Personal Support, and Writing to Express Feelings). Nevertheless, for many of the factors, sex and sex role appeared to be accounting for different aspects of the expression of depression. For example, in Table 11 sex role accounts for 12.3% of the variance for the General factor and sex accounts for 2.8%. The third column gives the additional explanatory power of sex alone, above and beyond the explanatory power of sex role. In this case, it is .3%. The fifth column displays the amount of variance shared by both sex and sex role, in this case 2.5%. Thus, for the General factor, sex adds little to the explanatory power of sex role.

The same procedure was performed on the depressed subgroup which resulted in eight factors with some significance (Table 12). Sex appears far more related to physiological difficulties than sex role. Sex role correlates better to coping methods than sex. They share some variance in drugs and drink, and emotional expressiveness. Thus, sex role can explain some of the variance accounted for by sex, but not a lot. The corollary hypothesis therefore met with only limited success.

#### Analyses of depression and sex role type

The following analyses, while not central to the main hypothesis, provide information on the relationship of depression and sex role. The first set of analyses look at how sex roles vary between the sexes for both the entire sample and the depressed subgroup. The second set of analyses examine the differences in level of depression between various sex role types.

The mean score for males on the BSRI-M was 5.30 ( $SD = .83$ ) while for women the mean was 4.86 ( $SD = .74$ ). A  $t$  test revealed that this difference was significant  $t(587) = 6.29, p < .001$ . The mean scores for males on the BSRI-F was 4.71 ( $SD = .64$ ) and the mean for females was 5.20 ( $SD = .61$ ). A  $t$ -test for difference between the means was significant,  $t(587) = -9.25, p < .001$ .

For the depressed subgroup, males received a mean of 4.99 ( $SD = .95$ ) on the BSRI-M while the mean score for females was 4.71 ( $SD = .82$ ). This difference did not reach significance. The male mean score on the BSRI-F was 4.58 ( $SD = .64$ ). The mean female score on the BSRI-F was 5.04 ( $SD = .73$ ). This difference was revealed by a  $t$  test to be significant,  $t(134) = -3.37, p .002$  (see Table 2). It appears that, in contrast to the entire sample where males have a significantly higher masculine sex role than women, for the depressed subgroup there is no significant difference. Depression may lower the level of masculine sex role for men more than it does for women. Alternatively, lower levels of masculine sex role in men may predispose one to depression. Levels of feminine sex role dropped equivalently for men and women, but they dropped only slightly.

The mean BDI scores broken down by sex role types are presented in Table 13. Of the six Bonferroni comparisons, only three reached significance. Androgynous subjects (mean = 6.084,  $SD = 5.178$ ) were found to be significantly less depressed than Undifferentiated subjects (mean = 8.478,  $SD = 5.913$ ),  $t(277) = 6.76, p .01$ . Masculine subjects (mean = 6.167,  $SD = 5.317$ ) were less depressed than Undifferentiated

subjects,  $t(288) = 6.58, p < .01$ . Feminine subjects (mean = 6.739,  $SD = 5.114$ ) were also less depressed than Undifferentiated subjects,  $t(278) = 4.91, p < .01$ . Thus Androgynous, Masculine and Feminine subjects were all less depressed than Undifferentiated subjects, but they did not differ significantly from each other.

### Discussion

The findings in this study of sex differences in the expression of depression are similar to Chino and Funabiki's (1984) results. There also appear to be significant differences in the expression of depression due to sex role. The relationship of expression of depression and masculinity appears to reflect conceptualizations of masculine sex role as containing instrumental coping (Spence and Helmreich, 1978). The relationship between expression of depression and feminine sex role suggests however that feminine sex role is associated with not only expressiveness, but also behavioral coping. The corollary hypothesis that variation in expression of depression explained by sex could be explained by sex role met with only limited confirmation.

