The Social Class and Mental Illness Correlation: Implications of the Research for Policy and Practice

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Ongoing efforts to unravel the causal issues involved in the correlation between socioeconomic status and mental illness suggest that the hypothesis of a recursive or interactive relationship may be the most tenable, at least with the psychoses. Implications of this research are explored, with particular attention paid to the mental health costs of economic policies, the principles with which states allocate mental health resources, and the use of this knowledge-base in service planning.

One of the symptoms of the drift to the right in public opinion is the tendency to isolate social problems in their most severe manifestations. The chronically mentally ill and homeless, for instance, are more likely to be identified as social problems than the conditions which precipitate and perpetuate the various types of mental illness and poverty. These populations, however, can be viewed in the context of the growing class inequality in American society. Specifically, they need to be understood in relation to one of the most consistent and well-documented findings in the social sciences: The correlation of the lower socioeconomic statuses (SES) with relatively high rates of mental illness (MI).

Those who have reported the SES-MI correlation, however, have failed to rigorously explicate the causal nature of the relationship. Do the stresses of lower socioeconomic conditions provoke mental illness? Do the disabilities attendant upon a genetically-triggered schizophrenia prevent its victims from competing effectively, and thus, drifting into lower classes? Despite much that is known about the SES-MI relationship, its implications for mental health policy and practice have not been

systematically explored in the social service literature. This article therefore, reviews the development of knowledge about the SES-MI association and explores its possible applications, specifically those pertaining to the distribution of resources and alternative service strategies for the mentally ill.

The Central Finding

Among the first to identify the inverse correlation between socioeconomic status and mental illness were Faris and Dunham who found a disproportionate rate of mental illness in the poorest parts of Chicago (Faris and Dunham, 1939). After World War II the landmark study by Hollingshead and Redlich examined rates of psychiatric disability in New Haven, Connecticut. They found that 1% of their psychiatric cases were in the upper class, while this class consisted of 3.1% of the population; in contrast, 36.8% of the psychiatrically disabled were from the lowest class, while this group consisted of 17.8% of the population (Hollinghshead and Redlich, 1958, p. 199). The inverse correlation was subsequently attributed to the disproportionate numbers of mentally ill in the lowest two classes rather than differences between the other three groups (Mishler and Scotch, 1965, pp. 258–305).

Within a few years researchers in Midtown Manhattan supported the New Haven findings with data on both treated and untreated cases. Unlike Hollingshead and Redlich, the Midtown researchers computed impairment rates, classified them by SES strata, and found that 47.3% of the lowest social strata were mentally impaired, in contrast with 12.5% of the highest strata. Furthermore, treatment rates were positively correlated with SES, thus confounding the negative class correlations (Srole, et al., 1978, p. 309). A more recent study reported SES to be the single most significant correlate of the prevalence of mental illness in two Florida counties, with the prevalence in the lowest class five times higher than in highest class (Swab, 1979, p. 73).

A total of 21 studies conducted throughout the world between 1950 and 1980 reported rates of psychiatric disorders according to class. While 10 of the 15 non-United States (US) studies found the highest rates in the lowest class, five out of the six US studies obtained the same finding. In the US studies the lowest

class had 2.37 times the rate as that in the highest, on average. Across all studies there was an average rate of psychopathology in the lowest strata 2.73 times that which was found in the highest class (Dohrenwend, et al., 1980, pp. 55–58).

Socioeconomic class is typically measured by utilizing a weighted average of the head of household's occupational status, educational level, income, and sometimes place of residence. Because of the multiple dimensions involved, a full specification of the relationship has required measuring the effects of each of these indicators independently.

The relationship holds up not only between occupations of various prestige levels (Roman and Trice, 1972, pp. 157–66), but within occupational categories as well (Blauner, 1964). Blauner and Kornhauser both found that lower status employment, that which is repetitive and menial and which offers little opportunity for advancement, is associated with high rates of mental illness (1965).

The relationship of educational level with psychopathology is also fairly consistent. Although some of the classic studies, such as the New Haven and Midtown Manhattan investigations, did not report separate breakdowns for education, several more recent studies have done so. Eaton found that while 3.8% of those with grade school education developed schizophrenia, only 1.9% of those with a high school education, and 0.3% of the college educated developed the same condition, and that this did not vary by urban or rural location (1974, pp. 289–99). Rushing and Ortega, similarly, found an inverse relation between education and both schizophrenia and organic brain disorders, and that this did not vary by sex. They also reported an inverse relationship between education and manic depressive psychoses, neuroses, and personality disorders, and one which was of a more complex curvilinear nature (1984, p. 1176).

