

the psychological assessment of gender identity and gender role in schizophrenia*

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Gender identity has been likened to a symphonic orchestration (Gershman 1970). It is composed of many motifs intertwined into one integrated theme. In other words, gender identity is a composite of several subcategories. These subcategories vary from author to author but not without considerable overlap. John Money (1973), who claims to be the first person to define gender identity in print, discusses gender role, gender identity, and core gender identity. Gender role is the public expression of one's individuality as male or female. Gender identity is the private experience of one's individuality as male or female. Core gender identity is a term used to designate the development of gender identity, a process that has begun as early as 18 months, in contradiction to classic Freudian theory.

Biller (1968) defined his three levels as sex-role preference, sex-role adoption, and sex-role identity/orientation. Sex-role preference is the desire to adhere to cultural prescriptions and proscriptions of the masculine or feminine role. This implies a choice or discrimination, and the individual is aware of which of two roles he wishes to pursue. Sex-role adoption is publicly observable behavior, that is, how masculine or feminine members of society view an individual. As such, it is a function of general behavior, only some of which involves intentional awareness. Sex-role adoption, therefore, is similar to Money's gender role. Sex-role identity/orientation is the way in which an individual basically views himself. It is an underlying and not necessarily

conscious perception of maleness or femaleness. Sex-role identity/orientation corresponds to Money's gender identity.

Green (1974) discusses the following three subcategories: 1) an individual's basic conviction of being male or female—similar to Money's gender identity and Biller's sexual identity/orientation but with more conscious awareness; 2) an individual's behavior, which is culturally associated with males and females—Money's gender role and Biller's sex-role adoption; and 3) an individual's preference for male or female sexual partners—a specific subset of Biller's sex-role preference.

McClelland and Watt (1968) discuss three levels within a developmental framework. First is gender identity, which is an unconscious schema representing pride, confidence, and security in one's membership in the male or female sex. This is similar to Money's gender identity, Biller's sexual identity/orientation, and Green's basic conviction. The second level is sex-role style, which is a more or less unconscious phenomenon characterized by assertiveness in males and yielding or interdependence in females. This level seems to be a specific subset of Money's gender role, Biller's sex-role adoption, and Green's individual behavior. The third level consists of sex-typed interests, likes, and attitudes, which are products of a particular culture and a particular time. This third level seems to be a combination of Biller's sex-role preference and sex-role adoption.

It is apparent that while the terminology is mixed, confusing, and muddy, there are some universal underlying constructs. First, and most universally acknowledged, is a self-definition of oneself as being male or female. It is often regarded as a deep belief and may be

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quite unconscious. For this category I have opted for the term gender identity. Money rightly argues that the word "gender" is more appropriate than the word "sex" as the latter has implications and connotations of reproductive functioning that the former does not have. Gender identity, as McClelland and Watt (1968) suggest, is the first level to develop, and it is around this level that later levels will be built. The next level is gender role, which constitutes those characteristics such as traits, behavior, and appearance that differentiate the two genders. Gender role may itself be subdivided. The first subdivision is gender-role adoption, which consists of those aspects of the gender role that the individual has himself actually acquired. As such, it may be conscious or unconscious to the individual, but it is readily observable to others. A second subdivision is gender-role preference, which is an individual's preference for gender-typed items or behavior. A third subdivision, not discussed by the other authors, is gender-role ability or a person's ability to present manifest acquired skills.

For the most part, gender identity and the three subdivisions of gender role are in line with each other. However, they may, at times or in select samples, be discrepant. That gender-role adoption and gender identity are independent categories is underscored by Hooker's (1965) work with nonpatient male homosexuals. These males all described their conscious gender identity as male; however, there was a considerable variation in the degree to which they adopted the masculine or feminine role. The discrepancy between gender-role preference and gender-role adoption can be seen in male prisoners who have sexual relations with fellow male prisoners and yet voice a preference for women. Male transsexuals (biological males presenting for sex-change surgery) normally have a feminine gender identity, gender-role adoption, and gender-role preference; however, there are considerable individual differences in this group's gender-role ability or their ability to "pass" as a female.

Measuring Gender Identity and Role

Although one can label different levels or categories of gender identity and role, there seems to be only one operational criterion upon which the measurement of each is based. That criterion is a difference between the two genders. The one factor common to tests of gender

identity or role is the test's ability to discriminate the responses of males and females. Hence gender identity and role are, unfortunately, defined basically in terms of gender differences. While it makes sense, with two genders of male and female, that any level of gender identity or role should be different for the two genders, the converse is not always true. That is, not every difference between the genders can be taken as a sign of gender identity or role.

Another problem with the measurement of gender identity and role is that the tests employed often confound one category of gender identity or role with another category. For example, the California Psychological Inventory (CPI), which consists of a number of statements to which the subject responds "true" or "false" with regard to himself, contains a femininity (Fe) scale. This scale, however, contains both gender-role preference items ("I would like to be a nurse") and gender-role adoption items ("I get excited easily").

A final problem is that the measurement of gender identity is more difficult and involves more steps between the observable characteristic and the construct inferred than does the measurement of gender role. Gender identity is much more dependent on unconscious factors; hence, there is a greater reliance on projective measures to tap it. In short, the measurement of gender identity is more difficult and its interpretation more tenuous than is the measurement of gender role.

In the review that follows, studies that address specific aspects of gender identity or role will be discussed. Each measure used in these studies to determine gender identity and role will be briefly outlined for the reader who may not be familiar with this area. The methodological limitations just discussed, however, should be kept in mind as each study is reviewed and critiqued.

Gender Identity

Theoretically, the establishment of a gender identity is intimately involved with the development of the body image. That schizophrenics (at least paranoid schizophrenics) have some problem with their body image can be traced back to Krafft-Ebing's (1933) *metamorphosis paranoica sexualis*—the delusion of sex change that may appear in schizophrenia. Body-image problems were also noted in Freud's (1925) analysis of the Schreber case.

Dr. Schreber believed that he would give birth to a new mankind.

One of the most common projective tests associated with gender identity is the Draw-a-Person (DAP) Test. An individual is first asked to draw a person; subsequently, the individual is asked to draw a person of the opposite sex from the first-drawn person. One assumption of this test is that a person will project himself into the figure drawings—particularly the first one. In fact, it has been found that 80 to 100 percent of the males and 60 to 80 percent of the females draw their own gender first. Even more interesting is a study by Apfeldorf and Smith (1966) in which the same-sex drawings of 25 females along with the full-length photos of these same females were given to 60 judges. The judges were able to match the drawer's photo with her drawing at a better than .01 level of probability.

One limitation, however, is that the gross dichotomy of gender drawn first does not take into account gradations of identification. That is, a male subject could identify with his gender and therefore draw a male first, but nonetheless be less confident or identified in his maleness than someone else who also drew a male first. Swensen's (1955) Sexual Differentiation Scale (SDS), which is applied to the DAP, attempts to account for such gradations by measuring the degree to which the individual has differentiated himself with respect to his gender. The SDS is a 9-point scale ranging from little or no sexual differentiation between the two figures to excellent sexual differentiation between them.

