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Sex-Role Development in Psychiatrically Disturbed Adolescent Females and Their Parents

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SEX-ROLE DEVELOPMENT IN PSYCHIATRICALY
DISTURBED ADOLESCENT FEMALES AND THEIR PARENTS

By

JUDYE GERSHMAN HESS

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
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IN
PSYCHOLOGY

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1975

ABSTRACT

Seventeen acting-out, 17 mixed-neurotic and 19 normal adolescent females were compared with respect to their sex-role development. It was hypothesized that mixed-neurotic girls would be more 'traditionally' feminine in their sex-role development while the acting-out girls would be more masculine. It was expected that the normals would show a combination of masculine and feminine traits. Adolescents' perceptions of the sex-role behavior of their parents were also examined. It was expected that the mixed-neurotic girls would perceive their mothers as more traditional in sex-role while the acting-out girls would perceive their mothers as more masculine. Again, normal girls were expected to fall in between the two groups. Finally, the groups were compared on possession of certain personality traits traditionally thought of as masculine or feminine.

The fathers and mothers of the girls were also compared with respect to their own sex-role identification. Mothers were expected to score in a similar direction as their daughters. No specific directional predictions were made for fathers. All subjects were given the Franck Drawing Completion Test, the Adjective Check List and the Femininity Scale of the California Psychological Inventory. In addition the parents were asked to fill out the Adjective Check List a second time, with the direction that they check off those items they would ideally like their daughter to have,

and the adolescents were given the Parental Description Survey.

No differences were found among the groups of adolescents on sex-role identity, either sex-role orientation or preference. Mothers of mixed-neurotic girls showed a more feminine sex-role preference. With respect to specific personality traits, normal adolescents had higher affiliation and heterosexuality scores. Mixed-neurotic adolescents had higher succorance scores. Mothers of mixed-neurotic girls had lower achievement scores. Concerning parental expectation, or adolescents' perceptions of their parents' sex-role appropriateness, no differences were found among the groups.

The results of this study suggest that mothers of mixed-neurotic girls are more feminine in their sex-role identification while mothers of normals show more flexibility. Furthermore, it appears that normal girls possess some of the more 'functional' feminine traits, whereas the neurotic girls may possess more of the 'dysfunctional' feminine traits. Possession of these functional feminine traits evidently makes it easier to function in this society and may make one less likely to seek psychiatric help or act-out against society.

Significant classification matrices were yielded for the following sets of variables: six best predictor variables from the step-wise discriminant analysis; adolescents' perception of self and parents; mothers' self-perception;

total 75 variables utilized in the study. Thus, groups of adolescents, groups of mothers, and groups of families could be accurately classified into their particular categories on the basis of their performance on the measures used in the present study.

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INTRODUCTION

Traditionally our society has emphasized the development of sharply differentiated sex-roles for men and women. Males were taught to be aggressive, independent and competitive whereas females were encouraged to be more submissive, subordinate and dependent. With our increased mastery over the physical environment and the diminished emphasis on division of labor, the necessity for adhering so closely to these well-defined sex-roles has markedly decreased. Women have begun to emerge as individuals in their own right, as equal citizens with more opportunities to choose their own life styles. There no longer exist as many rigidly defined rules as to what women's role in society unquestioningly must be.

In the last decade, women have emerged as a group who, like other previously oppressed minority groups, have begun to fight for equal rights. Women's liberation groups have become an important avenue for social change much as civil rights groups have attempted to gain more equality among the races. Psychology as a profession has seen the growth of task forces for women to fight for equal representation for the sexes in the mental health field. On a more theoretical level, humanistic psychology has stressed the growth of people as human beings, rather than encouraging their adherence to stereotypical sex-roles. Maturity is now defined by some as flexibility in gender identity, wherein men can be sensitive, warm and understanding while women

are allowed more opportunities to actively assert themselves in society.

Given the many forces which are working on the breakdown of these previously well-accepted sex-role stereotypes, it becomes extremely important for us to question the meaning of these emerging views and concepts, and the implications that they will have for us and for society as a whole. One crucial question seems to be that of the relationship between sex-role development and psychopathology. If, as seems to be the case for males, disturbances in traditional sex-role development are associated with various psychopathological conditions, this might lead us to question the benefits of this new challenge to the traditional sex-role stereotypes. If, however, more flexible rather than traditional sex-role developments are associated with psychological health, as may more likely be the case for women, we would be encouraged to pursue the directions which the last decade of women's liberation groups have begun.

As an attempt to further explore some of these questions, the present study examined the nature of the relationship between sex-role development and psychopathology in acting-out, mixed-neurotic and normal adolescent females. In addition, we tried to uncover some of the variables involved in this relationship, such as the adolescents' perceptions of their parents sex-role appropriateness, the parents' own sex-role development, and the parents' ideals and expectations of sex-linked personality characteristics for their children.

Conceptualizations of Sex-Role

Within the last decade or so, the concept of sex-role has come under greater scrutiny than it had previously. Investigators have made a greater attempt to separate this rather global term into various aspects, rather than using it in a relatively undifferentiated manner.

Biller (1971) has denoted a schema consisting of three aspects of sex-role identification which can be described as follows: 1) Sex-role orientation refers to an individual's unconscious perceptions of his own sex-role adequacy. As a basic part of the self-concept, a person's sex-role orientation develops the earliest and is the most stable aspect of his sex-role behavior. 2) Sex-role preference concerns an individual's preference for certain roles, objects, activities or interests which are defined by society as related to a particular sex. Sex-role preferences are fairly superficial, may change with the times, and for this reason can conceivably be misleading when used as measurement instruments in research. 3) Sex-role adoption refers to the way in which an individual behaves in society as viewed by others, i.e. 'masculinity' may be seen in physical competence, independence, aggressiveness; 'femininity' as seen in interpersonal competence, emotional expressiveness, nurturance, sensitivity.

Although different authors have conceptualized sex-role identification in different ways, (Kagan, 1964; McClelland and Watt, 1968; Burton and Whiting, 1961) the

simplicity and directness of Biller's above formulation makes it the one of choice for use in the present study.

Sex-Role Development and Psychopathology

Unlike the fairly conclusive studies for males (Rosenfeld, 1969; Kayton and Biller, 1971), which suggest that a positive relationship does exist between psychopathology and disturbances in sex-role development in adult males, the studies regarding females have been far less frequent and conclusive. If any trend does exist, it seems to be in the direction of greater 'femininity' being associated with poorer adjustment. For the remainder of this paper, use of the term 'masculine' in describing women will pertain to the traditional stereotype of the masculine role, rather than signifying a belief that the traits are in fact masculine.

Heilbrun (1968) administered the ACL and the Gough Femininity Scale to college women and has distinguished among healthy 'masculine', healthy 'feminine', maladjusted 'masculine' and maladjusted 'feminine' groups of late adolescent females. Using the Parson and Bales (1965) categorization of instrumental vs. expressive (goal oriented vs. interpersonally sensitive) behaviors, he found that among the healthy groups, that the masculine group possessed instrumental as well as expressive behavior, whereas the feminine group possessed only the latter. In regard to the maladjusted groups, he found the masculine girls to be lacking an effective goal orientation as well as lacking in nurturance and affiliation needs. They also scored higher on succorance

and abasement than the healthy masculine girls and it was felt that their masculinity resided in their social isolation, which often took the guise of social independence. The maladjusted feminine group did not differ significantly from the healthy feminine group on the measures studied. From these findings, one might speculate that greater adaptability or pathology may be more characteristic of the 'masculine' groups, whereas the two feminine groups remain closer to the norm.

Along this vein, Gump (1972) has found ego strength in women to be correlated negatively with the adoption of a traditional female sex-role. Thus, college women with highest ego strength were pursuing both marriage (feminine) and career (masculine) prospects, had better ideas of plans for the future, and were more flexible in considering different alternatives. Low ego strength women were more traditional in sex-role development, were pursuing marriage only, were more likely to rely on others, showed difficulty identifying their own needs and determining appropriate ways of meeting them, and were unable to remove themselves from the context of their present situation. Thus, the results of this study suggested that purposiveness, resourcefulness and self-direction may be inconsistent with the adoption of a traditional feminine role.

In contrasting male and female adolescents with respect to the relationship between sex-role identification and self-esteem, Connell and Johnson (1970) found that while males with high (masculine) sex-role identity generally had

higher self-esteem than males with low sex-role identity,
no similar correlation was found for women. The authors suggested that for the early adolescent, the male role may have higher reward value than the female role, regardless of whether it's adopted by a male or female. That is, the female may be encouraged to adopt certain male characteristics such as competence, while also getting reinforced for fitting into a more stereotypical feminine role, thus resulting in a more mixed sexual identification than is true for the healthy male. This study also questions the desirability of a traditional feminine role for a well-adjusted female.

Flammer (1971) studied the relationship between self-esteem and sex-role development in pre-school boys and girls. He found that in contrast to boys, girls with low sex-role adoption had higher self-esteem than those with moderate or high sex-role adoption. Like Connell and Johnson (1970), Flammer (1971) explained these results in terms of the societal rewards for masculine behavior being greater than those for feminine behavior. He went on to say that because of the importance placed on maleness at early ages, gender identity for a male becomes more of an intrinsic part of a boy's self-concept and self-esteem than does feminine gender identity for a girl. Girls can achieve high self-esteem and rewards by exhibiting masculine-typed behavior without jeopardizing their basic femininity.

Webb's (1963) review of the literature on the rela-

tionship between sex-role preferences and adjustment suggests that children entering junior high school find greater reward value in the possession of masculine traits. Thus for boys, identification with sex-appropriate roles seems to provide greatest satisfaction, while for girls, flexibility in role to include masculine elements seems most favorable. In his own study of junior high school age boys and girls, he found a significant positive relationship between anxiety and level of femininity in girls of all three grades (7th, 8th, & 9th). In explaining these results, Webb suggested that "because the female's role is in a state of flux, stereotyped feminine interests and attitudes create stress in the early adolescent who is trying to master her female role."

In a study by Vincent (1966), it was found that women who scored low (less feminine) on the Fe scale of the California Psychological Inventory were better adjusted as measured by their performance on other CPI scales. The author suggested that if today's female is to be 'successful' in terms of assuming leadership and responsibilities, she'll score lower on the Fe scale of the CPI and would therefore be considered less 'feminine' than her less 'successful' counterpart.

In an explanatory article, Lynn (1966) suggested that with increasing age, girls come to have progressively better opinions of boys and poorer ones of themselves. The author feels that this disenchantment with the feminine role causes a larger proportion of females than males to

show preference for the role of the opposite sex.