Although the type of SES indicator has only nominal value in specifying the central relationship, this is not the case when type of psychopathology is considered. Most notable is the finding of a positive relationship between SES and the neuroses, and a strongly negative relationship with the psychoses and personality disorders (Hollinghshead and Redlich, 1958, pp. 248–49). It was suggested that while lower classes externalize their

pathology in the development of "anti-reality" alloplastic psy-
choses and personality disorders, the upper classes tend to in-
ternalize conflict in the development of "anti-instinctual"
autoplastic neurotic conditions (p. 366). The inverse relationship
with the psychoses, and specifically schizophrenia, has often
been replicated with an average rate of psychoses in the lowest
class 2.58 times that of the highest class (Dohrenwend, et al.,
1980, pp. 55–58). Similarly, Gallagher reports that the social class
gradient in schizophrenia has been examined in over fifty stud-
ies to date, almost all of which found the highest rate in the
lowest classes, especially in urban areas (1980, p. 257).

Recent findings, however, have failed to confirm Hollings-
head and Redlich's conclusion that there is a positive SES-neu-
rosis relationship. Three other studies examined this question
and reported the lowest class had on average 1.34 times the
prevalence of neuroses than that of the highest class. Though
only two studies have considered personality disorders they have
found a ratio of 3.31 for the prevalence of such conditions in the
lowest over the hghest class (Dohrenwend, 1980, pp. 55–58).

The particular indicator of SES has little impact on the overall
relationship, as noted above, whether it be occupation or edu-
cation. However, the relationship does vary with type of psy-
chopathology, with the strongest relationship occurring with the
most severe conditions, the personality disorders and psy-
choses, in particular, schizophrenia. The correlation has typi-
cally been characterized as being linear (Srole, et al., 1978). Yet,
data from a few of the studies would indicate that it may actually
be curavilinear, with as sharp rise in the lowest strata (Jaco,
1960).

The earliest studies have had serious methodological limi-
tations since they only examined treated rates of psychopathol-
ogy, but most of the post-1950 researchers have looked at both
treated and untreated rates through community surveys. Critics
of the New Haven and Midtown studies have pointed out that
the case finding and classification techniques used were not in-
dependent of class. For example, the Langner scale used in the
Midtown study has been criticized because it measured psy-
chophysiological symptoms of emotional distress. Critics con-
tend that this study did not differentiate when these symptoms

were, in fact symptoms of emotional distress or physical prob-
lems. Lower classes have a higher prevalence of medical prob-
lems that inflates their estimates of psychiatric pathology
(Crandell and Dohrenwend, pp. 1527–37). Others have argued
that class bias in the application of psychiatric labels has created
a spurious relationship (Goldenburg, et al., 1979, pp. 1021–22).
Most of these difficulties, however, have been addressed in re-
cent studies such as the Florida Health Survey, with little impact
on the finding of a strong, consistent, inverse relationship be-
tween socioeconomic status and psychopathology, especially the
psychoses and personality disorders (Schwab, et al., 1979). Un-
fortunately, researchers have rarely reported coefficients of cor-
relation or significance tests (other than chi-square). Thus, it is
not possible to fully assess how strong and generalizeable the
findings are.

Intervening Variables

Even though the asociation between social stratification and
mental anguish has been consistently replicated, little is under-
stood about intervening variables. It has been commonly as-
sumed that a high frequency of stresses in the lower classes
accounts for the high prevalence of mental illness, yet since re-
search has found only modest correlations with various stress
factors, sociologists subsequently have turned their attention not
only to demographic factors, but also to variables involving so-
cial support, personal vulnerabilities, or most typically, a
combination.

The role of demographic factors in mediating the basic re-
lationship is significant. The impact of SES is most pronounced
with males, but still present with females (Hollingshead and
Redlich, 1958, pp. 199–200), and present in all age groups except
the 15 to 24 years old group. The disparity in prevalence rates
between the lowest and highest SES groups increases as age
increases, indicating that the inverse correlation is confounded
with age (pp. 201–202).