Smith (1953) reported that the gender of the first-drawn figure did not differentiate matched groups of male schizophrenics (mainly paranoid) and male medical and surgical patients. Kokonis (1972a) also reported that matched groups of schizophrenic and normal males draw their own gender first equally often. There seems to be no evidence, then, that male schizophrenics identify themselves with the female gender. This does not mean, however, that they are as differentiated in their identity as are others or that they feel no confusion or alienation with regard to their gender. Again, the gender of the first-drawn figure takes into account only direction, not degree.

When Swensen (1955) developed the SDS, he noted less sexual differentiation in the drawings of inpatients than in the drawings of outpatients. Unfortunately, no demographic information was given. Nevertheless, if his

sample was representative, we can be fairly certain that there were more schizophrenics in the inpatient than in the outpatient group.

Reed (1957) reported two studies, done in sequence on two different samples, that demonstrated that psychotic females consistently drew male-female measurements inappropriately. That is, psychotic females, in comparison to a control group of nurses-in-training, did not draw the appropriate anatomical relationships such as male figure being taller than female figure or female proportion of waist height to neck height being greater than the respective male figure proportion. While the group was given the general label of psychotic, it does seem more than likely that most of the female psychotics were schizophrenic, since they averaged 29 years of age with 4 years of hospitalization. It is not common to find affective disorders of a psychotic type to be admitted at age 25. However, the nonpsychotic group, being nurses-in-training, must have had experience with or training in anatomy that the psychotic females did not have. Hence, psychiatric status was confounded with anatomical knowledge or experience, which is an important factor when investigating the anatomical relationships in figure drawings.

Strumpfer and Nichols (1962) found no difference on the SDS scores of male surgical patients, neurotics (two-thirds of whom were hospitalized), and hospitalized schizophrenics. Other than age and education, no demographic information was given, making a comparison with other studies impossible; in terms of control groups, though, their study is more sophisticated than most other studies.

From a diagnostic checklist of over 50 DAP items, Burton and Sjoberg (1964) reported that only a few significantly differentiated schizophrenic females from normal females and that these items dealt with body proportions and integration. Of interest is their finding that normal females significantly more often delineated a breast than did schizophrenic females. Also, using surgeons, artists, and psychologists as raters, they found that differentiation of pictures on the basis of anatomical accuracy (using a 2-point scale) differentiated between schizophrenic and normal females. The differentiation on the basis of anatomical correctness was about as accurate as the differentiation made by psychologists who used "subtle clinical cues" to assess the presence or absence of schizophrenia. A differentiation on the basis

of esthetic quality was not so accurate as the differentiation made on the basis of anatomical correctness. The schizophrenic females were newly admitted, but in terms of demographic background, they were less than adequately matched with the normal females who were PTA members. The most confounding factor was the lower number of married females in the schizophrenic than in the normal group.

In a study with males, Ries et al. (1966) reported that only 3 of 80 diagnostic signs significantly differentiated schizophrenic males from normal males. The most significant of the three was that the schizophrenics drew proportionately smaller breasts on the female figure. As in the Burton and Sjoberg (1964) study, the schizophrenics were newly admitted; they were, however, more carefully matched (marital status was not mentioned). Ries et al. found no differences between process and reactive subtypes of schizophrenia.

Kahn and Jones (1965) administered the DAP to 104 applicants for psychiatric admission. Those who were subsequently admitted tended to have poorer sexual differentiation and more gender reversals of first drawings than those not admitted. Unfortunately, as in the Swensen (1955) study, there is no diagnostic information given. Again, we can only surmise that the proportion of schizophrenics in the admitted group would be greater than the proportion in the non-admitted group, since admission was largely dependent on severity of the presenting problem.

In a comparison of schizophrenic and normal subjects, Biller and Poey (1969) found that the normal group manifested more sexual differentiation on the DAP and on a subsequent task that consisted of modifying their DAP so as to increase sex differences. They further noted that schizophrenic males were particularly impaired in this second attempt. Most of their subjects were of the undifferentiated subtype, and length of hospitalization was not mentioned in their brief report.

Kokonis (1973) reported that a group of schizophrenic patients scored significantly lower on the SDS than a normal control group when whole groups or similar subgroups, formed with reference to parental dominance, were compared. He further reported that there were no significant effects or interactions when subtypes of schizophrenia were considered; however, no data are offered. His sample was largely of the

undifferentiated subtype whose mean length of hospitalization was 2½ years.

The bulk of the studies do seem to support the notion that figure drawings of schizophrenics are sexually less differentiated than the figure drawings of normals. It is unclear, however, whether schizophrenics draw less differentiated figures than other psychiatric groups or normal groups subjected to a stressful situation (e.g., surgery). The main hindrance to an explanation of the studies dealing with sexual differentiation on the DAP is the lack of specific and basic information about the subject sample. The only study that reports negative results (Strumpfer and Nichols 1962) lacked any basic information such as length of hospitalization, failed to equate neurotic and schizophrenic groups on the number who were then hospitalized, and did not mention subtypes of schizophrenia.

Considering the number of other studies showing poorer sexual differentiation for schizophrenics, we are inclined to accept a deficit for schizophrenics but hold out the possibility that this deficit might be more related to a variable such as stress that is more associated with the schizophrenic group than with most other control groups used. In fact, Goldstein (1972) was able to obtain reversals of gender drawn first in a group of males who were shown stressful films dealing with childbirth and circumcision.

Another problem is that Swensen (1968) concluded, after reviewing a number of studies, that sexual differentiation of figure drawings is largely affected by the quality of the drawing. It is not surprising, therefore, that people undergoing emotional turmoil have less sexual differentiation in their drawings.

At the same time, however, while the stressed normals might lack sexual differentiation due to the stress per se, the schizophrenics' lack of sexual differentiation may be due to a gender-identity problem. Smith (1953) asked schizophrenics (mainly paranoids) and medical-surgical patients to describe verbally the differences between the genders. While there were no differences in terms of number of indicators for each group, there were certain basic signs of sexual differentiation that the schizophrenic group mentioned less often than did the medical-surgical patient group. These signs were genitalia, body shape, hair length, complexion, and cosmetics. Interestingly, the genitalia sign did not differentiate the groups when only married schizo-

phrenics were considered. Since schizophrenics are more often single than are other groups, marital status should be an important variable to control for in studies of gender identity and role. This study demonstrates that the schizophrenics' inability to differentiate the genders on figure drawings may be related to the verbal-cognitive area of functioning and is not specific to motor representation. It also suggests that problems of gender differentiation in the schizophrenic group may be due to this faulty cognitive aspect whereas the same problem in stressed normals may be confined to the area of motor functioning or representation. Hence, similar consequences may be due to different antecedents.

Another aspect of gender identity that deals with body image is tapped by the Body Parts Satisfaction Test, which consists of an individual noting his satisfaction or dissatisfaction with 20 body parts. Some of these parts are designated as masculine, some as feminine, and the remainder are classified as non-gender-related. Again, the general assumption behind this type of test is that body image is a very important aspect of gender identity.