Rosenkrantz, Broverman et. al. have been studying the whole notion of sex-role stereotypy for the last several years (1968, 1970, 1972). The conclusions of their studies further attest to the fact that not only are masculine traits considered more desirable than feminine traits by society at large, but that professional psychologists (clinicians) as well as non-professionals fall prey to these same stereotypes and are most likely perpetuating these notions in their work with clients. Their 1970 article discusses the 'double standard of mental health' and reveals that the average clinician's notions of 'healthy' behavior for a male are much closer to their notions of healthy behavior for an adult, than are their expectations of health for a female. Implicit in these notions is a powerful negative assessment of women. Thus, clinicians would be more likely to suggest that healthy women are less independent, adventurous, aggressive, competitive and more easily excitable than healthy men. The general standard of health is only applied to healthy men and stems from the 'adjustment' notion of health, i.e. for a woman to be healthy she must adjust to and accept the behavioral norms for her sex. Women are thus left in the conflictual position of having to decide whether to exhibit these positive 'masculine, healthy' traits and have their femininity questioned, or behave in the appropriate feminine manner and accept second-class adult status.

The work of these authors puts the question of what

is healthy sex-role development for a female into a very clear and comprehensive light. Implicit in what they are saying seems to be the notion that health should be defined similarly for both sexes, thus attempting to diminish the degree of sex-role stereotypy which does exist in this culture.

The studies thus far mentioned all seem to go along with the trend of psychopathology being related to adoption of a more traditional feminine sex-role, rather than the reverse which seems more true of males. There are, however, several studies which do not support this view and seem to suggest that perhaps abberent sex-role development (non-adoption of the feminine role) in females is more closely related to psychopathology.

Biller and Zung (1972) studied the interrelationship among degree of perceived maternal control, anxiety and opposite-sex role preference among elementary school girls. The authors found that the girls who were more tense, anxious, questioned their personal worth, and had cognitive-attentional difficulties were those who perceived their mothers as being controlling. They also showed atypical (masculine) sex-role preference. Thus, the 'masculine' girls seemed to be most vulnerable to anxiety and general maladjustment as a concomitant of excessive maternal control. This study goes against some of the earlier ones in its suggestion of the masculine girl having greater psychopathology than her feminine counterpart, but may be more

a result of the particular age group of the sample used in this study.

Leventhal et. al. (1968) studied the effects of sex-role adjustment upon the expression of aggression in college males and females. Taking into account the traditional psychoanalytic notion that adequate sex-role identification is positively associated with more general aspects of psychological adjustment, and making the supposition that the capacity to express aggression in situations calling for an aggressive response is also associated with good psychological adjustment, these authors predicted that 'feminine females' and 'masculine males' would express significantly more aggression in such a situation requiring an aggressive response. This hypothesis was borne out in their study, further attesting to the notion of traditional femininity being associated with psychological health in women. However, the criterion for adjustment used here may be questioned.

Data from Psychopathological Populations

McClelland and Watt (1968) studied sex-role alienation in schizophrenics, neurotics and normals, and found that the basic disturbance with the schizophrenic groups was in their lack of confidence in their gender role identity, while neurotics had disturbances in their sex-role style. Schizophrenic females, specifically, were characterized by sex-role alienation, i.e. caring less about all parts of their body; showing no differential between male and female parts, than actual sex-role reversal. Thus, schizophrenic women do

not experience their bodies in the same way as normals. The relevance of this study for the present one lies in the further differentiation between a normal and a pathological subgroup on this variable of sex-role identification.

Along this same vein, Money and Primrose (1968) found female trans-sexuals to score low on the Femininity Scale of the Guilford-Zimmerman. This group's adherence to masculine stereotypes and attitude patterns gives us further information as to what may be characteristic of this sort of abnormal population and provides some further implications for judging a normal population.

A final study using an abnormal female population was done by Jordan and Kempler (1970). These authors performed an experimental investigation of sex-role conflict by comparing women diagnosed as 'hysterical personality' with normal women on a variety of measures (physiological and psychological). Results were in support of the hypothesis that 'anxiety over sex-role adequacy is an important determinant of emotional, cognitive and interpersonal behavior in female hysterics'.

The contradictory findings of the two major groups of studies above makes apparent the need for a further look into the relationship between sex-role development and psychopathology in women. In addition, findings from a recent study of male adolescents, using similar measures (Small, 1974), suggest that the question of the relationship between psychopathology and sex-role identification is not as clear

as was previously thought to be the case, even for males. Small's (1974) study found no difference between any of the groups of adolescent boys (mixed-neurotic, acting-out, and normal control) on sex-role orientation or sex-role preference. The differences that were revealed among the groups concerned the specific personality traits of dominance, endurance and nurturance in which the normal controls scored higher. These findings clearly present a challenge to the bulk of the literature on sex-role identity and psychopathology in males, and further justify doubts about the counterpart relationship for females. For this reason, the need for a similar study using a female population seems important to pursue. Thus, in the present investigation, we hope to determine if adolescent girls who are in the categories of normal, acting-out and mixed-neurotic will differ from each other with respect to their sex-role identity, or whether they, like the males in Small's study, differ only on specific personality traits.

Sex-Role Development and Parental Identification

In addition to studying the relationship between sex-role development and psychopathology, variables connected with or possibly accounting for this relationship will be investigated. One important variable which has received considerable attention in the literature has to do with the child's identification with his parents. Albert (1970), Rosenfeld (1969), Heilbrun (1962), Gleuck (1950), Bacon, Child & Barry (1963), Bandura and Walters (1959), Miller

(1958), and MacDonald (1938) have done studies relating sexual identification and delinquency but this has been largely confined to males. The overall conclusion from this literature seems to indicate that aggressive, anti-social boys had inappropriate and inadequate male role models which thus prevented the boys from identifying with them.

Concerning females, the literature is much less extensive. Rychlak and Legerski (1967) in studying both male and female identification, have postulated a socio-cultural theory of appropriate sexual role identification and level of personality adjustment. In this theory, they disagree with the notion that identification with the opposite-sexed parent leads to personality disturbance. Rather, they speculate that personality maladjustment results only when a cross-sexed parental identification fails to prepare a child for his ultimate masculine or feminine pattern. It is the learning of appropriate sex-role behaviors which is important for healthy adjustment, and this can come from identification with either parent. Males in our society are expected to take ascendant-dominant roles while females are encouraged to be retiring and passive. Thus, according to these authors, pathology develops in women only when they identify with the ascendant-dominant parent rather than the retiring-passive parent--be this mother or father. Implicit in this formulation then is the fact that a girl can identify with her father and still have a feminine sex-role orientation and preference.

Rychlak and Legerski (1967) studied delinquent and non-

delinquent girls, aged 16-18. They hypothesized that female delinquents would show a trend toward identification with ascendant-dominant fathers whereas non-delinquent girls who showed this pattern would have concomitant personality maladjustments. The results support the hypothesis. The delinquent girls who had made this identification with the ascendant-dominant father were more tough, cynical and self-sufficient whereas the non-delinquent girls who identified in such a manner were increasingly distractable, over-active, guilt-prone, jealous and had many nervous symptoms. On the other hand, the delinquent girls who showed the most pathology were those who had identified with a retiring-passive mother. Thus, there appeared to be a double standard of health for delinquent and non-delinquent girls, depending on their identification pattern. The delinquent girls who pattern themselves in opposition to the expected role prescription find an outlet for this expression through their anti-social activities. The non-delinquent girls who have made a similar identification show signs of nervous tension leading to personal maladjustment. The healthiest pattern for both delinquent and non-delinquent girls appeared to be identification with an ascendant-dominant mother.

Several years later, Williams (1973) repeated Rychlak's study with normal female high school seniors. Contrary to Rychlak's findings, Williams found that two-thirds of his sample ascribed ascendant-dominant traits to themselves. Further, those girls who identified with ascendant-dominant fathers were more confident, self-reliant, competitive,

assertive, self-accepting, adventurous, realistic, high in achievement need and used skills more effectively than those who had identified with retiring-passive mothers. The ADF (Ascendant-Dominant Father Identification Pattern) girls were clearly higher in personal adjustment. The authors interpret these contradictory findings in terms of the societal changes in expectation for sex-role behaviors which have occurred in the last five years. If this interpretation is correct, that in fact the relationship between pathology and sex-role identification has been and is in the process of change, then the need for a study such as the one we are currently undertaking acquires even greater significance. To quote Rosenkrantz et. al. (1970:)

"Traditional concepts of sex-role are not immutable and can vary as a function of individual experience."

In order to study the variable of parental identification, and its effect on the child, it is necessary to first measure the parents' own sexual identification. No systematic attempt to study the sex-role development of the parents of psychiatrically disturbed populations is reported in the literature for males or females. Perhaps the closest that researchers have come to investigating this variable are the attempts which have been made to study the specific personality traits of parents of various psychiatric subgroups.

Bandura & Walters (1959) found fathers of aggressive boys to be more hostile, rejecting, punitive and lacking in warmth for their sons than control fathers. MacDonald

(1938), in contrast, studied a group of delinquent boys and found their fathers to be depressed, submissive and uninterested in their children's lives. Mothers of these boys, on the other hand, were found to be aggressive, dominant, rejecting and punitive women.

Small (1974) found some differences between mothers of normals as compared with mothers of the two pathological groups which he studied (mixed-neurotic and acting-out boys). On the ACL, mothers of normals had higher scores on heterosexuality and affiliation and lower scores on succorance and abasement than other mothers. No outstanding differences were found among the fathers of these groups.

Integrally related to the parents' sex-role development is the adolescents' perception of parental sex-role behavior. Garnezy (1961) studied schizophrenic children's perception of their parents and found the child's perception to be a more important variable than the dynamics reported by the parents. Also, the perception of his parents was consistent with and indicative of his psychosexual confusion. Kayton and Biller (1972) found that normals perceived their parents as exhibiting sex-appropriate behaviors to a greater degree than neurotics, paranoid and non-paranoid schizophrenics. This study pertained only to males so one must be cautious in expecting similar results with females. Small (1974), using Heilbrun's Parent Description Survey, found no differences among his male groups in their perception of parental sex-role appropriateness. In the present study,

we are looking at these same variables to see how they are influential with regard to the relationship between sex-role development and psychopathology in adolescent females.

Parental Expectations

It is conceivable that the difficulties disturbed adolescents are having are not based upon the traits they possess but rather on the expectations which their parents have for them. That is, the problem for these troubled adolescents may be that their parents expect them to display particular personality or sex-role characteristics that conflict with the particular characteristics the girls do have. This discrepancy between child behavior and parental expectation could indeed be a cause of the child's problems by the very nature of the conflicts they produce. Such a discrepancy can be measured in the present study by determining what sex-linked personality traits the parents ideally would like their daughter to have and comparing this with the actual traits the daughter possesses.