The presence of sex differences in the frequency, intensity, and expression of depression continues to be a focus of research on depression (e.g. Amensohn & Lewinsohn, 1981; Hirschfeld & Cross, 1982). Men and women were found in this study to differ in frequency of depression but were not found to differ in the intensity or level of depression. This is in contrast to Chino and Funabiki (1984) who did find differences in the intensity or level of depression between the

sexes, but in accord with most other findings (Hammen & Padesky, 1977; Padesky & Hammen, 1981; Vredenburg, et al., 1987). Thus accumulating evidence suggests that while women experience depression more frequently, they do not experience with more intensity.

A major finding of the present study was the association of masculine sex role with the employment of strategies for coping with depression. These strategies are behavioral, cognitive, and additionally for the depressed subgroup, emotional. Masculine sex role as measured by the BSRI has been characterized as being primarily an indicator of instrumentality (Spence & Helmreich, 1978; Whetton & Swindells, 1977; Wheelless & Dierks-Stewart, 1981). Consistent with this, we found the BSRI-M to be associated with instrumental behavioral coping strategies. Low masculine sex role was associated with non-instrumental, more pathological expressions of depression. Thus the findings of this study on the relationship between expression of depression and masculine sex role is much as was expected.

The BSRI-F has been more narrowly defined as a measure of expressiveness (Spence & Helmreich, 1978; Whetton & Swindells, 1977; Wheelless & Dierks-Stewart, 1981). Feminine sex role as measured by the BSRI appears to associated with expressive reaching out and an avoidance of deleterious coping strategies such as drug abuse. This certainly is in accord with the notion of expressiveness. However, behavioral coping strategies were also associated with the feminine sex role for depressed individuals. Thus, contrary to narrower conceptualizations, the BSRI-F appears to be associated not just with expressiveness, but also with an

active behavioral coping in depression, and an avoidance of self-destructive behavior.

It appears then, that masculine sex role and feminine sex role account mainly for the adaptive responses and coping skills in the expression of depression. Both masculine sex role and feminine sex role are positively correlated with adaptive coping strategies and negatively correlated with symptomatic expressions of depression. The differences in which coping strategies and expressions of depression relate to masculine sex role and feminine sex role are salient. This would provide support for the "additive" conceptualization of androgyny propounded by Hall and Taylor (1985) in which both high masculine sex role and high feminine sex role facilitate mental health. This formulation however is not supported when one examines the levels of depression broken down by sex role type (Table 13). There is no significant difference in level of depression between androgynous, masculine and feminine individuals. Thus the evidence presented here is somewhat more consistent with an association of masculine sex role with mental health as proposed by Mafeo (1982). The present findings, however, suggest that Mafeo's model is also too restrictive. It would appear that high levels of masculine sex role or feminine sex role may facilitate mental health, and that it is low levels of both masculine and feminine sex role that leaves one more vulnerable to depression.

This study altered the IDB through the inclusion of two items reflecting frequency and amount of alcohol consumption. These items along with items reflecting marijuana and tobacco use formed the factor

"Drugs and Drink". It was found that items in this factor were endorsed more frequently by males, although it was uncorrelated with masculine sex role and negatively correlated with feminine sex role. That males have a propensity towards increased drug and alcohol use when depressed offers some support for the notion that males may mask depression through alcohol and drug abuse (Nolan-Hoeksema, in press). Drugs and Drink was one of the few factors where there was some shared variance between sex and sex role. It appears that males low in feminine sex role may be more prone to drug and alcohol abuse when depressed.

In examining the data, it quickly becomes apparent that the amount of variance in any of the IDB factors accounted for by sex, the BSRI-M or the BSRI-F is generally low. Research in sex differences in the expression of depression to date has avoided examining or reporting the amount of variance explained by any one factor or symptom. They have always been analyzed together in functions. These low coefficients of determination indicate that while collectively these symptoms may moderately discriminate the sexes or levels of masculine sex role and feminine sex role, individual IDB factors have low predictive value. This suggests there may be intervening variables.