McClelland and Watt (1968) reported that their schizophrenic sample (mostly chronic cases) showed a decided gender reversal from their normal sample. Schizophrenic females, like normal males, reported satisfaction with more body parts than did schizophrenic males and normal females. This finding is outstanding; these researchers did not find an overall impairment (i.e., the schizophrenics as a whole were not different from normals as a whole) but actually found a gender reversal (i.e., male schizophrenics responded like female normals and female schizophrenics responded like male normals). This finding should be given even more weight since it is a replication of the findings of Holzberg and Plummer (quoted by McClelland and Watt 1968). McClelland and Watt also reported that schizophrenic females were significantly less concerned than normal females with all body parts and when female and male body parts alone were considered. Schizophrenic males, however, differed significantly from normal males only in relation to their satisfaction with female body parts.

Ecker, Levine, and Zigler (1973) failed to replicate the McClelland and Watt findings using a group of schizophrenics with a mean length of hospitalization between 4 and 5 months and a group of medical patients who had been hospitalized for a mean length of 1 to 2½ months. One obvious flaw in the Ecker et al. study is the

lack of control for age. The female schizophrenics' average age was 8 years older than the average age of the female medical patients. It is well documented that with increasing age, the response to tests of gender differentiation becomes more feminine. Hence, the lack of control for age may have equated the groups' responses to the Body Parts Satisfaction Test. Another and possibly more plausible explanation lies in the different subject samples used. First, by using medical patients, Ecker et al. attempted to control such extraneous factors as stress and routine, which are associated with hospitalization. Body parts satisfaction, therefore, may be related to amount of stress, as in the SDS. Second, the average length of psychiatric hospitalization in the McClelland and Watt study was between 10 and 11 years. This is 26 to 30 times greater than the average length of hospitalization in the Ecker et al. study.

The difference in the two studies for the length of hospitalization for the schizophrenic groups suggests two explanations. One is that hospitalization produces an effect. This explanation is relatively unlikely since such an effect should have a universal result. That is, if the hospital effects a passive, dependent role (or has a feminizing effect), it should do so for both males and females. The results, however, are suggestive of a gender reversal, not of a feminizing effect. The other explanation is that gender-identity impairment in schizophrenia produces more disorganization with consequent increased severity of illness and a more chronic course.

That there is a relationship with length of hospitalization is also underscored by another failure to replicate the Body Parts Satisfaction Test results when ambulatory (outpatient) schizophrenic and neurotic males and females were compared (Elfert 1971).

To complicate the matter, Jaskar and Reed (1963) found that a group of heterogeneous psychiatric females were less happy with their bodies and their bodies' functions than were a control group of female applicants for a hospital job. This is a reversal of the McClelland and Watt (1968) findings. However, it is unknown what the percentage of schizophrenics was in the Jaskar and Reed sample (again no demographic or diagnostic information was given), and the test that they used is not directly comparable to the Body Parts Satisfaction Test. The test used by Jaskar and Reed was developed by Secord and Jourard (1953) and contains not only body parts but also body functions, which the individual is asked to rate on a 5-point scale. The difference,

therefore, could be accounted for by the differential method of testing, the differential items of the tests (the Body Parts Satisfaction Test does not inquire about functioning), or the different subject samples. Again, comparison is precluded as the researchers did not define their research samples.

In a more behaviorally oriented approach, Rosenweig and Shakow (1937) found that using a one-way mirror, hebephrenic schizophrenics looked into the mirror more often than did normals. A group of paranoid schizophrenics used the mirror less often than the control group, however. The researchers explained the paranoids' lack of mirror behavior as extreme narcissism—they felt themselves to be so perfect that they did not need reassurance. Although demographic information on the three groups is lacking, the researchers did mention that the hebephrenics were deteriorated in comparison to the paranoids. Like body parts satisfaction, mirror gazing may have a relationship with degree of pathology or length of hospitalization.

Fisher (1973) has offered the explanation that mirror gazing shows a concern about body image and is an attempt to find a clearer picture of the body world, which to the schizophrenic, never made sense. He also suggests that poking around and inserting objects into taboo body areas, wearing bright or gaudy clothes, and exposing of genitalia by schizophrenics are all evidence of an attempt to delineate body boundaries and to determine a body image.

There are, therefore, behavioral examples of some schizophrenics being overly concerned with their bodies—as are normal females. There is also evidence that female schizophrenics are less concerned, as are normal males. However, as we examine less chronic and more acute cases, the differential body concern disappears. If length of hospitalization produces an effect, we would expect more gender-inappropriate scores in the McClelland and Watt (1968) than in the Ecker, Levine, and Zigler (1973) study. While overall body satisfaction was most inappropriate for the McClelland and Watt males, there was little difference for the females.

An alternate explanation, not ruled out by the findings, is that the more severe the pathology, the greater the degree to which gender-typed responding is inappropriate. We do not know the severity of the Ecker et al. sample. The fact that they had been hospitalized 4 months before testing tells us nothing of the subsequent course of the sample. They could all have

been discharged within a few days or could all still be hospitalized. A correlation between the Body Parts Satisfaction Test scores and the length of subsequent hospitalization of the Ecker et al. group would have given us important information concerning gender identity and chronicity or severity of illness.

Interpretations are further complicated by the lack of correspondence between the control groups of the McClelland and Watt and the Ecker et al. studies. The males of both studies correspond fairly well, but the responses of the females in the Ecker et al. study are more like those of the males than of the females in the McClelland and Watt study. It could very well be that hospitalization is more disruptive to the female (since her body appearance is more important to her than a male's appearance is to him). Hence, we might question, in this particular case of using a body-image questionnaire, the inclusion of a control group comprising medical or surgical patients, who have a real concern about their bodies.

Another test that presumably taps gender identity is the Franck-Rosen Drawing Completion (DC) Test. The DC consists of 36 incomplete drawings that the individual completes as he wishes. This test is theoretically associated with body image in that males tend to draw angular shapes with protrusions and females tend to draw more circular patterns with openings and internal embellishments. As such, Franck and Rosen (1949) noted that the DC test assessed the more latent aspects of masculinity-femininity. That the DC does not tap the same construct tapped by more conscious tests of gender role is supported by the lack of significant correlations between the DC and such tests as will be described later (McCarthy, Anthony, and Domino 1970 and Shelper 1951).

Musiker (1952) reported that paranoid schizophrenic males attained more feminine scores on the DC than a matched group of nonparanoid schizophrenics. Aronson (1950), however, found no differences among matched groups of paranoid schizophrenics (chosen on the basis of most presence of paranoid delusions), psychotics (almost all of whom were schizophrenic), and a normal control group. It should be noted, though, that Aronson (1952) described his original sample of normals as possibly having shown "some tendency toward paranoid behavior." One would question, therefore, the validity of his normal control group and his study. Butler and Bieliauskas (1972) compared hospitalized

paranoid schizophrenics and hospitalized passive-aggressives. Although they found no differences between the two groups on the DC test, the lack of a normal control group leaves open at least two possibilities: One, which the researchers accepted, is that there is no feminine identity in the paranoid or passive-aggressive groups. The other, which is also likely, is that both groups have a feminine identification. This latter possibility is even more plausible since another group of researchers (Whitman, Trosman, and Koenig 1954) described passive-aggressives as also having a conflict over feminine or passive impulses.