Small's (1974) study found parental expectation to be an important variable in understanding the relationship between sex-role development and psychopathology. Thus, fathers of normals differed from fathers of the pathological groups in that they had higher expectations for their sons in terms of achievement, dominance, and endurance. Mothers of normals also stressed achievement and endurance for their sons more so than mothers of the pathological groups. It may be remembered that this study also found normal boys to

score higher in their own subjective estimation of these traits in themselves than did their pathological counterparts. The implications of these findings are far-reaching. Thus, it may not be the sex-role development of a boy which is important in contributing to his level of adjustment, but rather whether or not he has fulfilled his parents' expectations with regard to specific sex-linked traits, e.g. endurance, dominance, achievement. If these traits are in turn reinforced by society, which they most likely would be in Western civilization, this would further help the boy in maintaining a healthy adjustment.

As a follow-up to Small's (1974) study, the present investigation will attempt to assess the importance of this variable of parental expectation in a consideration of adolescent girls.

STATEMENT OF THE PROBLEM

The most global variable being considered in this investigation then, is that of the relationship between sex-role identification and psychopathology in adolescent females. The bulk of the literature on women, as we have seen, supports the notion that flexibility in sex-role development is more related to good adjustment than is acceptance of a traditional feminine role. Thus, we would expect to find a combination of masculine and feminine traits among normal controls. In regard to the acting-out females, we would expect to find their sex-role identification to be at the masculine end of the continuum. The rationale for this lies

in the belief that acting-out behavior represents the struggle to reject the norms of society, among them being the social norms which reinforce traditional feminine behavior of females. At the same time, we would expect the mixed-neurotic females to have over-incorporated societal norms in general and consequently to reveal an over-acceptance of society's traditional standards for women. As such, it was predicted that the following hypotheses be advanced:

1. Adolescent females in the mixed-neurotic group would be more traditional in their sex-role identification than would be normal or acting-out girls.
2. Acting-out adolescents would be more masculine in their sex-role identification than normal or neurotic girls.

However, some recent research (Small, 1974) challenges the whole relationship between global sex-role identification and psychopathology, and suggests instead that the differences among the various sub-groups may be more pronounced with regard to specific personality traits. Small's study found that among groups of normal, mixed-neurotic and acting-out boys, there was no significant difference with respect to global sex-role identity but there were significant differences with respect to dominance, endurance and nurturance in which the normals scored higher. In discussing his results, Small (1974) suggests that it is not the sex-linked quality of these traits that is important but rather their potential for reinforcement from society. Assuming that this would hold true for females, it was predicted that normal females would exceed disturbed females on these same traits.

We then generated the following hypotheses:

3. Normal controls would score higher on endurance, dominance, and nurturance than acting-out or mixed-neurotic females.

Also, in light of the general expectation of mixed-neurotic females incorporating traditional societal values to a greater degree than normals or acting-out females, it was predicted that:

4. Mixed-neurotic girls would score higher on deference, succorance, abasement and affiliation than either normal or acting-out girls.

In light of the global assumption that acting-out girls have overly rejected society's traditional norms for females, the present study predicted that:

5. Acting-out girls would score lower on nurturance and affiliation than normal or mixed-neurotic girls.
6. Acting-out girls would score higher on dominance than mixed-neurotic girls.

If one assumes that the adolescent female's sex-role is based partially on maternal identification, then one could assume that mothers of neurotic girls would adhere more closely to the traditional feminine role. While Small's (1974) study found no differences between the groups of fathers or mothers with respect to sexual orientation or preference, Heilbrun and Fromm (1965) found that the better adjusted female college students had identified with low-feminine mothers. The maladjusted girls in Heilbrun's study identified with highly feminine mothers. These conflicting results seem to indicate the need for further exploration of this variable. As such it was hypothesized that:

7. Mothers of mixed-neurotic girls would be more traditionally feminine in their sex-role development than mothers of normal or acting-out females.

Since so little research has been conducted on the relationship between daughter's level of pathology and father's sex-role identification, directional hypotheses seemed premature at this point. It seemed more justifiable to treat this variable as an exploratory one and it was predicted that the fathers of girls in these three groups would differ with regard to their sexual identification.

Small's (1974) research found that while parents in the three groups did not differ with respect to overall sexual identity, there were some significant differences with respect to specific personality traits, at least with mothers. He found mothers of normals to be generally more out-going and confident in themselves than mothers of disturbed boys. In order to explore whether this would hold true for mothers of girls as well, the following hypotheses were tested:

8. Mothers of normal girls would score higher on heterosexuality and affiliation than mothers of neurotic or acting-out girls.
9. Mothers of normals would score lower on abasement and succorance than mothers of neurotic or acting-out girls.

Returning once again to the global assumptions of this study for mothers in the three groups, i.e. that mothers of neurotics adhere more closely to traditional feminine roles whereas mothers of acting-out girls would lean more in the masculine direction, the following hypotheses were generated:

10. Mothers of mixed-neurotic girls would score higher on abasement, succorance and deference than mothers of normals or acting-out girls.
11. Mothers of mixed-neurotic girls would score lower on dominance, achievement, and autonomy than mothers of acting-out girls.
12. Mothers of acting-out girls would score higher on dominance than mothers of normals or mixed-neurotic girls.
13. Mothers of acting-out girls would score lower on nurturance than mothers of normals or neurotics.

Since Small (1974) found no difference in the specific personality traits of the fathers among his three groups, and again because of so little research having been done pertaining to fathers' traits and daughters' level of pathology, we considered this variable an exploratory one and measured any differences on traits that did appear among the groups.

Regarding the adolescents' perceptions of their parents' sex-role appropriateness, we predicted from the global understanding of this paper that neurotic girls would see their mothers as more traditional in their sex-role identification while acting-out girls would see their mothers as more masculine. As such, we made the following prediction:

14. Mixed-neurotic girls would perceive their mother's sex-role appropriateness as more traditional than normal or acting-out girls.
15. Acting-out girls would perceive their mother's sex-role appropriateness as more masculine than normal or neurotic girls.

In regard to parental expectations, Small (1974) had predicted that the discrepancy between parents' ideals and

actual traits would be greater for the two disturbed groups than for the normal group. He found instead that the boys in both the normal and disturbed groups conformed to their parents' expectations. Thus, fathers of normals expected their sons to be more dominating and achieving than fathers of anti-social or mixed-neurotic boys, and indeed the boys in the normal control group scored higher on these traits. Fathers of normals also expected their sons to show more endurance than did fathers of anti-social boys, and this quality was in turn found among the normal boys. If one looks at the traits of dominance, achievement and endurance as traits associated with adequate personality functioning rather than being sex-linked in nature, one could assume that the same would hold true for fathers of girls, as such. The following hypotheses were made:

16. Fathers of normal girls would have higher expectations for their daughters with regard to achievement and dominance than fathers of disturbed girls.
17. Fathers of normal girls would have higher expectations for endurance than fathers of acting-out girls.

Similarly, Small (1974) found mothers of normals to have higher expectations for their sons with regard to endurance than either disturbed group. He also found mothers of normals to expect greater achievement from their sons than mothers of mixed-neurotic boys. On this basis, we hypothesized the following:

18. Mothers of normal girls would have higher ideals for their daughters with respect to endurance than mothers of disturbed girls.

19. Mothers of normals would expect more from daughters with respect to achievement than mothers of mixed-neurotics.

Continuing along the lines of the global assumptions of this study, the following hypotheses were added:

20. Mothers of mixed-neurotic girls would have higher expectations for their daughters concerning deference, abasement and succorance than mothers of acting-out or normal girls.
21. ~~Mothers of acting-out girls would have higher expectations of their daughters with regard to dominance~~ than mothers of normal or mixed-neurotic girls.

METHODOLOGY

Subjects:

Three groups of white adolescent females between the ages of 12 and 18, and their parents, were the subjects for this study. All the girls came from intact families and were currently residing with their natural parents at the time the study was conducted. The families in all three groups were fairly evenly divided between middle- and lower-middle class socio-economic levels. Psychotic and grossly neurologically impaired subjects were eliminated from the study.

The acting-out group, consisting of 17 girls and their parents, was defined by the particular symptomatology expressed by the daughter, whether she was referred through the courts or through non-judicial agencies. The symptomatology from which assessments were made, was defined largely by Robbins (1966) study, and included such behavioral dis-

turbances as larceny, burglary, robbery, forgery, truancy, drug use, alcoholism, running-away, sexual promiscuity, vandalism, fighting or physical cruelty. In terms of the present study, the most common symptoms found among the girls were truancy, larceny, fighting, running-away, drug and alcohol abuse and sexual promiscuity. Girls were selected from various courts and mental health centers throughout Massachusetts and northern Rhode Island. The mean age for these girls was 15.9. The mean IQ as measured by the Peabody Picture Vocabulary Test was 100.3 with a range between 83 and 123. The mean level of fathers' education was 12.5.

The mixed-neurotic group consisted of 17 girls and their parents, and was defined by the presence of the following symptomatology in the daughter (Robbins, 1966): temper tantrums, withdrawal, isolation, irritability, depression, anxiety, fears, school failures, phobias, inattention, day-dreaming, enuresis, speech defects, tics, odd food preferences or habits, nightmares, restlessness. In the actual study, the most common symptoms found were depression, withdrawal, isolation, anxiety, fears and phobias. One girl reportedly had temper tantrums and one other showed ritualistic behaviors. The girls were chosen from various guidance, counseling and mental health centers in eastern Massachusetts with the bulk from the Worcester area. The mean age for girls in this group was 16.1. The mean IQ as measured by the Peabody Picture Vocabulary Test was 99.8 with a range from 82 to 127. The mean level of fathers'

education was 12.4. Thus, the two clinical groups were closely matched for age, IQ, and fathers' level of education.

Because of the obvious potential and real overlap between the symptomatology in the two clinical groups, a constellation of at least two or three symptoms was necessary to define the appropriate category for any given subject. Discussions were held with the therapist or probation counselor of each of the girls and if a particular case seemed to be difficult to categorize with reasonable accuracy, it was not selected for the study. Five cases were omitted because of the difficulty of categorization.

The girls in the normal control group were chosen from various junior and senior high schools in the Worcester, Massachusetts area if they had no history of prior behavioral and/or emotional difficulties. The mean age for this group was 15.5. The mean IQ, as measured by the Peabody Picture Vocabulary Test, was 107.4 with a range from 84 to 121. The mean educational level of fathers in this group was 14.2. Nineteen families comprised the subjects for this group.

Although the means for the normal group with respect to girls' IQ and fathers' level of education seem slightly higher than those for the other groups, the differences were not statistically significant and do not need further consideration in analyzing the remainder of the data.

Measures Employed:

All subjects completed the following inventories:

A. Franck Drawing Completion Test, (FDCT), developed by Franck and Rosen (1949) is a projective technique designed to measure unconscious sex-role identity. The test consists of 36 incomplete drawings which the subject is asked to complete or elaborate in whatever way he chooses. The drawings extend over about one square inch and are located in the center of a cell 2-1/2 inch square. Each page has 12 drawings. The test is scored in terms of style as well as content. Each item is scored as either feminine '+' or masculine '-'. The subject's total score consists of the number of feminine scores, the range being from 0 to 36.