It was found that sex role did not account for many of the sex differences in the expression of depression. Nevertheless, while masculine and feminine sex role may not overlap with sex in explaining variation in expression of depression, they can in themselves explain much of the variability in expression of depression. Each contributes uniquely to methods of coping with depression which leaves those

individuals who are high in masculinity or femininity less susceptible to depression.

A limitation of this study must be strongly underlined. The sample employed consisted of depressed and mildly depressed college students who volunteered for this study. The question as to whether these findings can be generalized to a sample of more severely depressed and varied adults remains to be determined.

## Appendix A

## Sex Role Measurement

Bem (1979) describes male and female sex roles in the following manner:

"Largely as a result of historical accident the culture has clustered a quite heterogenous collection of attributes into two mutually exclusive categories, each category considered both more characteristic of and more desirable for one of the two sexes. These cultural expectations are well known by virtually all members of the culture." (p. 1048). Implicit in the conceptualization is the social determination of gender differentiation.

To say that psychological and psychosocial gender differences are entirely social would be presumptuous to say the least. Nevertheless the areas where psychological and psychosocial differences attribute to biological differences are very specific and circumscribed. For example, the once touted difference in mathematical abilities has been found to exist only for specific kinds of algebraic items and not arithmetic or geometry. Differences in spatial and verbal ability have been found to be weak at very best. The sex differences with respect to aggression also appears to be far from confirmed. Laboratory studies indicate sex differences account for only 5% of the variance in aggression (Deaux, 1985). Thus it would appear that sex is very limited as a psychological variable.

Given the current body of evidence, it is not surprising that sex role researchers conceive of sex role as largely the result of socialization. This claim is made primarily because 1) the evidence for sex differences attributable to genetic differences is weak and where differences do exist they are relatively minor, 2) human behavior has been proven to be malleable, and 3) there are cultural differences in sex role, including differences in which of the sexes is aggressive, maintains power, and manages affairs (Spence & Helmreich, 1978).

Many scales have been developed to assess masculinity and femininity. The best know and most widely used are the BSRI (Bem, 1974; Bem, 1981), and the Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Strapp). Both conceive of masculinity and femininity as orthogonal constructs. Both categorize subjects into four groups: masculine, feminine, androgynous (high on both masculine and feminine) and undifferentiated (low on both scales). The two scales are reported to have modest correlations with one another (Spence & Helmreich, 1980).

The construction of these two scales was considerably different. Items for the BSRI (Bem, 1974) were initially selected by students and by Bem from a list of 200 personality characteristics. The result was three scales of 20 items each; a Masculinity scale, a Femininity scale and a Social Desirability scale consisting of "neutral" characteristics half positive in value and half negative. Item-by-item  $t$  tests were used as the basis for item selection. Bem (1979) counters criticism of her use

of multiple  $t$  tests (Pedhazur & Tetenbaum 1979) by arguing the initial selection process eliminates the danger of her capitalizing on chance and by citing the procedure as a common methodology employed in test construction. No factor analysis was performed.

Spence and Helmreich (1974) constructed the PAQ using a similar method to Bem, however they also used the differences in responding between males and females as a criterion for item selection and an indicator of validity (Spence & Helreich, 1978).

Further research has suggested that the PAQ and BSRI should be more narrowly regarded as measures of instrumental and expressive behaviors (Spence & Helmreich, 1980; Taylor & Hall, 1982; Deaux, 1984; Schenk & Heinisch, 1986). Factor analyses of the BSRI (Whetton & Swindells, 1977; Pedhazur & Tetenbaum, 1979; Wheelless & Dierks-Stewart, 1981) have supported these contentions.

Table 1  
Correlation Matrix for the Dependent Variables

	Sex(a)	BDI	BSRI-M	BSRI-F
Sex	1.00			
BDI	.061	1.00		
BSRI-M	-.251**	-.2707**	1.00	
BSRI-F	.357**	-.119**	.083*	1.00

\*  $p < .05$

\*\*  $p < .01$

a) Measures positively correlated with sex indicate correlation with females. Negative correlations indicate correlation with males.