Two studies have employed the DC test with female psychiatric patients. Both studies only give the diagnosis of psychosis. One of these studies (Jaskar and Reed 1963) mentioned that their psychotic females were a heterogeneous group and gave no demographic information. This study reported no differences between psychotic females and females applying for a job at the hospital. The other study was by Reed (1957); we have already noted that it is highly likely that his 29-year-old female psychotics were composed largely, if not entirely, of schizophrenics. He reported that psychotic females obtained significantly more masculine scores on the DC than did female nurses-in-training. While he did not control for age and marital status, he analyzed these variables in relation to DC scores and found them to be unrelated.

Hence, while the bulk of the evidence argues against a gender-identity impairment as assessed by the DC, this group of studies is much less than adequate in terms of scientific methodology. At present, the DC test has really not been fully exploited in a carefully controlled and descriptively complete study.

In addition to the tendency to complete drawings in a gender-typed manner, an individual's preference for figures of various shapes is also gender typed. The Figure Preference Test is a forced-choice form of projective test, developed from the DC test, in which designs characteristic of female-figure completions are contrasted with male-made designs. It is assumed that preferences for such figures represent gender identity. Males tend to prefer angular figures representing salient aspects of the male body, and females prefer circular figures with openings representing salient aspects of the female body.

McClelland and Watt (1968) used the 13 figures that Whiting (quoted by McClelland and Watt) found to

produce the largest difference between males and females. They added three figures to see if females would prefer tilted and males upright figures (based on the findings of Witkin et al. 1954). There was an overall lack of significant difference between schizophrenics and normals on the Figure Preference Test and on the supplementary figures of slanted and upright items. In both cases, however, there was a significant difference between the normal males and females but no significant difference between schizophrenic males and females. That is, the schizophrenic group did not show the typical gender-typed pattern that the normal control group did. McClelland and Watt also noted that schizophrenic females and normal males preferred the "penetration" figures to a significant extent, while schizophrenic males and normal females preferred the nonpenetration choice. The findings of McClelland and Watt, therefore, support the notion of an impairment in gender identity for schizophrenics.

Gender-Role Adoption

Gender-role adoption consists of an individual's acquired characteristics. The most often used method to assess an individual's characteristics is to ask him to describe himself, usually through a paper-and-pencil inventory. One such inventory, the CPI, which was previously discussed, is fairly representative of the field of tests normally used.

The first such psychometric device was developed over 40 years ago (Terman and Miles 1936). The Terman-Miles Attitude-Interest Analysis Test comprises seven exercises or subtests: Word Association, Inkblot Association, Information, Interests, Introversion, Emotional and Ethical Attitudes, and Opinions. The criterion for item inclusion was the item's ability to discriminate males and females. A group of passive homosexuals did score as more feminine than other groups of males. More recently the test has been used to discriminate transsexual males from nontranssexual males (Paitich 1973).

Very soon after the test was developed, it was used to test Freud's theory of the etiology of paranoia. Page and Warkentin (1938) assessed 50 patients—mostly diagnosed as having paranoid schizophrenia but a few as having paranoia. For comparison they used the mean scores from several groups that were reported by Terman and Miles (1936). The male paranoid group did score as more feminine than the Terman and Miles' male adults

from the general population (approximately 7 points difference). The paranoid group, however, also scored approximately 58 points more masculine than did the passive homosexuals and 115 points more masculine than did the female adults from the general population as reported by Terman and Miles (1936). No statistical analysis was performed, and although the paranoid group was more feminine on the test scores, the difference was small. This is contrasted with very large differences between the paranoid group's and the normal male group's scores and those obtained by normal females and passive homosexuals. Finally, the paranoid group was approximately 20 years younger than the general population with which they were compared.

Kokonis (1973) used the Word Association and the Emotional and Ethical Attitudes subtests of the Terman-Miles test. The Word Association subtest did not significantly differentiate male schizophrenics from male normals, but the scores of the schizophrenics were more feminine than the scores of the normals. Kokonis did find that the schizophrenics achieved significantly less masculine scores on the Emotional and Ethical Attitudes subtest and that the difference was irrespective of parental dominance and subtype of schizophrenia.

One of the most widely used tests of masculinity-femininity is the Minnesota Multiphasic Personality Inventory (MMPI) Masculinity-Femininity (Mf) scale. The Mf scale was developed to identify those aspects of personality related to male inversion. The scale consists of 60 items (23 from the work of Terman and Miles) that deal mostly with personal sensitivity, altruism, endorsement of culturally feminine occupations, and denial of culturally masculine occupations (Hathaway 1956). The subject responds to each item on a true-false basis and the items are keyed positively when they indicate femininity in males or masculinity in females. The MMPI Mf scale is not correlated with the DC test but is correlated with the CPI Fe scale (McCarthy, Anthony, and Domino 1970), supporting the idea that the MMPI Mf and the CPI Fe measure a different construct than does the DC test.

Reed (1957), in two separate experiments, found no significant differences between the Mf scale scores of female psychotics and female nurses-in-training. He also reported a higher correlation between the DC test and MMPI Mf scale scores for the nurses-in-training than for the psychotics (previously discussed and noted to be probably schizophrenics). That is to say, the gender

identity and the gender-role adoption of normal females are more in line with each other than are the gender identity and gender-role adoption scores of psychotic females.

Watson (1965) administered the MMPI Mf scale to 23 male schizophrenics who had never had a subtype diagnosis of paranoia and to 23 male schizophrenics who had never had a subtype diagnosis of anything but paranoia. The two groups were not significantly different on subscales measuring defensiveness, faking, and lying, or with regard to age, education, length of psychiatric hospitalization (approximately 37 months), or IQ. Watson reported no significant differences on the MMPI Mf scale. Unfortunately, no control group was included so that we cannot be absolutely sure whether both groups score femininely or masculinely. Yet, this study gives us valuable information on the differences in gender-role adoption with regard to subtypes of schizophrenia.

McClelland and Watt (1968) used a modified MMPI Mf scale and found no significant gender X diagnosis interactions. Their scale did significantly differentiate males and females in both the schizophrenic and the nonschizophrenic groups.

Petzel and Gynther (1969) also failed to significantly differentiate paranoid and nonparanoid (mainly chronic undifferentiated) schizophrenics on the MMPI Mf scale. Their groups were equivalent on age, education, and IQ. The lack of a significant difference held true whether a consensual diagnosis or a classification based on behavioral indices was used. However, they also failed to find a significant difference between males and females on the Mf scale. Therefore, while paranoids and nonparanoids do not differ and while schizophrenics and normals do not differ, we find that on a scale that differentiates normal males and females, male and female schizophrenics do not significantly differ.

One very interesting study was conducted by Mosher, Pollin, and Stabenau (1971). As part of a larger study, 11 monozygotic twins discordant for schizophrenia were administered the MMPI Mf scale. Seven of the 11 index cases attained more gender-inappropriate scores than did their co-twins. One set attained the same score. And one nonschizophrenic female, who had scored as more masculine than her index sister, herself later became schizophrenic. Other than this particularly intriguing report, it appears that gender-role adoption as assessed by the MMPI Mf scale is unaffected in schizophrenia.

Another often-used test of masculinity-femininity is the CPI Fe scale. It was originally developed in 1952 but has been revised and now contains 38 items selected on the basis of their ability to differentiate between males and females and between homosexual and heterosexual males (Gough 1966). Items are similar to the type of items on the MMPI and the subject responds "true" or "false." Femininity is scored in the positive direction.