Franck and Rosen (1949) administered this test to 250 college students and found 36 of the original 60 items to yield a statistically significant difference in the way in which they were completed by males and females. It is these 36 items that are currently considered the FDCT.

Using this test on another sample of 300 male and female students, an inter-rater reliability co-efficient between +.84 and +.90 was calculated.

The validity of this test can be seen in the fact that the test did differentiate between males and females. Rosenfeld's (1969) results using the FDCT are in keeping with the theory behind the test, and to this degree attest to the test's construct validity. Most studies using the FDCT are unpublished (Anastasi, 1971) with the exception of Miller

and Swanson (1960) and Biller and Barry (1971).

B. The Femininity Scale of the California Psychological Inventory. This scale consists of 38 true-false questions designed "to assess the masculinity or femininity of interests" (Gough, 1957). The 38 items represent a revision of the original 58 item scale, which was found to significantly differentiate between males and females on cross-validation studies. High scores on this scale are indicative of more feminine interests and low scores of more masculine interests.

In regard to the scales' reliability, two studies are reported by Gough (1957) in the CPI manual, both yielding test-retest reliability co-efficients. The first one involved two high school junior classes who took the CPI in the fall and once again a year later. Males obtained a test-retest reliability co-efficient of +.59 and females +.65 (n=101). The second study used male prisoners and was administered twice within an interval of 7 to 21 days; the reliability co-efficient in this case was +.73.

The validity of the Fe scale as measured by Gough (1957) was found to differentiate between males and females in high school, college and psychology graduate populations. A point-biserial correlation was calculated to be +.78. The Fe scale was found to correlate -.41 with the masculinity scale of the Strong Vocational Interest Blank, and +.43 with the M-F scales of the MMPI.

C. The Adjective Check List, developed by Gough and Heilbrun (1956), consists of a 300-word adjective check list in which the individual is told to check off those adjectives which characterize his behavior. The test consists of 25 scales: four test validity scales, five personal adjustment scales, a masculinity-femininity scale and 15 need scales. The need scales originate from Murray's theoretical need-pressure system. One of these measures heterosexual orientation.

Nine of the need scales were found by Heilbrun to be sex-linked (Heilbrun, 1964). The more masculine scales were found to be: dominance, achievement, autonomy, and endurance, while deference, affiliation, succorance, abasement, and nurturance were scales perceived as more feminine. The masculinity-femininity scale, the last to be developed, consists of those adjectives in the ACL which reliably discriminated between college males and females.

Reliability studies were carried out on four small samples and are reported in the manual (Gough & Heilbrun, 1965). While some of the scales lack adequate reliability, most are adequate on this dimension. Validity studies have been conducted mostly with the need scales. The need scale traits on the ACL correspond directly to those on the Edwards Personal Preference Schedule. Thus, correlations between each ACL scale and its counterpart were derived. Ten of the fifteen co-efficients were significant at or beyond the .01 level. The correlations for the achievement, endurance,

and heterosexual orientation scales do not reach significance. Regarding construct validity, the masculinity-femininity scale seems to have received the most support. Several studies found that the relationship between the MF scale and sex-role development and personality are consistent with theory and prior empirical findings (Heilbrun, 1964a; 1964b; Heilbrun and Fromm, 1965).

The ACL was also used as an independent measure of adjustment by the score received by each subject on the Personal Adjustment Scale.

D. Heilbrun's Parental Description Survey consists of a rating form which is composed of 15 short descriptions of the personality need variables measured by the ACL. The descriptive statements originally came from the Edwards Personal Preference Schedule. The task of the subject is to read each description and specify whether it typifies his mother or father (Heilbrun, 1965b). The PDS has frequently been used in conjunction with the ACL as a means of studying identification, and in this capacity is known as the Identification Scale (IS). The construct validity of the IS seems to be well-established, being consistent with theory and previous empirical research (Heilbrun, 1965b).

The PDS has been used independently and is scored by giving one point each time father is depicted in reference to the masculine trait or mother to the feminine trait. Thus, the child indicates his perceptions of the sex-role appropriateness or inappropriateness of his parents' behavior.

(Heilbrun, 1964c). Weaknesses of this instrument lie in its being a relative rather than an absolute measure, and in its lack of a differential weighting system for each parent.

E. Peabody Picture Vocabulary Test was administered to each girl by this investigator as a measure of intelligence in addition to the measures which accompanied the records of each girl.

Procedure:

Subjects were told by the investigator that a study was being conducted which would provide information on the interests of adolescent girls and their parents. Furthermore, they were told that this information would be of use in the treatment of their own child and/or the treatment of other children. Subjects were all tested in their own homes by the experimenter. Mother, father and adolescent daughter took the tests simultaneously but were in separate rooms at the time of the administration. The order of presentation of tasks was randomized for each subject. Though no de-briefing was done immediately following the testing, subjects were informed that they would receive by mail a brief summary of the global results of the study.

The standard instructions usually given with the ACL were utilized for the self-descriptions. A second administration of the ACL was given to the parents of the girls with special instructions to check those adjectives which they would ideally like their daughters to have. Standard in-

structions were given for the Franck Drawing Completion Test and the Gough Femininity Scale, and were read to all the subjects. For the Parental Description Survey, adolescents were told to indicate which descriptions typify their father or mother.

RESULTS

Psychosocial Data

It was important that groups be matched for age, I.Q. and educational level of father. This matching was done as closely as possible though the normal group had somewhat higher means on I.Q. and educational level of father than did either of the other two pathological sub-groups. However, a stepwise discriminant analysis using these three variables separately or in conjunction with other variables involved in the study (see Table 1 for actual means and standard deviations) failed to reveal any significant differences among the three groups on these three background variables. It was thus presumed that any differences among the groups on these variables did not account for a significant portion of the variance and therefore the three groups could be compared on the other dependent variables without any statistical control for these differences.

Sex-Role Development in Adolescent Girls

The most global variable under investigation in the present study concerned the relationship between sex-role development and psychopathology in adolescent females. Using Biller's schema (page 4) which depicts three major aspects of sex-role, it was necessary to consider several of these aspects separately in an analysis of the results. Looking first at sex-role orientation, an individual's unconscious perception of his own sex-role adequacy, the three groups of girls under investigation were compared on the Franck Drawing

Completion Test. The Gough Femininity Scale was used to compare the groups on sex-role preference.

Table 2 presents the results of the stepwise discriminant analysis (BMD 07M, Dixon, 1973) that includes these two variables, and shows no differences among the three groups on either of these two tests. This indicates that the groups do not differ with respect to the measures of sex-role orientation or sex-role preference.

The three groups of girls were also compared on specific personality traits as measured by the following scales on the Adjective Check List: Achievement, Dominance, Endurance, Nurturance, Affiliation, Autonomy, Succorance, Abasement, Deference, Heterosexuality, Personal Adjustment and Femininity. Table 2 indicates that mixed-neurotic girls scored significantly higher ($F=4.15$, $p < .05$) on succorance than girls in the other two groups. Normal girls scored significantly higher on affiliation ($F=4.47$, $p < .05$), and on heterosexuality ($F=4.57$, $p < .05$) than girls in the other two groups.

Perception of Parental Sex-Role Behavior

To measure adolescents' perception of their parents sex-role appropriateness, the Parental Description Survey was used. Table 2 reveals no significant differences among the groups on this measure. Thus, the three groups could not be distinguished on their perception of their parents sex-role appropriateness.

TABLE 1

Background Variables

<u>I.Q.</u>	<u>Mean</u>	<u>S.D.</u>
Normals	107.4	9.6
Mixed-Neurotic	99.8	11.7
Acting-Out	100.3	11.7

AGE

Normals	15.5	1.7
Mixed-Neurotic	16.1	1.7
Acting-Out	15.9	1.0

LEVEL OF EDUCATION (Father)

Normals	14.2	3.0
Mixed-Neurotic	12.4	2.8
Acting-Out	12.5	2.9

TABLE 2

Adolescents' Perception of Self and Parents

<u>VARIABLE</u>	<u>NORMAL</u>		<u>MIXED</u>		<u>ACTING-OUT</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
Gough Fe Scale	22.3	3.1	22.0	4.3	21.7	3.5
Parent. Des Surv.	6.0	1.8	6.5	1.3	5.4	2.0
FDCT	17.4	2.8	17.4	3.0	18.5	3.8
Total ACL resp.	95.3	62.5	75.2	41.8	79.6	39.6
Achievement	46.5	12.0	40.1	9.2	43.9	7.9
Dominance	49.6	13.0	44.9	9.9	47.3	6.2
Endurance	46.0	11.4	43.7	7.2	45.2	8.1
Nurturance	48.6	13.5	43.5	12.3	42.9	7.3
Affiliation*	49.9	16.4	38.1	10.3	41.6	7.5
Autonomy	47.7	13.0	50.8	6.9	52.9	7.1
Succorance*	45.7	13.2	55.8	10.7	51.4	6.1
Abasement	45.7	16.0	50.6	7.8	46.9	6.4
Deference	45.9	14.3	46.0	8.4	43.2	6.3
Heterosexuality*	55.6	16.2	44.3	8.8	48.4	5.4
Pers. Adjustment	40.3	13.7	35.6	9.6	34.9	8.9
Femininity	3.1	2.4	4.6	2.3	4.4	2.7

* $P < .05$

Sex-Role Development in Mothers

Turning now to sex-role development in the mothers of mixed-neurotic, acting-out and normal girls, the findings are somewhat more dramatic. Also using the Gough Fe Scale to measure sex-role preference, and the Franck Drawing Completion Test to measure sex-role orientation, the results indicate that mothers of mixed-neurotic girls do in fact have a significantly more traditional sex-role preference. Table 3 shows that these mothers score significantly higher ($F=6.92$, $p<.01$) on the Gough Fe Scale than do mothers in either of the other two groups. No significant differences on the Franck Drawing Completion Test were found in the present study.

To measure specific personality traits of the three groups of mothers, the ACL scales were also utilized. Table 3 reveals that mothers of mixed-neurotic girls score significantly lower on the achievement scale ($F=3.72$, $p<.05$) than mothers in the other groups.