Control for race did not change the essential relationship,
except in Class III, the lower-middle class. Therefore, when the
relationship between race and impairment has been examined,
control for SES has usually caused the disparity in rates between

racial groups to disappear. Parallel findings were obtained for
religion (pp. 203–205). Eaton reports data that indicate that the
SES-MI correlation is more pronounced in urban, in contrast to
rural areas. Much of this difference, he reports, is attributable
to differential effects of occupation and not education, in the
two types of areas (1974, pp. 289–99). While the SES-MI rela-
tionship holds up under most demographic conditions, it is
clearly most pronounced in males, older adults, and urban
dwellers.

The most commonly offered explanation for the SES-MI cor-
relation is that there is a greater frequency of stressful economic
or personal life events in the lower SES groups. Beginning in
1973 Harvey Brenner spearheaded a new line of research through
an examination of the correlation between aggregated manufac-
turing employment and first-time psychiatric hospital admis-
sions in New York state over a 127 year period. He reported a
consistent inverse correlation of over -0.80 in virtually all pe-
riods and subgroups (1973, pp. 32–33). The strongest relation-
ships between unemployment and mental hospitalization were
found among males (pp. 37–41), the less educated (pp. 126–29),
less economically secure (pp. 123–125), the single and separated
(pp. 118–119) and unexpectedly in the under 19 and over 70 age
groups, among both sexes (pp. 112–117). Brenner suggests that
the SES-MI relation may in part be explainable in terms of the
stresses of unemployment:

> Stresses brought about by large-scale economic change are likely
> to fall most heavily on those in lower-socioeconomic strata. The
> lowest socioeconomic groups may, for this reason, show the high-
> est rate of mental hospitalization (and perhaps of mental disorder
> as well). (p. 232)

This analysis has been criticized for the use of first-time
hospitalization data, lack of control for hospital capacity, use of
detrending techniques, and of lags of one year or greater in his
correlation of time series. Nevertheless, many of these same crit-
icisms have been remedied in replications of the study. Marshall
and Funch, for instance, found the essential correlation to hold
up for working-age populations of both sexes, however, mental
hospital capacity proved to be a better predictor for the admis-

sions rate of the very young and the aged (Marshall and Funch, 1979, pp. 282–89). Dear examined Canadian mental hospital admissions and discharges in relation to unemployment and found that the higher hospitalization rates during periods of employment are explainable in terms of a relatively smaller decline in discharge than admission rates (Dear, et al., 1979, pp. 43–53). In contrast, Catalano and Dooley found in an individual-level analysis that economic decline provokes a greater number of stressful events and subsequently increased psychiatric symptoms and utilization of mental health facilities (Dooley and Catalano, 1984, pp. 160–176).

While the impact of unemployment on mental hospitalization, which is assumed to be a valid indicator of the prevalence of psychiatric disorders, has been confirmed, there are few data on the impact of other economic variables. Inflation was found to correlate with admissions: A 10% increase in inflation produced a 13.4% decrease in psychiatric beds provided. (Dear, et al., 1979, p. 52). Dooley and Catalano found that economic change, per se, tends to lead to service utilization, irrespective of the actual level of psychiatric symptomatology (1984, p. 164). In general, the research supports the role of economic factors, particularly unemployment, in explaining one of the key mechanisms by which SES is related to mental hospitalization, especially among working age men of lower educational and occupatiional levels. The degree that mental hospitalization is a valid indicator of psychopathology, however, remains questionable.

The research on noneconomic stresses or life events has been less fruitful. Beginning with Holmes and Rahe there have been numerous attempts to rate the stress levels of a range of life events, such as divorce, death of a spouse, or promotion (1967, pp. 213–218). This effort has been beset with numerous methodological problems, one of the most significant of which is the confoundedness of life events with dependent variables involving mental health (Tausig, 1982, pp. 52–64). Does divorce cause stress, or did the stress precede the divorce and cause it? Furthermore, it has been extremely difficult to rate the inherent stressfulness of an event due to the extreme variation in response patterns. Due to these problems most research has pro-

duced only nominal correlations between the number of types of stressful events and mental illness. Furthermore, it has been found that there is only a minimal correlation between socioeconomic class and the frequency of stressful life events (Langner and Stanely, 1963, p. 151). These problems have led to the hypothesis that the most significant factors are support systems, whether material or interpersonal, and also personal vulnerabilities, whether psychological or biological. These together may explain the variations in reactions to stressful life events, and in turn, the impact of SES. What perhaps is needed is the identification of specific types of support and personal competencies required for the mastery of major life events, such as unemployment, divorce, or death of a parent.