Biller and Poey (1969) matched male and female schizophrenics (first admission, good premorbid, mainly undifferentiated reaction) with male and female normal controls on age, education, and socioeconomic class. On the CPI Fe scale, there was a significant gender X diagnosis interaction with male schizophrenics responding most inappropriately.

In a subsequent study, Kayton and Biller (1972) administered the CPI Fe to 80 males: nonparanoid schizophrenics, paranoid schizophrenics, neurotics, and normal controls. These groups were matched for age, education, and socioeconomic class. The schizophrenics were all hospitalized; the nonparanoid schizophrenics were mainly of the chronic undifferentiated subtype. Half of the neurotics were hospitalized. The normal group scored significantly more masculine than did the three psychiatric groups, and the neurotics scored significantly more masculine than did the nonparanoid schizophrenics. The neurotics' scores were also more masculine than the scores of the paranoid schizophrenics, but not significantly. Unfortunately, length of hospitalization was not adequately controlled. The distribution of scores did seem to bear some relationship to the variable of hospitalization.

Butler and Bieliauskas (1972) used the Gough Brief Fe and failed to find significant differences between hospitalized male paranoid schizophrenics and hospitalized male passive-aggressives. Unfortunately, there is no normal control group in their design. Hence it could be that hospitalized groups in general are more disturbed in their gender-role adoption or that neither of the groups is disturbed.

There is, therefore, inconclusive evidence for the Fe scale, since no study has simultaneously controlled for hospitalization and employed a normal control group.

Gender differences have also been noted in ability to perform different subtests of the Wechsler Adult Intelligence Scale (WAIS) (Wechsler 1958). A so-called masculinity-femininity (M-F) measure has been devel-

oped that is the algebraic difference between the sum of the weighted scores of the three subtests that favor the male (Information—general knowledge, Arithmetic—mathematical problems, and Picture Completion—finding what is missing in a picture) and of the weighted scores of the three subtests that favor the female (Similarities—how are two things alike, Vocabulary—defining words, and Digit Symbol—writing symbols under numbers in the proper association).

Coslett (1965) used the WAIS M-F index with groups of paranoid schizophrenics, neurotics, and normals. Cross-sex analysis revealed significant differences within all three groups. That is, normal gender differences were apparent within all three diagnostic categories. Further, same-gender groups of all three diagnostic categories did not differ.

There is some problem, however, with the WAIS index in that it may be tapping cognitive differences more dependent on biological than on psychological differences. At least it is questionable whether the WAIS index is a measure of gender-role adoption, since it is not significantly correlated to MMPI Mf scores, CPI Fe scores, or to Franck DC scores (McCarthy, Anthony, and Domino 1970).

Berdie (1959) developed an adjective checklist of 148 words. Sixty-one of the words significantly differentiate males from homosexual males and from females. The remainder are neutral words added to help disguise the scale. The subject is asked to check those adjectives that he feels apply to or describe himself.

The Berdie adjective checklist was used to test 120 schizophrenics—30 males and 30 females from open-door units for less disturbed patients and 30 males and 30 females from the more disturbed locked-door units (Ishiyama and Brown 1965). The patients were equated for age, education, and length of hospitalization. Each patient was asked to complete the Berdie Femininity Adjective Checklist twice. The first completion was to represent self-description and the second completion was to represent the ideal person of the patient's own gender. The females from the open-door units were more feminine in their ideal and self-conceptions than were females from the closed-door units. In fact, the open-door females' self-concepts were more feminine than the locked-door females' ideal concepts. The open-door and locked-door males had similar ideal concepts; however, the self-concepts of the former were much more

masculine than the self-concepts of the latter. In fact, the closed-door males described themselves as more feminine than did the closed-door females.

Unfortunately, no control group of normals was employed. In comparison to the standardization group of college males and females, however, the open-door groups attained scores similar to the standardization group, but the closed-door group attained gender-inappropriate scores. Since length of hospitalization was equated for all groups, this study is evidence that degree of pathology and not hospitalization per se may be responsible for the different degrees of gender identity and gender-role adoption reported in studies using long-term and short-term patients.

Another test that has been used with schizophrenic groups is the Adjective Check List (ACL) (Gough and Heilbrun 1965). The ACL consists of 300 adjectives thought to be more or less essential in describing personality from different theoretical viewpoints. In an attempt to derive psychological significance from the many adjectives, 24 scales were developed. The subject checks those adjectives that are self-descriptive.

Kayton and Biller (1972) administered the ACL to normals, neurotics, paranoid schizophrenics, and non-paranoid schizophrenics (the sample has been described previously). They compared the ACL scales relating to five masculine traits (achievement, aggression, autonomy, dominance, and endurance) and the average of the combination of these scores and found significant differences between their four groups. Differences existed almost exclusively among normals and each of the psychopathological groups. Comparisons were also made on scales relating to five feminine traits (abatement, affiliation, deference, nurturance, and succorance) and the average of the feminine scales combined. Significant differences were reported for all except the deference and nurturance scales, and, again, the differences were almost exclusively between the normal group and each of the psychopathological groups. The latter groups tended to score low on gender-appropriate scales and high on gender-inappropriate scales.

Thorne (1965) developed an 11-exercise test of femininity. It originally consisted of 200 items for each of which 10 clinical judges (5 males, 5 females) decided whether a "true" or a "false" response indicated a very feminine response to the item. Sannito et al. (1972) factor-analyzed the test and reported two factors that

they labeled "delight in being feminine" and "enjoyment of homemaker role." A person scoring high on the factor "delight in being feminine" is happy to have been born female and enjoys acting feminine (being charming, coquettish, attractive). A high score on the factor "enjoyment of the homemaker role" indicates enjoyment in child care, sewing, cooking, housekeeping, and sexual activities in marriage.

This same group (Sannito et al. 1972) compared eight subgroups of females. One subgroup consisted of hospitalized schizophrenics, one subgroup consisted of Roman Catholic nuns, and six subgroups consisted of undergraduates (from different geographic locations, or religions, or majors). Schizophrenic females attained significantly lower (less feminine) scores on factor 1 than did all the other groups with the exception of a group of Jewish undergraduates. They also scored lower on factor 2 than did three groups of undergraduates from an eastern college. One confounding factor in their study is that the schizophrenic group was the oldest group, and age has been shown to have a positive relationship with increased femininity.

Another test of masculinity-femininity, which employs a more projective technique, is the deprivation-enhancement (D-E) sequence in stories given in response to Thematic Apperception Test (TAT) pictures. May (1966) found that the stories of college men, in comparison to the stories of college women, more often involve a sequence of enhancement followed by deprivation (E-D). It is presumed to reflect the characteristic male approach of actively doing something that brings pleasure or success but is followed by loss or relaxation. The female-type D-E sequence represents going without in order to get.

McClelland and Watt (1968) analyzed the TAT stories of their subject sample (male and female schizophrenics and normals). They found that schizophrenic males showed the feminine D-E pattern and schizophrenic females tended to show the more masculine E-D pattern. Male employees showed the typical E-D sequence and female housewives showed the typical D-E sequence. However, female employees tended more often to emit the masculine E-D sequence. If the schizophrenics are compared to the male and the housewife samples, there is a significant reversal; but if the schizophrenics are compared to the male and employed female sample, there is no significant difference. It would seem that the

more appropriate comparison would be made with the housewife sample, since the schizophrenic females were not working and had not been working for years.