Sex-Role Development in Fathers

Regarding fathers' sex-role identification, the Gough Fe Scale and the Franck Drawing Completion Test were used as measures. Table 4 indicates that fathers of normal girls may be more feminine in their sex-role orientation as measured by the Franck Drawing Completion Test, than fathers of girls in the two clinical groups. Another noticeable difference among the groups is with respect to the personal adjustment scores

TABLE 3
Mothers' Perception of Self

<u>VARIABLE</u>	<u>NORMAL</u>		<u>MIXED</u>		<u>ACTING-OUT</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
Gough Fe Scale *	24.7	3.4	27.3	2.8	23.5	2.6
FDCT	20.1	2.8	18.9	2.4	19.4	3.1
Total ACL resp.	93.0	25.2	94.6	38.3	104.5	34.1
Achievement **	51.8	8.3	43.9	8.0	51.1	11.4
Dominance	51.8	9.8	43.5	7.8	50.3	13.9
Endurance	60.0	8.9	47.6	7.5	50.6	8.8
Nuturance	50.6	8.9	53.3	8.2	49.3	9.8
Affiliation	46.7	10.4	45.7	8.8	41.6	14.1
Autonomy	44.6	8.2	42.7	6.2	46.6	10.0
Succorance	49.3	10.1	54.7	9.4	51.6	8.3
Abasement	48.9	9.4	53.9	7.8	49.1	10.2
Deference	52.4	7.3	55.2	7.0	50.8	9.5
Heterosexuality	49.8	5.3	43.4	10.8	46.5	13.5
Personal Adjustment	50.2	8.3	46.8	8.4	46.5	11.5
Femininity	2.0	5.2	3.8	5.1	3.2	6.1

* $p < .01$

** $p < .05$

TABLE 4
Fathers' Perception of Self

<u>VARIABLE</u>	<u>NORMAL</u>		<u>MIXED</u>		<u>ACTING-OUT</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
Gough Fe Scale	16.8	3.7	17.1	4.3	15.9	3.3
FDCT	21.3	9.9	16.6	2.9	17.6	2.8
Total ACL resp.	95.5	41.3	83.8	32.5	104.0	40.8
Achievement	54.8	13.0	54.4	8.8	49.9	8.6
Dominance	53.1	12.8	54.7	10.3	49.8	9.3
Endurance	53.5	10.4	53.6	6.2	50.1	6.7
Nurturance	52.6	12.0	51.8	10.7	52.9	6.9
Affiliation	46.7	13.7	48.0	11.9	47.5	6.2
Autonomy	48.1	10.9	48.0	7.7	46.9	9.2
Succorance	46.3	8.5	46.1	7.6	50.2	6.8
Abasement	45.0	10.2	46.5	9.4	45.4	8.4
Deference	48.7	12.6	49.5	9.7	51.1	9.8
Heterosexuality	47.2	9.4	47.5	12.5	46.9	10.7
Personal Adjust.	46.8	9.4	44.2	8.9	39.9	6.8
Femininity	-3.4	5.8	-1.5	5.0	-2.2	3.8

of the fathers as measured by the Personal Adjustment Scale of the ACL. Fathers of acting-out girls appear to be less well-adjusted than fathers of girls in the neurotic or normal groups. While these findings fail to reach significance in and of themselves, they do show up as two of the six best predictors of group classification as derived from a stepwise discriminant analysis of all the variables in the present study. (See Table 7).

Parental Expectations

Parental expectations for their ideal daughters were measured by means of administering the ACL to each parent with the instruction that they check off those adjectives they would ideally like their daughter to have. Table 5 and 6 indicate no significant differences among the groups with respect to mothers' or fathers' expectations for their ideal daughters.

Classification

In addition to providing information as to the significance of the individual variables in this study, stepwise discriminant analysis also determines the composite of all the variables to arrive at the best set of predictor variables which make the best possible prediction to a criterion.

Setting an F level for inclusion of 3.00, and deletion of 2.00, each of the 75 variables was tested for inclusion in the "best" discriminant equation. A total of six variables were selected in six steps, and no variables were deleted.

TABLE 5

Fathers' Expectations for 'Ideal' Daughter

<u>VARIABLE</u>	<u>NORMAL</u>		<u>MIXED</u>		<u>ACTING-OUT</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
Total ACL resp.	101.8	31.3	94.7	44.3	104.2	35.2
Achievement	61.9	7.5	58.9	8.5	58.4	6.1
Dominance	60.6	5.6	59.5	7.0	58.0	4.1
Endurance	59.2	6.5	57.5	5.6	59.1	5.8
Nurturance	53.3	6.4	54.7	6.9	55.5	6.2
Affiliation	55.4	7.9	53.2	8.9	53.3	6.0
Autonomy	50.0	6.2	49.0	4.7	47.1	5.9
Succorance	37.4	4.2	39.0	4.4	39.4	6.0
Abasement	41.5	5.7	42.2	4.3	42.0	4.2
Deference	46.3	5.8	49.6	5.0	50.3	5.2
Heterosexuality	52.0	4.7	50.8	7.8	52.1	6.7
Personal Adjust.	57.2	6.0	54.7	8.9	52.8	8.6
Femininity	-7.6	4.6	-6.0	4.7	-7.2	5.0

TABLE 6

Mothers' Expectations for 'Ideal' Daughter

<u>VARIABLE</u>	<u>NORMAL</u>		<u>MIXED</u>		<u>ACTING-OUT</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
Total ACL resp.	96.8	22.6	89.6	31.5	98.8	30.3
Achievement	58.2	5.2	56.1	6.4	57.8	7.8
Dominance	58.2	4.7	56.2	7.7	56.4	11.3
Endurance	58.8	4.3	56.5	5.0	57.3	7.2
Nurturance	57.2	5.7	55.9	6.7	54.8	5.3
Affiliation	56.6	6.5	54.3	6.6	54.9	10.5
Autonomy	48.3	4.5	46.9	5.7	46.4	7.7
Succorance	37.2	4.3	39.6	6.4	41.8	10.7
Abasement	43.2	5.0	42.3	4.8	45.4	9.4
Deference	48.8	4.4	50.9	5.0	51.4	5.7
Heterosexuality	53.2	5.9	51.8	5.3	51.4	9.6
Personal Adjust.	58.9	5.9	53.8	7.1	55.0	7.3
Femininity	=6.1	3.2	-4.6	4.3	-4.6	5.9

The results of the stepwise discriminant analysis are shown in Table 7. The six best predictor variables, in order of the degree to which they account for the total variance, are 1) Mothers' score on the Gough Femininity scale; 2) Mothers' score on the ACL Achievement scale; 3) Daughters' score on the ACL Heterosexuality scale; 4) Fathers' score on the Franck Drawing Completion Test; 5) Fathers' score on the ACL Personal Adjustment scale; 6) Fathers' score on the ACL Nurturance scale.

Tables 8 and 9 show the classification matrices for the six best predictor variables and for the total 75 variables. χ^2 tests performed on the observed frequencies in these two classification matrices both reach significance at the .001 level. Thus, the frequencies observed in these matrices were shown to differ from those one would expect by chance alone. It is impressive to note that the information derived on the basis of the six best predictor variables is no greater than that revealed when all 75 variables are utilized. The implication of this is that in finding the best prediction equation which would accurately classify cases into their particular categories, one need go no further than the six variables mentioned in Table 7.

Two canonical variables were calculated for the six best predictors and the canonical variables were evaluated at the group means (see Table 10). The squared distance was calculated between each of the group means as evaluated for each canonical variable (see Table 11). A plot of each of the 53

cases in terms of the canonical variables is presented in Figure 1. Looking at Table 11 (and seen graphically in Figure 1) it appears that of the three groups, mixed-neurotics are furthest apart from normals (6.80), acting-out girls are next furthest apart from neurotics (4.13), and normals and acting-out girls are closest to each other (2.60).

TABLE 7

Six Best Predictor Variables from
Stepwise Discriminant Analysis

<u>Variable</u>	<u>'F' Value</u>
1. Mothers' Gough Fe Scale (Self)	6.92**
2. Mothers' ACL 'Achievement' Scale (Self)	4.02*
3. Daughters' ACL 'Heterosexuality Scale	5.44**
4. Fathers' Franck Drawing Completion Test Score	10.97**
5. Fathers' ACL 'Personal Adjustment' Scale (Self)	3.59**
6. Fathers' ACL 'Nurturance' Scale (Self)	6.52**

* $p < .05$

** $p < .01$

TABLE 8

Classification Matrix for Six Best Predictor
Variables (in Table 3)

<u>Group</u>	<u>Function</u>			<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	
Normal	15	1	3	19
Mixed	1	12	3	17
Acting-Out	2	1	14	17

$$\chi^2 = 31.2 \text{ } p < .001$$

TABLE 9

Classification Matrix for All 75 Variables

<u>Group</u>	<u>Function</u>			<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	
Normal	15	2	2	19
Mixed	2	12	3	17
Acting-Out	1	2	14	17

$$\chi^2 = 31.2 \quad p < .001$$

TABLE 10

Canonical Correlations Evaluated
at Group Means

<u>Group</u>	<u>Canonical Variable</u>	
	1	2
Normal	-1.12834	0.48643
Mixed	1.47254	0.29601
Acting-Out	-0.21146	-0.83967

TABLE 11

Squared Distance Between Group Means

Evaluated at Each Canonical Variable

<u>Group</u>	<u>Canonical Variable</u>		
	1	2	3
Normal		6.80	2.60
Mixed			4.13
Acting-Out			

Figure 1. Plot of the 53 cases in terms of the canonical variables

FINISH CARD ENCOUNTERED, JOB TERMINATED

-4.128 -2.217 1.606 3.517

-0.306 0.650 2.561 4.473

DISCUSSION

Sex-Role Development

One of the basic questions which prompted the present study had to do with the relationship between sex-role development and psychopathology. As has been stated above, the literature on this topic has produced inconsistent results, particularly with respect to females. It is therefore most important that this variable be considered in all its respects, and in its application to mother, father as well as adolescent daughter.

In the present study, it was predicted that adolescent females in the mixed-neurotic group would be more traditional in their sex-role identification than the other two groups, and that acting-out girls would be more masculine in this respect than the other two groups. With respect to sex-role orientation, it was hypothesized that mixed-neurotic girls would have more feminine completions on the Franck Drawing Completion Test than the other groups, and that the acting-out girls would have more masculine completions. Furthermore, it was predicted regarding sex-role preference, that mixed-neurotic girls would score higher on the Gough Femininity Scale than the other groups and that acting-out girls would score lower on this test than the others.

Results failed to support these hypotheses. Disturbances in sex-role orientation, as measured by the Franck Drawing Completion Test or the Gough Femininity Scale, are apparently not associated with the development of psychopath-

ology in adolescent girls. This finding is in agreement with Small's (1974) study using adolescent males. Thus, in neither their sex-role orientation, nor their sex-role preference, do adolescent girls in normal, mixed-neurotic or acting-out groups differ from one another. This finding does not support the global hypothesis of the present study which suggests that more traditional sex-role identification is associated with neurosis in girls while more masculine identification is characteristic of girls who tend to act-out their problems. This finding also fails to lend support, however, to the view of some prior investigators who associated traditional sex-role development in females with better overall adjustment (Biller & Zung 1972; Leventhal, 1968; McLelland and Watt, 1968; Money and Primrose, 1968; Jordan and Kempler, 1970). It thus appears that neither the view that traditional sex-role identification is associated with normal adjustment in females, nor the view that traditional sex role development is associated with neurosis in females, is supported by the present findings.