One explanation for the SES-MI association involves inadequate material, service, and interpersonal supports available to those in the lower class strata. The early studies in New Haven and Midtown Manhattan clearly demonstrated this to be the case. The combined treatment census of public and private hospitals positively correlated with SES, with 202, 422, and 664 persons per 100,000 from the upper, middle, and lower strata hospitalized, respectively. The opposite was the case with outpatient services, with 1501, 756 and 396 rates for utilization of mental health outpatient facilities (Srole, et al., 1978, p. 328). The higher classes clearly utilized, perhaps preventatively, less intensive services, while the lower classes did not use services until they were adjudged as requiring hospitalization. Recent studies, however, indicate that this disparity is disappearing. Kulka examined utilization in 1957 and 1976 and found that neither education or occupation could account for differences in the use of various types of outpatient services in 1976, in contrast to 1956 (Kulka, et al., 1979, pp. 2–17). These differences may be attributable to the diffusion of outpatient services to lower classes in recent years due to such policies as the Community Mental Health Act of 1963.

Little has been found concerning the role of many key characteristics of communities in mediating the relationship between SES and MI. Urbanization and modernization have been extensively researched, yet have not proven to be significant (Kadushin, 1983, p. 186). One explanation offered is that the key

consideration may be the interaction between characteristics of the interpersonal environment and the larger social system. Kadushin investigated this possibility though a survey of the conditions under which Vietnam Veterans who were exposed to combat developed post-traumatic stress disorder (PTSD) in communities with varying types of support networks. He found that interpersonal environments with high social density had low PTSD if they were in small cities and urban areas, whereas more specialized support networks, such as Vet groups, were associated with lower stress reactions in metropolitan areas, and yet led to a high prevelance of the disorder in rural areas (1983, pp. 190–97). It would, therefore, be expected that in low-income areas with neither constellation of support factors there would be the greatest prevalence of stress reactions. Other researchers have examined the impact of social networks on personal crises (Boswell, 1969, pp. 32–56), help-seeking behavior (McKinley, pp. 275–92), hospital admissions (Tolsdorf, pp. 407–17), and claimed happiness (Boswell, 19669, pp. 32–56). These studies suggest that those with sparse, undifferentiated networks tend to exhibit poorer coping behavior and emotional stability than those with highly elaborate networks that contain mutually supportive relations (Liem and Liem, 1978, p. 151).

In spite of the extensive research on the role of family and interpersonal supports in the etiology and maintenance of mental illness, only a few studies have explicitly examined the role of these factors in the context of the SES-MI correlation. Brown, for instance, found that the lack of an intimate relationship to be a significant intervening variable between SES and depression in a sample of British women (Brown, 1975). Liem and Liem also conclude in their review of this research that, "there is substantial support for the view that the degree of stress associated with the experience of life events, economic and noneconomic, depends in part on the individual's familial supports" (1978).

The sparsity of significant findings on the effect of stress has also been confronted through research which has hypothesized that a critical dimension involves personal vulnerability to stress, whether this sensitivity is psychological or biological. Brown, for instance, found that both loss of a mother during childhood and having at least three children at home, were two of the most

significant factors intervening between SES and unemployment, on one hand, and depression on the other hand (1975, pp. 225–254).

A more productive line of investigation has been on the effect of attitudes in mediating the SES-MI relationship. The most noted theory is that of Melvin Kohn who proposed that both a conformity orientation, characteristic of lower classes, and genetic predisposition interact to produce schizophrenic reactions to the stressful life events most commonly encountered by the poor. It is suggested that this socialized conformity orientation produces an inflexibility in responding to stressful events (1972). While Mechanic has claimed that Kohn's reported correlations of 0.13 to 0.38 between SES and conformity orientations are nominal (Mechanic, 1972, p. 302), Kohn responded by arguing that such modest correlations are sufficient for inclusion in a model involving multiple variables which, collectively, explain a phenomenon (Kohn, 1972, p. 311).