Table 2  
Mean scores on BDI and BSRI for entire sample

Instrument	Male		Female		<u>t</u>	p
	Mean	SD	Mean	SD		
BDI	6.31	5.56	7.01	5.43	-1.50	.135
BSRI						
Masculinity	5.30	.83	4.88	.74	6.29	.000
Femininity	4.71	.64	5.20	.61	-9.25	.000

Mean scores on BDI and BSRI for depressed subgroup

Instrument	Male		Female		<u>t</u>	p
	Mean	SD	Mean	SD		
BDI	15.03	5.76	14.38	4.63	.68	.500
BSRI						
Masculinity	4.99	.95	4.71	.82	1.69	.093
Femininity	4.58	.64	5.04	.73	-3.37	.001

Table 3

## IDB factor descriptions and eigenvalues

IDB factor	Description	Eigenvalue	% of var.	Cum %
IDB1	General	20.85	25.7	25.7
IDB2	Hostility & Anger	3.83	4.7	30.5
IDB3	Somatic Complaints	2.90	3.6	34.1
IDB4	Social Withdrawal	2.62	3.2	37.3
IDB5	Cognitive Coping	2.35	2.9	40.2
IDB6	Sleep Disturbances	2.18	2.7	42.9
IDB7	Drugs & Drink	2.10	2.6	45.5
IDB8	Increased Eating	1.75	2.2	47.7
IDB9	Misery Loves Company	1.54	1.9	49.6
IDB10	Morbidity & Suicide	1.47	1.8	51.4
IDB11	Self-preoccupation	1.41	1.7	53.1
IDB12	Seeking Personal Support	1.28	1.6	54.7
IDB13	Behavioral Coping	1.23	1.5	56.2
IDB14	Writing to Express Feelings	1.14	1.4	57.6
IDB15	Blaming God	1.08	1.3	59.0
IDB16	Vomiting	1.06	1.3	60.3

Table 4

## Items loading onto IDB factors

(Items included had loadings of .50 or greater)

Factor 1 "General"

I feel like a nobody.

I feel like a failure.

I think that the world would be better of without me.

I am preoccupied with self pity.

I feel that everything I did was wrong.

I feel inferior.

I feel jealous of others who are happy.

I feel neglected and unloved.

I wish I were dead.

I tell myself I'm no good.

I have no confidence in myself.

I blame myself for things that happen.

I mentally tear myself up.

I feel emotionally and physically slowed down.

I wonder why nobody likes me.

I wonder why I'm not good-looking.

I feel that others don't want me around.

I feel sick inside.

I feel confused and frustrated.

I feel like I'm missing out on things.

I feel immature, unstable, and incompetent.

## Table 4 (con't)

## Items loading onto IDB factors

Factor 1 "General" (con't)

I feel pessimistic.

I feel inept.

Factor 2: "Hostility and Anger":

I act spiteful.

I lash out verbally.

I snap at others.

I am easily irritated by things not going my way.

I am easily angered.

Factor 3: "Somatic Complaints"

I get sick.

I have an upset stomach.

I feel sick inside.

My stomach hurts.

Factor 4: "Social Withdrawal"

I stay inside and don't socialize.

I feel anti-social.

I go to a quiet place.

I want to stay away from people.

Factor 5: "Cognitive Coping"

I try talking myself out of sadness.

## Table 4 (con't)

## Items loading onto IDB factors

(Items included had loadings of .50 or greater)

I tell myself that things will cheer up.

I convince myself that it is stupid to get depressed.

I tell myself to stop being depressed.

Factor 6: "Sleep Disturbances"

I need more sleep.

I feel sleepy except at night.

I feel tired.

I hate waking up in the morning.

Factor 7: "Drugs and Drink"

I smoke a joint.

I smoke more than usual.

I drink more alcohol than usual.

I drink more frequently than usual.

Factor 8: "Increased Eating"

I eat more.

I eat sweets.

I seek to find happiness in food.

## Table 4 (con't)

## Items loading onto IDB factors

(Items included had loadings of .50 or greater)

Factor 9: "Misery Loves Company"

I want to be with other depressed people

I wish someone were depressed with me.