Following along the lines of Small's (1974) study which found that while no differences were revealed on global sex-role identification among the sub-groups, differences could be found with respect to specific personality traits often thought to be associated with traditional sex-role behavior, it was predicted that mixed-neurotic girls would score higher on the 'traditional' feminine need scales such as

deference, abasement, succorance and affiliation than the other two groups. Furthermore, it was predicted that acting-out girls would score higher on dominance, and lower on nurturance and affiliation than the other groups. Finally, it was hypothesized that normal girls, like the normal boys in Small's study, would score higher on endurance, dominance and nurturance than girls in the other two groups. Of these predictions, only one has turned out as predicted. Mixed-neurotic girls score higher on succorance than girls in the other two groups.

Other findings on specific personality traits reveal that normal girls have higher scores on affiliation and heterosexuality than the other two groups. These findings are consistent with those of Heilbrun (1968) who also administered the ACL to adolescent females. He found that mal-adjusted girls scored significantly higher on succorance and abasement, and lower on nurturance and affiliation than the normal girls in his sample. While an examination of the means in the present study reveals that the pattern is in the same general direction as that in Heilbrun's study, only the scores on succorance and affiliation reach statistical significance in this investigation.

If one looks more specifically at the particular items which make up these ACL scales, it becomes apparent that some of these scales are composed of more 'functional, feminine' traits, and others of more 'dysfunctional, feminine' ones. Consideration of the 'succorance' scale, for example,

reveals that some of the indicative adjectives are: demanding, immature, self-centered, self-pitying, submissive, whiny, emotional. Contra-indicative items on this scale include confident, independent, dominant, individualistic, mature, strong and aloof. According to Gough and Heilbrun (1965), the high scorer on succorance is one who has a personality which is "trusting, guileless and even naive in its faith in the integrity and benevolence of others. This person is dependent on others, seeks support and expects to find it." The low scorer on this scale is 'independent, resourceful and self-sufficient but at the same time prudent and circumspect. He has a sort of quiet confidence in his own worth and capability.'

Looking now at the affiliation scale, indicative adjectives are adaptable, attractive, considerate, cooperative, good-natured, kind, mannerly, mischievous, pleasant, talkative and warm. The high scorer on the affiliation scale is adaptable and anxious to please, ambitious and concerned with position and may tend to exploit others to gain his own ends. The low scorer is more pessimistic about life and restless in any situation which intensifies or prolongs his contacts with others.

Finally looking at the heterosexuality scale, one sees such indicative adjectives as adventurous, affectionate, excitable, flirtatious, pleasure-seeking, and sociable. Some contra-indicative adjectives are cold, inhibited and unemotional. Gough and Heilbrun (1965) state that the high scorer

on heterosexuality is 'interested in the opposite sex as he is interested in life, experience and most things going on around him in a healthy, direct and out-going manner.' The low scorer on the other hand, 'thinks too much which dampens his vitality, tends to be dis-spirited, inhibited, shrewd and calculating in his interpersonal relationships.'

While certain value judgments may be implicit in labeling these traits as positive or negative, healthy or unhealthy, it does seem fairly clear that a high scorer on heterosexuality and affiliation may get along better in present-day Western society which places a high value on sociability and gregariousness. Furthermore, high scores on succorance could be seen as dysfunctional in a culture which values independence and resourcefulness. The implication there then seems to be that healthier girls possess more of what may be considered 'functional, feminine' traits, whereas the maladjusted groups (the mixed-neurotic group in this study) possess more of the 'dysfunctional, feminine' traits.

Turning now to Small's (1974) speculation that normal boys as well as girls might score higher on endurance, dominance and nurturance, with the implication that these traits are characteristic of healthy people in general, no support is found in the present study. Findings with the three groups of adolescent girls in this study do reveal that the means form a general pattern in the same direction as Small predicted, but the differences fail to reach significance.

This similarity in pattern of means, however, suggests that further research in this area is indicated.

While sex-role identification does not appear to be a major factor in distinguishing normals from various clinical sub-groups on the adolescent level, this is evidently not so clear for their parents. It was predicted, based on the work of Heilbrun & Fromm (1965), and in line with the global hypothesis of this study, that mothers of the mixed-neurotic group would be more traditional in their sex-role preference and orientation than mothers of normals or acting-out girls. More specifically, it was hypothesized that mothers of mixed-neurotic girls would have higher scores on the Gough Fe scale and the Franck Drawing Completion Test, whereas mothers of acting-out girls would have lower scores on these measures.

The most significant findings in the present group pertain to mothers in the mixed-neurotic group. It was found that these mothers score significantly higher than do other mothers on the Gough Femininity Scale, revealing that their sex-role preference is more traditional than that of other mothers.

With respect to specific personality traits, as measured by the ACL, it was predicted, based on Small's (1974) findings regarding mothers of normal boys, that mothers of normal girls would score higher on affiliation and heterosexuality, and lower on succorance and abasement than mothers of the two clinical groups. While a close examination of the

means shows that the present ones are in the same direction as Small's, the differences reported here are not statistically significant.

Mothers of mixed-neurotic girls do score significantly lower on the ACL Achievement Scale. The low scorer on this scale is "one who is doubtful of the rewards that might come from sustained effort and involvement, and is somewhat withdrawn and dissatisfied with his present life" (Gough & Heilbrun, 1965). Combining this finding with the high score on the Gough Fe scale, it appears that these mothers seem to be more traditionally feminine in their sex-role preference, and in the goals which they see for their lives. This finding is consistent with that of Heilbrun and Fromm (1965) who found that maladjusted female college students identified with highly feminine mothers whereas the well-adjusted group identified with low-feminine mothers. It is contrary, however, to Small's (1974) study which found no differences in Parental sex-role identification among the parents in his three groups.

It therefore seems apparent from the results of the present study that it is the mothers of the mixed-neurotic girls who have tended to be more traditional in their sex-role development and who have tended to bring up daughters with more needs for succorance. That is, these girls are more dependent on others, tend to solicit sympathy, are submissive, overly trusting and more immature than normal or acting-out girls. The recognition that this traditional

type of mother tends more often to have a neurotic daughter seems to be a crucial one in analyzing the data of the present study, for it is here that we can speculate on an etiological progression over the generations. It may be that an overly feminine attitude in a mother may lead to neurotic symptomatology in her female offspring. Thus, while much of the prior literature focuses on the link between sex-role disturbance and psychopathology in a given individual, the present study points instead to a possible link between sex-role disturbance (or an overly feminine sex-role identification, in this case) in a mother, and the presence of psychopathology (neurosis) in a daughter. How this linkage across generations may occur is a matter of much speculation and cannot be determined from the results of the present study. Perhaps this phenomenon is a function of role-modeling, in which daughters who have mothers who are more traditionally feminine and less assertive and achieving, will take on similar characteristics in their own personalities. The daughters may become more submissive and dependent, traits which may not be functional in present day Western society which calls for more assertive behaviors. Identification with more traditional mothers then, may be a factor leading to neurotic problems which require psychiatric help.

In any event, it is clear that further research is needed before any conclusions can be drawn from these speculations. The correlation between mothers having high scores

on the Gough Femininity Scale, low scores on the need for achievement scale of the ACL, and daughters having high suc-
corance scores on the ACL, is observable from the present
data. Subsequent research is needed to verify any etiologi-
cal speculations.

Having examined the possibility for 'transmission of
neurosis', some speculation on the 'transmission of health'
may be of interest here. If one looks closely at the need
patterns in the present study and in Small's study, it be-
comes apparent that normal adolescent females in the present
study show a need pattern on the ACL similar to the mothers
of normal males in Small's study. Thus, both those mothers
and the present normal girls displayed higher scores in
affiliation and heterosexuality, and lower scores in succor-
ance than did their counterparts in the clinical groups. One
can speculate from this comparison that if the normal girls
in the present study were followed up into their adult lives,
they would be the ones whose boys (or children) would be
healthy. Thus, well-adjusted females, be they adolescents or
adults, appear to be those who seek out personal friendships,
interact with opposite-sexed peers, and tend to solicit less
sympathy and support than their less well-adjusted age-mates.
This finding also leads one to speculate further on the
nature of the modeling which may take place on a parent to
child level. Again, further research is needed to get a
better idea of how these traits are actually transmitted.

Turning now to the findings concerning fathers' self-

perception in the present study, no significant differences were found. No predictions had been made on these variables because the prior literature had been so scanty. Three variables, however, sex-role-orientation as measured by the Franck Drawing Completion Test, Personal Adjustment and Nurturance as measured by the Adjective Check List, are of some consequence. While none of these measures reach significance at the .05 level, their importance lies in their use as "suppressor" variables. Thus, all three of these variables are so highly correlated with other variables under investigation that they comprise three of the six best predictor variables in the stepwise discriminant analysis. The tendency seems to be for fathers of normals to be more feminine in their sex-role orientation, and for fathers of acting-out girls to be less well adjusted than other fathers. Father nurturance is harder to interpret because of the minimal differences among the means. While these variables fail to reach significance in this study, their importance as 'suppressor variables' gives one good reason to explore them further in future research.

A recent article by Heilbrun (1973) stresses the importance of the fathers' sex-role identification as well as the mothers' in looking at the effects upon the behavior of the female offspring. He states that while there seems to be a more systematic effect upon behavioral outcomes for sons, based upon the congruity between the biological and the psychological sex of both parents, there is still an effect, though a less systematic one for daughters. According to

Heilbrun (1973), "the nuclear family provides the child two parents, either of whom can incorporate his or her own admixture of masculine or feminine behaviors as a model. Any sex-role outcome (in the child), usual or unusual, could be expected, depending upon the host of factors which influence modeling behavior."

It may be that one of the most promising directions for future research to take would have to do with the pattern of parental identification, the combination of both the biological and psychological sex of the identification models, for behavioral development in the offspring.

Parental Expectations

It is interesting that Small (1974) found no difference in the sex-role identification of the parents in his sample, but did find significant difference in their expectations of their sons. In the present study, just the opposite is true. Significant differences have been found for parental sex-role development, but none are seen in regard to parental expectations of their daughters. It was predicted, based on Small's study, that fathers of normal girls would have higher expectations for their daughters with respect to achievement and dominance than fathers of disturbed girls. Also it was hypothesized that fathers of normal girls would have higher expectations for endurance for their ideal daughters than fathers of acting-out girls. Following along the lines of Small's study, it was predicted that mothers of normal girls would have higher ideals for their daughters for endurance

than mothers of disturbed girls, and that mothers of normals would expect more in the way of achievement from their daughters than mothers of mixed neurotics.