More recently Wheaton has proposed an atrributional theory that suggests the lower class person's tendency to attribute causation for personal failure to external sources becomes dysfunctional and undermines coping efforts. The presence of fatalism was found to have a 0.32 correlation with the development of psychopathology, and also a slight negative correlation with a measure of SES (1980, pp. 100–174). Later, Wheaton refined his model to include inflexibility as an additional variable, improving its predictive ability. He noted that schizophrenia was the least determinable condition and that depression and anxiety disorders were better explained by the model (1985, pp. 208–229).

Research has provided some evidence supporting a "sociomedical" interpretation of the SES-MI relationship (Rushing and Ortega, 1984, p. 1176). In discussing the findings from twin studies on genetic components of schizophrenia, Rushing and Ortega suggest that it is possible to account for these results by such factors as intrauterine insufficienty, perinatal hypoxia, and birth trauma, some of which have been correlated with low SES. Viruses, they note, have also been implicated in schizophrenia, and this they suggest is also consistent with the SES-MI association since lower class persons receive fewer immunizations, lower quality prenatal care, and are subject to unsanitary living

conditions (p. 1189). In general, most of the biological conditions proposed to explain the etiology of schizophrenia and also of organic brain disorders have been correlated with the circumstances of the lower strata involving poorer medical care, unsanitary conditions, industrial accidents, etc. (p. 1189). Thus, it is clear that the SES-MI association is not inconsistent with the findings of medical research, and in fact, this research may serve to account for some of the intervening paths of influence just as the sociological research has sought to do through the examination of the dimensions of stress, support, and personal vulnerability.

The Question of Causation

The discovery of a causal relationship involves not only the identification of co-variation between two variables and specification of all intervening variables, but also the demonstration that changes in the proposed independent variable precede those in the dependent variable. It has been this third requirement which has plagued researchers the most in their attempts to fully interpret the causal nature of the SES-MI relationship. The earlier studies have been cross-sectional—conducted at one point in time—and have had to rely on retrospective data to interpret the basic relationship, and thus provide only indirect evidence on the question of causation.

Methodological limitations and varying ideological predelictions have contributed to the proliferation of explanations offered as to the causal direction of the SES-MI relationship. The most commonly proposed has been the social causation hypothesis: the great stresses experienced by and few supports available to lower class persons tend to provoke the development of the various mental illnesses. It has been theorized that the development of mental illness is often in response to a "poverty complex" and processes precipitated by "role discontinuity." (Srole, et al., 1978, pp. 229, 231–232) This orientation has been strongly influenced by the work of Merton, who proposed that the stresses of the lower classes are created by environmentally induced disjunctions between goals and the means to achieve them, between aspirations and actual achievements (Merton, 1957).

The major competing hypothesis is that natural vulnerabil-

ities, perhaps genetic in origin, cause the development of the mental illnesses, and that the disabling features of these illnesses cause its victims to be differentially selected into various socioeconomic strata in a Social Darwinistic manner. There are two major versions of the social selection position. The downward drift hypotheses suggests the mentally ill migrate downward occupationally, economically, and/or geographically to poorer conditions than earlier periods in their own lives. The other is that the mentally ill do not progress as young adults, and thus fail to match the socioeconomic status of their families of origin.

Evidence for the social causation hypothesis dates back to the Faris and Dunham study. These researchers concluded that the high rates of schizophrenia in Chicago slum areas could account for the migration of the subjects from other more well-to-do areas (1939). Similarly, LaPouse, Mond, and Terris examined the social histories of 587 first admission schizophrenics in New York, and concluded that, "The findings of this study show quite conclusively that for the first admissions of schizophrenics . . . the concentration in low economic areas is not the result of downward drift from higher areas" (1956, pp. 978–986). Hollingshead and Redlich also argue for the social causation hypothesis on the basis of data which seem to contradict the social selection hypothesis. Ninety-one percent of the schizophrenics in their sample were in the same class as their family of origin, and that only 1.3% were in a lower class (1958, pp. 244–49). This was challenged as it has been suggested that any study which uses education as an indicator of SES will tend to obscure mobility, since education is a relatively fixed attribute once a person becomes an adult (Turner and Wagenfeld, 1967, pp. 104–113).