Another type of analysis associated with gender differences and responses to TAT-like pictures is related to need for achievement (*n Ach*) (McClelland et al. 1953). Scoring involves simple classification of responses by objective criteria. Achievement motivation is defined as a relatively stable disposition to strive for success in any situation where standards of excellence are applicable. McClelland et al. found that in a neutral, slightly relaxed condition, the *n Ach* scores of females were higher than the *n Ach* scores of males. When given achievement-involving instructions, males but not females show an increase in *n Ach* scores.

Using the original procedure developed by McClelland et al. (1953), LaTorre, Endman, and Gossman (1976) administered the TAT under the slightly relaxed condition to male and female schizophrenic patients, nonschizophrenic psychiatric patients (largely depressive neurotics), and normals. The schizophrenic group was younger, less often married, and had a lower educational level. However, all three groups were matched on employment status, and the two patient groups were matched on number of previous admissions and length of current hospitalization (25 days). There was only a significant gender effect with males (contrary to the original finding) having higher *n Ach* scores. This finding, however, was largely attributable to the two patient groups where the difference between the males and the females was four times greater than the difference between normal males and females.

This same group of researchers also used one of the most recently developed tests of gender-role adoption, the Bem Sex Role Inventory (BSRI) (Bem 1974). The BSRI is relatively unique because it scores masculinity and femininity independently. A subject rates himself on 7-point scales for 20 masculine and 20 feminine adjectives (a 20-item social-desirability scale is also included). The masculinity score is then subtracted from the femininity score to obtain the difference score. A *t* ratio can be determined using the difference score, and is known as the androgyny score since it reflects the relative amount of masculinity-femininity on a standardized scale. Greater femininity in relation to masculinity is shown by a positive score.

Results of the LaTorre, Endman, and Gossman study failed to find significant differences between the

three groups but did find the expected gender differences with females scoring as significantly more feminine than the males. While the normal males scored in the negative masculine direction, however, the two male patient groups scored as slightly feminine. The female patient groups also scored as more feminine than the normal females. A correlation supported the notion that increasing age was significantly correlated with increasing self-reports of femininity. Therefore, had their normal sample and nonschizophrenic psychiatric patient sample been as young as their schizophrenic sample, the trend that was observed might have reached significant levels.

In another study in which the BSRI was administered only to male subjects, schizophrenics scored as significantly more feminine than both a normal control group and a surgical patient group (LaTorre, Roodman, and Seltzer 1975). A group of nonschizophrenic psychiatric patients also scored in a feminine direction—significantly more feminine than the surgical patients. There were no significant differences among these four groups for age, education, and marital status. There were also no significant differences between the surgical and psychiatric (schizophrenic and nonschizophrenic) patient groups for length of hospitalization (approximately 2 weeks). Hence, even in a very short-term group of patients, a gender-role adoption problem in self-reports appears. This inappropriate response pattern is mainly present in the schizophrenic sample, but other pathological groups also possess some degree of this inappropriateness. The lack of impairment in surgical patients suggests, again, that hospitalization per se has no effect on these test responses. This study is also evidence that the failure of the LaTorre, Endman, and Gossman (1976) study to find significant differences may have been due to their lack of control of the age variable.

Findings are equivocal in the area of gender-role adoption. Different patient samples and different experimental designs produce some of the problems. Another problem appears to be the lack of similarity between the various tests used to measure gender-role adoption. Many of the tests reviewed do have moderate correlations with each other. It is apparent, however, that each test is tapping some specific aspect of gender-role adoption that is not tapped by the others. That is, gender-role adoption must, itself, be composed of many subcategories. For example, a person could score high masculine gender-role adoption by choosing masculine

occupations on the Strong Vocational Interest Blank and also score low masculine gender-role adoption on the BSRI by describing himself as gentle, warm, and loyal and not athletic, dominant, or competitive. Because there are many facets to gender-role adoption, it is possible for a male construction worker to have sexual relations exclusively with other males; it is possible that a male nurse will also be the best and roughest player on the hospital staff's hockey team; it is possible that an aggressive Army general will wear women's panties.

The complex nature of gender-role adoption, along with the lack of consistency or continuity between each study with regard to the test used and the experimental design employed, precludes a meaningful and exact interpretation of the studies dealing with gender-role adoption and schizophrenia. At best we can say that gender-role adoption in some studies with some measuring devices seems to be less appropriate in schizophrenics than in normals. Many more studies, however, have failed to show such a difference. Hospitalization seems unrelated to this finding. Paranoids do not show more impairment of gender-role adoption than nonparanoids. Schizophrenic males respond more inappropriately than schizophrenic females. Further, other psychopathological groups also exhibit less marked impairment in gender-role adoption.

Gender-Role Preference

Gender-role preference deals with the preference for gender-typed items or behavior. As previously discussed, some of the items of the tests reviewed under gender-role adoption actually deal with gender-role preference (which could have added to the inconsistency of the findings). A few tests, however, do deal with gender-role preference exclusively.

Krout and Tabin (1954) developed a test, the Personality Preference Scale (PPS), derived from the dynamic character of the basic areas of personality development and based on the face validity of each item. The PPS consists of 10 subtests that range in developmental terms from the prenatal and natal aspects of personality (with items dealing with relaxation and comfort) to the highest form of social sublimation in what may be termed a genital type of adjustment (with items dealing with group participation and social relationships). On each subtest the individual rates his like

(2 points), indifference (1 point), or dislike (0 points) of 10 different activities or types of people. Since it is a measure of like-dislike, it can be contained under the area of gender-role preference. Three of the subtests significantly differentiated males and females. Two of these, Subtests VII and VIII, theoretically deal with the genital-differentiated, or gender-identified, stage of development. In fact, Krout and Tabin referred to these two exercises as measures of masculinity-femininity. Females score higher on Subtests VII and lower on Subtest VIII than males.

When revising their test, Krout and Tabin (1954) noted a significant difference between a group of schizophrenics and preschizophrenics (diagnosed on the basis of Rorschach responses) and a group of normals on Subtests VII, VIII, and X (social maturity). Unfortunately no data are reported.

Kokonis (1973) used Subtest VIII of the PPS (10 items dealing with such topics as parachuting, football, hunting, and preference for feminine females) with schizophrenic and nonschizophrenic males (his subject samples were previously described). The normal males scored as more masculine than the schizophrenic males. In fact, the scores of the normal males were identical to the standardized scores for males reported by Krout and Tabin (1954), and the schizophrenic males' scores were identical to scores obtained by females in the standardization sample. Hence, preference for male activities seems to be greater among normal males in contrast to schizophrenic males.

An even more straightforward test is the Role Preference Test (RPT), which was originally known as the Role Playing Test (McClelland and Watt 1968). The RPT consists of seven pairs of roles from which the individual chooses the one role from each pair that he would prefer to act out in a play or pageant.

McClelland and Watt (1968) found that male schizophrenics more often chose the opposite gender role than did normal males. There is also a tendency for female schizophrenics more often to prefer the opposite gender role than normal female employees and housewives (which is nonsignificant if housewives alone are used as a comparison).