I think of ways to make others feel sorry for me.

Factor 10: "Morbidity and Suicide"

I wish I were dead.

I talk about suicide as a tool for compassion.

I wonder why I was born.

Factor 11: "Self-Preoccupation"

I feel pre-occupied with myself.

I feel self-centered.

Factor 12: "Seeking Personal Support"

I talk to someone who should be honest.

I go to a close friend.

Factor 13: "Behavioral Coping"

I try to busy myself.

I try to do something now.

I get away and do something I enjoy.

Factor 14: "Writing to Express Feelings"

I write in my journal.

I write to express my feelings.

## Table 4 (con't)

Items loading onto IDB factors

(Items included had loadings of .50 or greater)

Factor 15: "Blaming God"

I blame God.

Factor 16: "Vomiting"

I throw up.

Table 5  
Multiple regression of IDB factors onto sex for the  
total sample

<u>IDB Factor</u>	<u>Beta</u>	<u>Sex</u>	<u>R</u>	<u>R<sup>2</sup> Change</u>	<u>Signif.</u>
Seeking Personal Support	.253921	F	.254	.064	.0000
Writing to Express Feelings	.245266	F	.354	.064	.0000
Increased Eating	.234081	F	.424	.055	.0000
Somatic Complaints	.229077	F	.482	.052	.0000
General	.169992	F	.511	.029	.0000
Drugs & Drink	-.160807	M	.536	.026	.0000

Table 6

Multiple Regression of IDB Factors onto the masculinity Subscale  
of the BSRI for the total sample

<u>IDB Factor</u>	<u>Beta</u>	<u>R</u>	<u>R<sup>2</sup> Change</u>	<u>Signif.</u>
General	-.333682	.333	.011	.0000
Behavioral Coping	.157103	.368	.025	.0000
Increased Eating	-.136982	.393	.019	.0003
Cognitive Coping	.129051	.414	.017	.0006
Misery Loves Company	-.083014	.421	.007	.0274

Table 7

Multiple Regression of IDB Factors onto the femininity Subscale  
of the BSRI for the total sample

IDB Factor	Beta	R	R <sup>2</sup> Change	Signif.
Seeking Personal Support	.232798	.234	.054	.0000
Writing to Express	.232790	.329	.054	.0000
Feelings				
Drugs & Drink	-.197196	.384	.039	.0000
Hostility & Anger	-.167284	.418	.028	.0000
Increased Eating	.117629	.435	.014	.0014
Self-preoccupation	-.093270	.445	.009	.0112
Social Withdrawal	-.086923	.453	.008	.0181
Blaming God	.074586	.459	.006	.0423
General	.078307	.467	.006	.0331
Vomiting	-.078675	.473	.006	.0423

Table 8  
 Multiple Regression of IDB Factors onto Sex  
 for Depressed Subgroup

IDB Factor	Beta	Sex	R	R <sup>2</sup> Change	Signif.
Drugs & Drink	-.255929	M	.256	.066	.0011
Writing to Express Feelings	.256249	F	.342	.051	.0012
Increased Eating	.217359	F	.426	.065	.0016
Seeking Personal Support	.235607	F	.469	.038	.0128
Somatic Complaints	.193076	F	.500	.030	.0138
Self-preoccupation	.164664	F	.526	.026	.0321

Table 9

Multiple Regression of IDB Factors onto the masculinity  
subscale of the BSRI for the depressed subgroup

<u>IDB Factor</u>	<u>Beta</u>	<u>R</u>	<u>R<sup>2</sup> Change</u>	<u>Signif.</u>
Cognitive Coping	.335233	.322	.104	.0000
General	-.162895	.374	.036	.0381
Behavioral Coping	.175452	.412	.031	.0262
Writing to Express	.198489	.444	.027	.0134
Feelings				
Vomiting	-.176441	.475	.029	.0297

Table 10

Multiple Regression of IDB Factors onto the femininity  
 Subscale of the BSRI for the depressed subgroup