The Midtown Manhattan study was also based on the social causation hypothesis. The study's examination of SES levels in the families of origin permitted it to conclude that the differential rates were partly attributable to relationships between both the individuals' and their family's SES and mental illness. The investigators interpreted this to indicate that class differences in the families of origin implanted personal vulnerabilities in lower class individuals, which then interacted with the poor conditions of their adult lives to provoke their pathol-

ogy. They concluded that the evidence of their study, "highlights the status system as an apparatus that differentially sows, reaps, sifts, and redistributes the communities' crops of mental morbidity and of sound personalities" (Srole, et al., 1978, p. 316). Since neither the New Haven or Midtown studies were longitudinal, the evidence they present for social causation should be regarded as indirect and suggestive rather than definitive.

The stress version of the social causation theory found some support in the work of Langner and Michael who reanalyzed the Midtown data and found a disproportionate number of stressors in the lower classes, although the significance of the differences in these rates has been disputed. When stress is held constant, there remains a correlation between low SES and high MI (Langner and Michael, 1963). Kohn proposed that what may be needed to explain the relationship is not an unidimensional stress model, but one that incorporates both stress and personal psychological and genetic vulnerabilities in an interactive manner (1972).

The interactive effects of genetic vulnerability and social stress have been examined in two studies, and these have been based on a design proposed by Dohrenwend. He argued that if genetic vulnerability is a critical factor then low-income whites should have higher rates of pathology than minority groups exposed to racial oppression. Low-income whites should face fewer barriers to upward mobility than low-income blacks, therefore leaving them with a higher percentage of mentally ill in the lowest class. Non-disturbed whites from the lowest class will be more upwardly mobile than their minority counterparts, creating high prevalence rates in the lowest class of whites. If, instead, lower class whites have fewer mentally ill among them, this would be evidence for the stress theory, as minority groups are exposed to not only the economic, but also to discriminatory barriers to upward mobility. The first of these studies conducted by Dohrenwend, himself, revealed that the lowest class blacks had, in fact, considerably higher rates of schizophrenia than their white counterparts, thus supporting the social causation-stress theory (Dohrenwend, 1975, pp. 365–92). These results, however, are based on treated rates indicating that at least blacks are more likely than whites to be targets of social control and hospitali-

zation. Furthermore, the pattern with other racial minority groups in this study was equivocal.

Some of the problems of the earlier cross-sectional studies have been confronted by several recent longitudinal studies. Lee, for instance, re-analyzed the data from the 1952 Stirling Country study and its 1962 follow-up, examining the differential in cross-lagged panel correlations. This method involved measuring SES and MI at two points in time, and then measuring the differences in the diagonal (i.e. cross lagged) correlations between the two variables at the two points in time. They found that the 1952 SES and 1962 MI correlation to be slightly stronger than the reverse, supporting the social causation explanation of the relation between SES and mental illness (1976, pp. 1–8).

Wheaton utilized a similar design with data from three prior studies, and with the inclusion of an earlier measure of SES and father's SES. He interpreted his results to support social causation since the correlations between the earlier SES and later MI variables were larger (as high as 0.25, though often considerably lower) than the opposite correlations. He noted that,

> While the panel data from Illinois and Michigan, in general, support social causation, the findings concerning social causation apparently apply to a range of moderately severe anxiety/depression symptoms which persist over time and thus are relevant to the diagnoses of a number of non-psychotic disorders (1978, p. 399).

He hypothesizes on the basis of this research that the status effects may be greatest in younger adult ages and/or in socioeconomically progressive environments (p. 401).

In a follow-up study, Wheaton used two intervening variables measuring personal vulnerabilities, inflexibility and fatalism, and found that a model incorporating chronic stressors, fatalism, and inflexibility best explained the development of depression, with an unstandardized regression coefficient of 1.31; secondarily anxiety, 0.25; and schizophrenia, 0.47, thus improving on his initial model (1983, pp. 208–209).

The social selection hypothesis was first proposed as an alternative interpretation of the Faris and Dunham data (Myerson, 1940, pp. 995–97). Critics of the study suggested that the disproportionate rates of schizophrenia in the slum areas of Chi-

cago could be accounted for by downwardly mobile men who had drifted into these areas from higher status areas (Jaffe and Shanas, 1935, pp. 534–39). However, none of the research to date has presented any significant evidence for the intragenerational or "downward drift" version of the social selection hypothesis. In contrast, several studies have found a failure of the mentally ill to replicate the status of their family of origin, supporting the intergenerational version of the social selection hypothesis. Both Hare, Price, and Stater (1972, pp. 515–24) and Goldberg and Morrison (1963, pp. 785–802) in England found that although the social class of fathers of schizophrenics had the same distribution as the overall population (in contrast to findings in US studies), schizophrenics themselves were disproportionately found in the lower classes, evidence for the intergenerational view. Lystad, in a study of first admission schizophrenics also found that these patients were more downwardly mobile than their controls (1957, pp. 223–227).