Elfert (1971) found no significant differences between neurotic and schizophrenic ambulatory males on the RPT. Ambulatory neurotic females, however, more often chose the opposite gender role than did ambulatory schizophrenic females.

Ecker, Levine, and Zigler (1973) also attempted to replicate the McClelland and Watt findings with their sample of schizophrenic and surgical patients. They found no significant differences for females and only a tendency for male schizophrenics to prefer more often the opposite gender role than did male surgical patients.

LaTorre, Roozman, and Seltzer (1975), using male schizophrenic patients, nonschizophrenic psychiatric patients, surgical patients, and noninstitutionalized normal controls, reported a tendency ($p < .06$) for the groups to differ on the RPT. A multiple comparison revealed no significant differences between any of the four groups. However, the means indicated that schizophrenics choose opposite gender roles most often ($\bar{X} = 2.4$ opposite gender choices), followed, in order of more appropriate choices, by the nonschizophrenic psychiatric patients ($\bar{X} = 2$), the noninstitutionalized normals ($\bar{X} = 1.2$), and the surgical patients ($\bar{X} = 1.1$).

Clearly, these three studies using the RPT and the study using the PPS indicate that in terms of preference, there is a clear tendency for male schizophrenics to express more of a preference for female activities and roles than for male normals and surgical patients to do so. Evidence for female schizophrenics is equivocal. It should be remembered that the McClelland and Watt (1968) study, which reported the most significant results, included the longest term patients (approximately 10 years), whereas the other studies dealt with patients who were not hospitalized or only hospitalized for a few weeks or months.

Gender-Role Ability

Gender-role ability is a person's ability to present manifest acquired skills. If roles exist, then individuals should play the roles with different degrees of accuracy or correctness. In short, gender-role ability deals more with what a person can do while gender-role adoption deals with what a person does.

Millgram (1960), using the Terman-Miles Word Association subtest, asked his subject samples to choose which of the response choices a male would make with the stimulus word and which response choice a female would make. He found that male schizophrenics (mainly chronic paranoids—hospitalization ranging up to 40 years), in comparison to normal controls, were unable to choose the word most males would associate with the stimulus word, but they did as well as the normals in

choosing the feminine response word. They also did as well as normals with regard to their ability to differentiate child and adult responses on another test. A brain-damaged group was also tested and they were significantly impaired in comparison to the normals for all the tests. Millgram (1960) postulated that the schizophrenic male had a specific deficiency in his ability to take the male role.

In order to move into a more behavioral assessment of gender-role ability, LaTorre, Roozman, and Seltzer (1975) asked four groups of schizophrenic patients, nonschizophrenic psychiatric patients, surgical patients, and noninstitutionalized normals to role play verbally in six different situations. These situations dealt with two gender roles (male, female), two age roles (child, adult), and two job roles (employee with boss and with customer). The verbal responses were made into typed transcripts, and two judges, who were blind to diagnostic group, rated them independently for masculinity, effectiveness, and assertiveness. There were no significant differences among the groups on the masculinity dimension. Scores for effectiveness and assertiveness, however, were lower for both psychiatric groups. Schizophrenics did not have any particular trouble with the male role.

These two studies suggest that the impairment in gender-role ability may be related to length of hospitalization or degree of pathology. Millgram's (1960) sample was long-term patients and the LaTorre, Roozman, and Seltzer (1975) study employed patients who had only been hospitalized a few weeks. Or, it may be, as Millgram suggested, that the impairment he observed was more related to empathy with the male role than to ability to play that role. In fact, a few studies have shown that the schizophrenic's conception of gender roles may itself be impaired. Zeichner (1956), using the TAT and the Rorschach, concluded that schizophrenic males differed from matched normal males in their interpretation of the male role but did not differ in their interpretation of the female role. There were no differences between matched groups of paranoid and nonparanoid schizophrenics. Biller and Poey (1969) asked schizophrenic and normal subjects to discriminate adjectives denoting masculine or feminine behaviors. They reported a tendency for both male and female schizophrenics to label masculine and feminine behaviors less appropriately than did the normal control group. Ecker, Levine, and Zigler (1973) reported that schizophrenics, but not surgical patients, had less comprehen-

sion of cartoons dealing with ambiguous or inappropriate gender roles. There was no difference between the groups in their comprehension of gender-appropriate cartoons.

The implications are that any inappropriateness in playing the male role may be more related to an incorrect definition or incomprehension of that role than to an inability to play it. This would suggest that gender-role ability could be improved by carefully defining for the patient what constitutes a male role and by providing adequate models. The empirical research on this issue is sparse. Yet, clinical reports of an impoverished gender-role ability make this an area worthy of investigation.

Summary of Empirical Studies

The experimental literature reported thus far seems to suggest several things. First, there is a gender-identity difficulty observed in schizophrenia. This difficulty appears to be rooted at the more unconscious level. There is some evidence, however, that it pervades into the level of gender-role adoption, preference, and ability.

Second, the severity of this difficulty seems directly related to degree of pathology. That is, ambulatory schizophrenics have few observable difficulties, acute hospitalized schizophrenics have more, and chronic long-term schizophrenics show gender-identity and gender-role difficulties on several measures. What is yet to be answered is whether hospitalization results in gender identity-role difficulties, whether the degree of gender identity-role difficulties results in a comparable degree of pathology, or whether the relationship is incidental. The Ishiyama and Brown (1965) study is the best evidence that gender identity-role problems may be more associated with degree of pathology than with length of hospitalization.

Third, it is unclear to what degree paranoid dynamics account for the results thus far observed. Paranoids or undifferentiated subtypes (the latter often having some paranoid dynamics) seem to constitute the majority of subjects employed to date. The experimental literature is replete with evidence indicating that paranoid dynamics alone are associated with impairment in gender identity-role (see Wolowitz 1971 for a review). Yet, a number of studies have failed to find significant differences between the paranoid and nonparanoid subtypes.

Fourth, few researchers examine the schizophrenic in

comparison to other psychopathological groups matched in length of hospitalization. One exception is the Elfert (1971) study, which compared neurotics and schizophrenics, neither of which groups were hospitalized. Other exceptions are the LaTorre, Endman, and Gossman (1976) and the LaTorre, Roozman, and Seltzer (1975) studies. These three studies suggest that psychopathology per se may be related to gender identity-role difficulties.

While there is much evidence to suggest gender-identity and some gender-role impairment in schizophrenia, there is a need for better research planning if more credible and unconfounded data are to be yielded.

Implications for Theory

It appears that there is gender-identity impairment, particularly at the more unconscious levels, in schizophrenia. Yet, to postulate that gender-identity impairment is the cause of schizophrenia may be erroneous. One of the main arguments against such a simplistic view is the nonspecificity of gender-identity impairment and the nonspecificity of family types that are potentially disruptive to the establishment of an appropriate gender identity. That is, schizophrenics are not the only people who exhibit gender-identity impairment. Gender identity impairment has been noted in psychiatric patients in general (Molholm and Dinitz 1972), in neurotics (Kayton and Biller 1972 and Kokonis 1972b), in psychologically disturbed individuals (Lynn 1969), in male homosexuals (Terman and Miles 1936), in transsexuals (Doorbar 1967), in female alcoholics (Wilsnack 1973), in female hysterics (Jordan and Bempler 1970), and in normal males subjected to stress (Goldstein 1972).