Hypotheses generated on the basis of the global assumptions of this study concerned mothers of mixed-neurotics having higher expectations for their ideal daughters with respect to deference, abasement and succorance than mothers of normal or acting-out girls. Also it was predicted that mothers of acting-out girls would have higher expectations of their daughters on the dominance dimension, than mothers of normals or neurotics.

On the basis of the present findings, no difference exists among the parents of normals, mixed-neurotics and acting-out girls with respect to their expectations for their 'ideal' daughter. Parental expectation is not a factor which differentiates these groups. However, if one goes beyond the group data presented here, and looks at the data from a more individual perspective, it becomes apparent that the discrepancies which exist between daughters' self-perception and parental ideals are a good source of data which can be important in considering individual cases. This will be discussed in a later section on the use of the present battery as a diagnostic tool.

Perception of Parental Sex-Role Appropriateness

The present study predicted that girls in the mixed-neurotic group would perceive their mothers as more traditional in sex-role appropriateness than other mothers, while

acting-out girls would perceive their mothers as more masculine. In neither Small's study nor the present one were any differences found among the groups with respect to their perception of their parents' sex-role behavior. While Small explained this on the basis that differences among the groups are not related to their identification with differing sex-role models, it seems that other explanations are equally likely. The lack of differences on either of the studies suggests a possible weakness in the Parental Description Survey itself. The forced choice nature of the instrument frequently led the adolescents to choose which parent the passage most aptly described in somewhat of a random fashion. Frequent comments such as "What if it applies to neither? or to both?" indicated to this investigator that many of the answers were arrived at through guesswork alone. While it may be that perception of parental sex-role appropriateness may in fact not be a good discriminator among groups of this nature, it still seems advisable to use caution before utilizing this particular measure in subsequent research.

Acting-Out Behavior vs. Neurosis in Adolescent Girls

One interesting result of this study had to do with the fact that of the three groups observed, acting-out girls seemed to resemble normal girls to a much greater degree than did neurotics. In fact, delinquent acting-out girls

were more similar to normals than they were to the mixed-neurotics. This rather surprising finding, that one of the clinical groups was more similar to normals than it was to the other clinical group, makes for considerable ground in which to speculate.

One way to explain these results involves looking at acting-out behavior as a 'healthier' response to stress than neurosis. Thus, engaging in behavior which is anti-societal in nature may be a better way to handle one's anxiety than turning it inward against oneself.

It may be too that behavior which we call "delinquent" has more to do with social judgments about what is appropriate for a given age, than a deeper statement about pathology. Thus, "symptoms" such as running-away, truancy or sexual promiscuity which would not be judged so harshly for adults, may simply be alternative ways for adolescents to respond to the difficult situations in which they find themselves. In any case, these findings clearly point to a direction for further investigation.

Use of the Present Battery as a Diagnostic Tool

The bulk of the findings in the present study have dealt with differences among the three groups under investigation. On a more individual level, it was possible to plot graphs using the girls' ACL profile as well as the profiles of the parents for their ideal daughters. It was thus possible to show the discrepancies between the adolescent's self-perceptions and the ideal expectations of her mother and

father for their ideal daughter. Plotting graphs in such a fashion enabled a graphic display which could be of use to a therapist working with a given family. For example, an individual study of one family (Figure 2), reveals a girl whose parents vastly differ in the expectations of what they would like in an ideal daughter. One sees a mother who would prefer a daughter who adheres more closely to a traditional feminine role in regard to being subservient, conventional and submissive, and a father who would prefer his daughter to be strong, self-confident, independent and productive. Looking at the girl's self-perception scores, one can see that she scores highest on autonomy and succorance. This can be translated to mean that she has strong needs to act independently of others or of social values and expectations, as well as to solicit sympathy, affection or emotional support from others. Having such a strong conflict in her basic need structure results in her scoring low on the overall personal adjustment scale, and seeking psychiatric help. This girl seems to be trying to conform to both of her parents' conflicting expectations for her, and winds up pleasing neither them nor herself.

Results of this nature, which can be easily seen and conceptualized by therapist as well as family members, could have considerable value in treating this family. When parents are faced with their own conflicting desires regarding their daughter, it becomes very difficult to continue seeing their daughter as the problem, and encourages a family

Figure 2: Sample profile from Subject #41

systems approach to therapy. It may be noted that such information has been passed on to the referring therapists already, and has been reported to have been extremely useful in understanding the family dynamics of the case.

Looking at the classification matrix for the six best predictor variables, it becomes apparent that there are other ways of looking at the data which could also be used in diagnosis. Using the six most significant predictor variables in determining our measures, we can predict with considerable accuracy which category a given case will fall into. If a battery were then devised using these measures (Gough Fe Scale with mothers; ACL with mothers, daughters and fathers; Franck Drawing Completion Test with fathers), this could be administered to a given family to see whether or not they needed therapeutic help and if so, what some of the important issues would be to work on. Administration of a battery such as this would probably take under one-half hour and could provide the clinician with a considerable amount of information concerning a given family. It may be noted that these six predictor variables yield a classification matrix which is equally as accurate as that which results from an analysis using all 75 variables in the study, in terms of accurately placing a family into one of the three present categories. Both matrices reach significance at the .001 level.

Test Validity

Looking at some of the intercorrelations among scales on

the ACL, it can be observed that some are very high. For instance, the intercorrelations among the achievement, dominance and endurance scales run between .56 and .88. This runs counter to previously reported studies which stated that the correlations among these scales do not reach significance. The correlations between the affiliation and heterosexuality scales are between .55 and .84; between deference, succorance and abasement .32 to .83. The high intercorrelations described above lend some doubt to the validity of this instrument which must be taken into account when assessing the current results, as well as past and future studies using this as a measure. The most obvious question one might ask in looking at the present findings, or those of Small (1974), would be in regard to the overlap between the heterosexuality and affiliation scales. If the correlation is so high, is the probability of a subject scoring in the same direction on both of these scales too high to be expected by chance alone? This may indeed partially account for the present finding that normal adolescent girls score higher on both of these scales than do either of the clinical groups. If this is so, then one scale could be considered redundant, and thus eliminated.

Limitations and Conclusions

In trying with great difficulty to locate subjects for the present study, it became increasingly apparent that the greater number of subjects in either of the clinical groups came from one- rather than two-parent families. At least

one-half of the potential subjects had to be eliminated because of this factor. Therefore, our particular sample cannot be considered to be truly representative of either of these clinical groups. One could speculate on a whole variety of outcomes in girls without fathers, or less likely, mothers. It may be interesting to compare the present findings with those of girls from one-parent families to see if any of these differences are in fact significant. If so, this might be in accord with much of the recent research in the area of father absence which points to a greater amount of psychopathology in children without fathers (Biller, 1974). At any rate, caution must be taken against over-generalizing from the present results to all adolescent girls with acting-out or neurotic problems. Also of consideration is the fact that the girls in the present study were living at home rather than in an institution of any sort. This, along with coming from intact families, may have served to minimize the differences between the groups and could account for the lack of more significant results among the girls. Perhaps intactness of family in itself is a crucial variable when looking at well- or poorly-adjusted adolescent girls or boys.

Another limitation of the study is in regard to the forced choice nature of many of the measures. By scoring each item as either 'masculine' or 'feminine', one does not allow for the responses of people which might fall in between these two extremes. Since many of the premises of this study deal with the notion of sex-role flexibility, it seems that

we might be able to arrive at more accurate statements if the measures used were more sensitive to this issue.

Future research in the area of sex-role identification would do well to include in its methodology a provision for systematic clinical observations. In going to the homes of the subjects and conversing lightly with them, a considerable amount of information was gleaned which could have been extremely helpful in complementing the more objective data. Such clinical impressions were left out in the present discussion because the lack of systematization seemed to yield insufficient reliability and validity.

In any case, the results of this study do indicate that disturbance in sex-role development does not seem to be associated with psychopathology in adolescent females. It seems that normal adolescent girls have adopted some of the more functional feminine traits, whereas the neurotic girls may have adopted more of the dysfunctional feminine traits. The results seem to suggest that greater flexibility in sex-role of mothers may lead to better adjustment in their daughters. Any real considerations of an etiological linkage operating to produce psychopathology in daughters must be considered highly speculative at this point.

Thus, as in Small's study, the traditional association of sex-role disturbance and psychopathology is not upheld. Rather, the more contemporary notions of sex-role flexibility may derive some support. The present study, then, along with prior investigations by Heilbrun (1968), Gump (1972),

Connell and Johnson (1970), Flammer (1971), Webb (1963), Vincent (1966), and Rosenkrantz (1968, 1970, 1972) leads one in the direction which questions the validity of sex-role stereotypy. Given the conflicting nature of the literature in this area, the question should remain an open one. While the present study can only be seen as exploratory, it does make its contribution to this very controversial area, and points out some important directions for further exploration.

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APPENDIX A

MEANS (THE LAST COLUMN CONTAINS THE GRAND MEANS
OVER THE GROUPS USED IN THE ANALYSIS)