<u>IDB Factor</u>	<u>Beta</u>	<u>R</u>	<u>R<sup>2</sup> Change</u>	<u>Signif.</u>
Drugs & Drink	-.318477	.281	.079	.0001
Seeking Personal Support	.269905	.382	.067	.0006
Writing to Express Feelings	.258160	.454	.061	.0010
Behavioral Coping	.181100	.489	.032	.0195

Table 11

Forced Entry Multiple Regression using total sample upon IDB factors using the BSRI and sex (only those regressions with significance are reported)

IDB Factor	R <sup>2</sup> for BSRI-M & BSRI-F	R <sup>2</sup> Change when sex added	R <sup>2</sup> for sex only	Shared R <sup>2</sup> for sex & sex role	Total
General	.123 <sup>***</sup>	.003	.028 <sup>***</sup>	.025 <sup>***</sup>	.125 <sup>***</sup>
Hostility & Anger	.033 <sup>***</sup>	.003	.003	.000	.036
Somatic Complaints	.004	.053 <sup>***</sup>	.053 <sup>***</sup>	.000	.057 <sup>***</sup>
Cognitive Coping	.017 <sup>**</sup>	.001	.001	.000	.018 <sup>*</sup>
Drugs and Drink	.045 <sup>***</sup>	.006	.026 <sup>***</sup>	.020 <sup>***</sup>	.051 <sup>***</sup>
Increased Eating	.035 <sup>***</sup>	.029 <sup>***</sup>	.055 <sup>***</sup>	.026 <sup>***</sup>	.064 <sup>***</sup>
Self-preoccupation	.013 <sup>*</sup>	.000	.002	.002	.013
Seeking Personal Support	.055 <sup>***</sup>	.037 <sup>***</sup>	.064 <sup>***</sup>	.027	.092 <sup>***</sup>
Behavioral Coping	.025 <sup>***</sup>	.004	.004	.000	.029 <sup>***</sup>
Writing to Express Feelings	.054 <sup>***</sup>	.032 <sup>***</sup>	.061	.029 <sup>***</sup>	.086 <sup>***</sup>

\* p < .05

\*\* p < .01

\*\*\* p < .001

Table 12

Forced Entry Multiple Regression using depressed subgroup upon IDB factors using the BSRI and sex (only those regressions with significance are reported)

IDB Factor	R <sup>2</sup> for BSRI-M & BSRI-F	R <sup>2</sup> Change when sex added	R <sup>2</sup> for sex only	Shared R <sup>2</sup> for sex &	Total
General	.083 <sup>***</sup>	.000	.000	.000	.083 <sup>**</sup>
Somatic Complaints	.008	.047 <sup>*</sup>	.047 <sup>*</sup>	.000	.055
Cognitive Coping	.109 <sup>**</sup>	.028 <sup>*</sup>	.032 <sup>*</sup>	.004	.137 <sup>***</sup>
Drugs and Drink	.084 <sup>**</sup>	.030 <sup>*</sup>	.066 <sup>**</sup>	.033 <sup>*</sup>	.114 <sup>**</sup>
Increased Eating	.009	.051 <sup>**</sup>	.052 <sup>**</sup>	.001	.060 <sup>*</sup>
Seeking Personal Support	.046 <sup>*</sup>	.011	.023	.012	.057
Behavioral Coping	.055 <sup>*</sup>	.005	.004	.000	.059 <sup>*</sup>
Writing to Express Feelings	.077 <sup>**</sup>	.041 <sup>*</sup>	.059 <sup>**</sup>	.018	.118 <sup>***</sup>

\* p < .05

\*\* p < .01

\*\*\* p < .001

Table 13

## Mean BDI scores categorized by Sex Role Types

<u>Sex Role Type</u>	<u>Mean</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
Androgynous	6.084	5.178	0	28
Masculine	6.167	5.317	0	32
Feminine	5.739	5.114	0	25
Undifferentiated	8.478	5.913	0	37

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