Other studies have shown that the detrimental composite found in families of schizophrenics, which could harm gender identity, is also found in other families. Similar family types are reported for female alcoholics (Kinsey 1966 and Wood and Duffy 1966), male transvestites (Spensley and Barter 1971), male homosexuals (Chang and Block 1960 and Stephan 1973), neurotic homosexuals (Hooker 1969 and Seiglemen 1974), transsexuals (Green and Stoller 1971 and Stoller and Newman 1971), sexual perverts (Rubins 1969), psychotics in general from the United States, Italy, and Israel (Zwerling 1971), psychopathological groups in general (Heil-

brun 1968), and poor psychosocially adjusted hemophiliacs (Behar and Spencer 1969).

Further, there are numerous studies showing the key role of genetics in the appearance of schizophrenia. Even so, most of these have acknowledged that genes alone do not result in schizophrenia. One may inherit a vulnerability to schizophrenia; but there is the requirement of nongenetic, environmental factors for its development (Gottesman and Shields 1973, Kety et al. 1971, Rosenthal et al. 1971, and Strahilevitz 1974).

Given these facts, it is more realistic to consider gender-identity confusion as the leading stressor in a diathesis-stress model of schizophrenia. Therefore, while many more than just schizophrenic individuals develop gender-identity problems, only the schizophrenic has the inherited vulnerability to schizophrenia. The stresses involved with gender-identity confusion are a major source of all the stresses that compound to increase the likelihood that the individual will become schizophrenic. One of the main factors responsible for this great stress in schizophrenia appears to be an inability to deal with it. Three published cases studies (Cohen and Liebowitz 1969, Lidz et al. 1962, and Smith and Lidz 1964) of dizygotic and monozygotic twins discordant for schizophrenia indicate that while both siblings appeared to manifest a gender-identity confusion, the "healthier" twin was better able to adapt to the problem and incorporate it into his personality.

Further, the degree of gender-identity impairment also appears to be directly related to premorbid maladjustment, degree of pathology, and chronicity. For example, a high Mf (masculinity) score in female, first-admission, schizophrenic patients was correlated to a lengthier stay in hospital (McKeever, May, and Tuma 1965). A female pattern of high anxiety and low ego strength was more indicative of a good prognosis for schizophrenic females than was a male pattern (Distler, May, and Tuma 1964).

Another possibility is proposed by Penrose (1971). He holds out great hope that the genetic vulnerability is contained in the sex genes. He quotes evidence indicating low levels of the male sex hormone in schizophrenic males and that sex chromosomal anomalies have been mistaken for mental illness, particularly schizophrenia. The link between gender-identity impairment and genetic transmission, therefore, may be more direct than is suspected.

Another alternative explanation is that gender-identity impairment is the result of the stresses involved with mental illness, hospitalization, and so forth. Since there is usually more stress associated with schizophrenia than with other clinical subgroups, there is a resultant greater degree of gender-identity impairment. Empirical evidence, particularly of the long-range study currently coming into vogue (see Mosher and Feinsilver 1970), is needed to help resolve whether gender-identity confusion is causal, resultant, or coincidental.

This latter explanation, however, is not very attractive. The diathesis-gender-stress model can explain a good deal of related data and does not seem to conflict with any existing data. For example, Rosenthal (1962) reviewed epidemiological rates for concordance of schizophrenia and reported that the occurrence of schizophrenia between members of the same sex was greater than for those of the opposite sex between pairs of members within the same family. He went on to propose sex-role identification problems in the father-son and mother-daughter relationships. Even more convincing that sex-role development is an important variable is the Lidz et al. (1963) study demonstrating that same-sex siblings of schizophrenic individuals tend to be more disturbed than opposite-sex siblings. Hence, something within the family must be affecting one sex more than the other. It would be difficult to explain this observation without the use of the concepts involved in gender identity.

Our model would also help to explain the literature on marriage rates in schizophrenia. Marriage presumes a sex-role-taking differentiation, particularly for the male. That schizophrenic patients are probably deficient in this ability is supported by the low marriage rates and high divorce rates in this group (Bromet, Harrow, and Tucker 1971, Dube and Kumar 1972, Farina, Garnezy, and Barry 1963, Hartman 1969, and Turner, Dopheen, and Labreche 1970). Single schizophrenic patients outnumber normal controls 2:1 and they outnumber other single psychiatric patients. Length of hospitalization for single schizophrenic patients is twice as long as for married schizophrenic patients. A nonrecovered group of schizophrenic patients was less likely to be married and had shown more inferior social and sexual adjustment before becoming ill than a recovered group (Farina, Garnezy, and Barry 1963). Such findings are not restricted to the United States but are also reported in

countries such as India (Dube and Kumar 1972) and Lower Saxony (Hartman 1969).

Further, female schizophrenic patients are more likely to be married than male schizophrenic patients. This is probably the product of our society's unequal sex division, which burdens the man with being the initiator and aggressor in courtship—a role that schizophrenic males are unable to play with a great deal of success. This finding also supports the idea that schizophrenic females may marry with greater ease than schizophrenic males because the female's role in courtship is not so important in terms of establishing and supporting the family. Such an explanation would also account for higher fertility rates in schizophrenic females than in schizophrenic males (Mai 1972).

According to Seyfried and Hendrick (1973), normal females show a significant preference for males who play the masculine role over males who do not. Normal males, however, demonstrate no preference for females who play a feminine role. Hence, females will prefer nonschizophrenic males as the schizophrenic male does not play the male role well. No such problem stands in the way of the female schizophrenic. Although she tends not to play her feminine role, males have no preference for those who do. This alternate line of reasoning, still within our model, explains the lower marriage and fertility rates in schizophrenic males than in schizophrenic females.

Our model might also help to explain why, along with transsexuals and those with complex religious beliefs, schizophrenic males have one of the highest rates of self-castration (Beilin 1953, Blacker and Wong 1963, and Mendez, Kiely, and Morrow 1972). Genital mutilation in females is relatively rare. Yet, Standage, Moore, and Cole (1974) have reported a case of a schizophrenic female with paranoid ideation who mutilated her genitals. Psychological tests revealed gender-identity confusion.

It is one of the few models that can adequately explain the early onset of schizophrenia. The period of late adolescence and early adulthood is a time in which gender-identity consolidation is of primary importance. It is also the period during which schizophrenia usually develops. Gender identity seems more important for the male than for the female, and schizophrenia develops earlier in the male than in the female. The ability of our model to explain this phenomenon should not be undersold. Early onset was the key reason for

Kraepelin's coining the term "dementia praecox." It has also led Penrose (1971) to suggest that the term "schizophrenia" should only be applied to those psychoses of early onset.

Finally, such a model could explain the results reported by Nell (1968). A small group of schizophrenic patients were encouraged to engage in sexual activity with one another. Improvement in symptomatology was apparent after such supportive heterosexual experiences. A clear implication is that recovery could be facilitated by directing efforts toward supporting gender identity in the schizophrenic patient. Gender-identity integration, restitution, and reinforcement can only help the patient in achieving a stable, well-defined personal identity.

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