VARIABLE	GROUP NORMAL	MIX NR	DELINQ	
1	107.42105	99.82352	100.29411	102.69810
2	15.49573	16.08939	15.87823	262.24707
3	14.21053	12.35294	12.52941	13.07547
4	22.31578	22.00000	21.70587	22.01886
5	24.73683	27.29411	23.58823	25.18867
6	16.78946	17.11765	15.88235	16.60376
7	6.00000	6.47059	5.35294	5.94340
8	21.26315	16.64705	17.64705	18.62263
9	20.05263	18.88234	19.41176	19.47169
10	17.42105	17.41176	18.52940	17.77357
11	55.26315	75.23529	79.58823	83.81131
12	46.52631	40.11765	43.88234	43.62263
13	49.57893	44.94116	47.29411	47.35849
14	46.05263	43.70587	45.23529	45.03773
15	48.63158	43.52940	42.88234	45.15094
16	49.89473	38.11765	41.64705	43.47169
17	47.68420	50.88234	52.82352	50.35349
18	45.73683	55.82352	51.35294	50.77357
19	45.68420	50.64705	46.88234	47.66037
20	45.89473	46.00000	43.23529	45.07547
21	55.57893	44.29411	48.35294	49.64149
22	40.31578	35.58823	34.94116	37.07547
23	24.94736	4.64706	4.35294	11.83019
24	93.00000	94.58823	104.58823	97.22641
25	51.73683	43.94116	51.05882	49.01886
26	51.78946	43.47058	50.29411	48.64149
27	51.94736	47.58823	50.58823	50.11320
28	50.63158	53.29411	49.29411	51.05659
29	46.68420	45.70587	41.58823	44.73584
30	44.57893	42.70587	46.58823	44.62263
31	49.31578	54.76469	51.58823	51.79245
32	48.89473	53.54116	49.05882	50.56602
33	52.42105	55.17647	50.82352	52.79245
34	49.84210	43.41176	46.47058	46.69810
35	50.15788	46.88234	46.52940	47.94339
36	2.00000	3.82353	3.23529	2.98113
37	96.89473	89.64705	98.82352	95.18867
38	58.15788	56.11765	57.88234	57.41508
39	58.21053	56.17647	56.35294	56.96225
40	58.84210	56.52940	57.29411	57.60376
41	57.21053	55.88234	54.76469	56.00000
42	56.63158	54.35294	54.88234	55.33961
43	48.26315	46.88234	46.35294	47.20753
44	37.15788	39.64705	41.76469	39.43396
45	43.15788	42.29411	45.35294	43.58490
46	48.78946	50.54116	51.41176	50.32074
47	53.15788	51.82352	51.35294	52.15094
48	58.94736	53.82352	55.00000	56.03773
49	-6.10526	-4.64706	-4.58823	-5.15094
50	95.52631	83.82352	104.00000	94.49055
51	54.84210	54.41176	49.94116	53.13206
52	53.15788	54.70587	49.82352	52.58490
53	53.47368	53.58823	50.17647	52.45282
54	52.57893	51.76469	52.88234	52.41508
55	46.68420	48.00000	47.47058	47.35849
56	48.05263	48.00000	46.88234	47.66037
57	46.31578	46.11765	50.17647	47.49055
58	45.05263	46.47058	45.41176	45.62263
59	48.68420	49.47058	51.11765	49.71698
60	47.21053	47.47058	46.94116	47.20753
61	46.84210	44.17647	39.94116	43.77357
62	-3.42105	-1.47059	-2.23529	-2.41509
63	101.84210	94.76469	104.17647	100.32074
64	61.89473	58.88234	58.41176	59.81131
65	60.57893	59.47058	58.00000	59.39622
66	59.21053	57.47058	59.11765	58.62263
67	53.26315	54.64705	55.52940	54.43396
68	55.36841	53.23529	53.47058	54.07547
69	50.05263	49.05882	47.05882	48.77357
70	37.42105	39.05882	39.41176	38.58490
71	41.52631	42.17647	42.00000	41.88678
72	46.26315	49.58823	50.29411	48.62263
73	52.00000	50.76469	52.11765	51.64149
74	57.15788	54.70587	52.76469	54.96225
75	-7.63158	-6.05882	-7.17647	-6.98113

APPENDIX B

STANDARD DEVIATIONS

VARIABLE	GROUP NORMAL	MIX NR	DELINQ
1	9.64546	11.66316	11.66063
2	1.65473	1.67422	1.02787
3	3.01070	2.76001	2.93934
4	3.14559	4.25734	3.49579
5	3.41308	2.75601	2.64714
6	3.67542	4.29945	3.27647
7	1.82574	1.28051	1.96663
8	9.90582	2.78256	2.80493
9	2.81807	2.42080	3.14362
10	2.77520	3.04259	3.82618
11	62.47200	41.78294	39.63120
12	11.97389	9.20517	7.88893
13	13.03549	9.88351	6.15186
14	11.43811	7.21772	8.12810
15	13.52450	12.27862	7.27050
16	16.36653	10.34336	7.49116
17	13.08541	6.83632	7.09079
18	13.16454	10.67260	6.13332
19	15.92358	7.79375	6.44090
20	14.30965	8.44837	6.32978
21	16.23544	8.83009	5.44220
22	13.69530	9.59856	8.88447
23	91.15327	2.31682	2.69121
24	25.19035	38.28029	34.10104
25	8.32560	8.03484	11.40433
26	9.82388	7.83515	13.87787
27	8.90587	7.46708	8.79672
28	8.90823	8.19881	9.83466
29	10.40326	8.78752	14.09369
30	8.18070	6.22258	10.01285
31	10.14917	9.40431	8.34459
32	9.36242	7.79800	10.22540
33	7.28251	7.07314	9.46859
34	5.27323	10.81699	13.47273
35	8.26144	8.36571	11.45162
36	5.20683	5.06501	6.14948
37	22.56319	31.53355	30.25975
38	5.16680	6.37262	7.81730
39	4.74433	7.68305	11.31890
40	4.31100	4.95123	7.20038
41	5.70164	6.74427	5.28594
42	6.47396	6.60436	10.51714
43	4.48258	5.72147	7.72124
44	4.33670	6.40254	10.88880
45	4.95830	4.81877	9.41369
46	4.37897	5.08024	5.66853
47	5.86156	5.28245	9.64974
48	5.87341	7.10840	7.27151
49	3.21273	4.25648	5.85297
50	41.30019	32.54654	40.85338
51	13.02247	8.77537	8.64920
52	12.82473	10.34869	9.36239
53	10.43654	6.15486	6.68239
54	12.01071	10.64500	6.93615
55	13.71557	11.89012	6.15546
56	10.87031	7.72980	9.21196
57	8.49216	7.60659	6.78449
58	10.23324	9.39492	8.43399
59	12.56561	9.66383	9.81633
60	9.41381	12.52057	10.65639
61	9.40013	8.98984	6.86904
62	5.75726	5.05120	3.75049
63	31.28230	44.25002	35.20514
64	7.54169	8.48441	6.07308
65	5.55093	6.98317	4.09267
66	6.50280	5.61379	5.78664
67	6.41908	6.90055	6.15546
68	7.88254	8.92698	5.99079
69	6.23140	4.70997	5.87867
70	4.24677	4.43664	6.02140
71	5.72876	4.29003	4.22788
72	5.86744	5.02566	5.18127
73	4.74926	7.84641	6.66035
74	6.06687	8.50761	8.61342
75	4.58512	4.74961	5.02786

Appendix C

WITHIN GROUPS CORRELATION MATRIX

VARIABLES

VARIABLE

2

3

4

5

6

7

8

9

1	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	0.15224	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	0.10342	0.05244	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	0.29157	0.11237	0.01241	1.00000	0.00000	0.00000	0.00000	0.00000
5	0.10883	0.08449	0.03385	0.01821	1.00000	0.00000	0.00000	0.00000
6	0.06986	0.08909	0.05385	0.01464	0.01821	1.00000	0.00000	0.00000
7	0.02193	0.10888	0.02253	0.01134	0.01464	0.01821	1.00000	0.00000
8	0.29163	0.07978	0.04023	0.01535	0.01134	0.01464	0.01821	1.00000
9	0.00922	0.02135	0.00579	0.01134	0.01535	0.01134	0.01464	0.01821
10	0.25057	0.06213	0.02908	0.01134	0.01535	0.01134	0.01464	0.01821
11	0.04089	0.27803	0.11109	0.01134	0.01535	0.01134	0.01464	0.01821
12	0.23493	0.18599	0.05109	0.01134	0.01535	0.01134	0.01464	0.01821
13	0.10771	0.35497	0.21546	0.01134	0.01535	0.01134	0.01464	0.01821
14	0.20831	0.35607	0.32380	0.01134	0.01535	0.01134	0.01464	0.01821
15	0.24506	0.26686	0.07547	0.01134	0.01535	0.01134	0.01464	0.01821
16	0.02852	0.03878	0.10869	0.01134	0.01535	0.01134	0.01464	0.01821
17	0.23652	0.12878	0.01769	0.01134	0.01535	0.01134	0.01464	0.01821
18	0.16044	0.08920	0.08601	0.01134	0.01535	0.01134	0.01464	0.01821

1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	0.01748	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	0.05790	0.17203	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	0.08255	0.01850	0.01821	1.00000	0.00000	0.00000	0.00000	0.00000
5	0.01550	0.01550	0.01550	0.01550	1.00000	0.00000	0.00000	0.00000
6	0.01550	0.01550	0.01550	0.01550	0.01550	1.00000	0.00000	0.00000
7	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	1.00000	0.00000
8	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	1.00000
9	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
10	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
11	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
12	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
13	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
14	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
15	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
16	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
17	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550
18	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550	0.01550

1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	0.02844	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	0.05692	0.02844	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	0.02758	0.02758	0.02758	1.00000	0.00000	0.00000	0.00000	0.00000
5	0.01940	0.01940	0.01940	0.01940	1.00000	0.00000	0.00000	0.00000
6	0.01940	0.01940	0.01940	0.01940	0.01940	1.00000	0.00000	0.00000
7	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	1.00000	0.00000
8	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	1.00000
9	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
10	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
11	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
12	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
13	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
14	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
15	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
16	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
17	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940
18	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940	0.01940

1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	0.06779	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	0.26283	0.06779	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	0.52961	0.26283	0.06779	1.00000	0.00000	0.00000	0.00000	0.00000
5	0.60156	0.52961	0.26283	0.06779	1.00000	0.00000	0.00000	0.00000
6	0.46233	0.60156	0.52961	0.26283	0.06779	1.00000	0.00000	0.00000
7	0.47259	0.46233	0.60156	0.52961	0.26283	0.06779	1.00000	0.00000
8	0.34405	0.47259	0.46233	0.60156	0.52961	0.26283	0.06779	1.00000
9	0.45531	0.34405	0.47259	0.46233	0.60156	0.52961	0.26283	0.06779
10	0.36304	0.45531	0.34405	0.47259	0.46233	0.60156	0.52961	0.26283
11	0.60525	0.36304	0.45531	0.34405	0.47259	0.46233	0.60156	0.52961
12	0.36573	0.60525	0.36304	0.45531	0.34405	0.47259	0.46233	0.60156
13	0.88949	0.36573	0.60525	0.36304	0.45531	0.34405	0.47259	0.46233
14	0.05420	0.88949	0.36573	0.60525	0.36304	0.45531	0.34405	0.47259
15	0.03045	0.05420	0.88949	0.36573	0.60525	0.36304	0.45531	0.34405
16	0.00215	0.03045	0.05420	0.88949	0.36573	0.60525	0.36304	0.45531

1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	0.06998	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	0.07388	0.06998	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	0.01393	0.07388	0.06998	1.00000	0.00000	0.00000	0.00000	0.00000
5	0.14929	0.01393	0.01393	0.01393	1.00000	0.00000	0.00000	0.00000
6	0.09351	0.14929	0.01393	0.01393	0.01393	1.00000	0.00000	0.00000
7	0.09351	0.09351	0.09351	0.09351	0.09351	0.09351	1.00000	0.00000
8	0.13706	0.09351	0.09351	0.09351	0.09351	0.09351	0.09351	1.00000
9	0.12412	0.13706	0.09351	0.09351	0.09351	0.09351	0.09351	0.09351
10	0.07180	0.12412	0.13706	0.09351	0.09351	0.09351	0.09351	0.09351
11	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
12	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
13	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
14	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
15	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
16	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
17	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180
18	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180	0.07180

[illegible]

[illegible]