One of the strongest studies favoring social selection utilized the Monroe County psychiatric register data, the most complete longitudinal database available on the psychiatric histories of patients on a county-wide basis. Wagenfeld and Turner found almost no evidence in support of downward drift, but definite evidence that schizophrenics failed to replicate the social status of their families of origin (1967, pp. 104–113). On the basis of these and a few other studies, Dunham reversed his earlier position, and argued for a social selection interpretation of the SES-MI relationship (Vol. 31, pp. 233–27).

The most recent data in support of the social selection position has been provided by Birtchnell (1971, pp. 209–221), Attunes, (Vol. 58, pp. 361–68), and Harkey (1976, pp. 194–204). Attunes replicated Dohrenwend's multi-racial quasi-experiment and found a clear pattern of disproportionate rates of mental illness in low-income minority groups, after controlling for SES. This study of 16,000 persons in Southern Appalachia provided data which supported the conclusion that the primary effect of psychological disorders has been to retard upward mobility, rather than to cause downward drift.

Those who have argued for social selection have usually emphasized personal vulnerability factors, and considered stress

and social support as secondary. While these vulnerabilities may be psychological, having their roots in early childhood development, it is often assumed that the major vulnerability is genetic. There has been virtually no research examining the interaction of both genetic and environmental factors, however, several models have been proposed to characterize the particular types of interactions which may occur. Kendler and Eaves suggest that genotype and environmental factors may (a) interact in an additive fashion; (b) that there may be specific genes which create greater sensitivity to environmental stresses; or (c) that there may be genes which control the extent of exposure to pathogenic aspects of the environment. The authors interpret the results of several studies on personality disorders and alcoholism as being consistent with a combination of the first two models, while other studies on schizophrenia and depression as being consistent with the first model involving additive effects (1986, pp. 279–89).

That there is a strong inverse correlation between socioeconomic status and mental illness is no longer disputed. This is one of the most consistently replicated findings in social science literature, and one that has been replicated with the major indicators of SES, education and occupation, and all major types of psychopathology, especially with schizophrenia and the personality disorders. It is a relationship which has been identified under most demographic conditions, but is strongest in urban areas, with men, and with advancing age.

Evidence that low SES leads to psychopathology is consistent with the above correlational findings. The stresses of unemployment in working age groups has been found regularly to precede mental hospitalization. In addition, a sparsity of financial, social and family supports, along with such personal vulnerabilities as a conformity orientation, rigidity, fatalism, and genetic predispositions, all have been implicated in this relationship, though each factor has shown to contribute minimally to explaining the overall relationship. That causation flows from SES to MI is evidenced by five major cross-sectional studies which utilized retrospective and indirect data, and for this reason they can not be considered sufficiently strong to reject the alternative hypothesis. This body of research is supplemented

by a quasi-experiment and two major longitudinal studies which provided direct evidence of the relationship, though the relative correlations were marginal. That genetic research has failed to explain more than 20 to 30 percent of the variation in schizophrenia is further evidence, albeit indirect, in support of the social causation hypothesis (Mechanic, 1980).

Although there is virtually no evidence to support intra-generational downward drift, there is clear evidence from over at least seven studies, several of which were longitudinal, and a major quasi-experiment, that with schizophrenia, upward occupational mobility is clearly retarded, leading to intergenerational downward mobility. These studies have also had insufficiently strong designs to cause the rejection of the social causation hypothesis.

It is, thus, reasonable to hypothesize that there is a recursive or interactive relationship between socioeconomic status and mental illness, at least, with the more severe forms of pathology. Research suggests that the stresses of occupational and economic forces associated with the lower class strata lead to a disproportionate rate of depression and anxiety through inadequate employment, few social supports, and personal vulnerabilities. When, due to acute personal attitudinal and genetic vulnerabilities, these stresses precipitate the development of the schizophrenias and personality disorders, the disabling impact becomes sufficient to retard upward mobility. Because this usually happens in younger adults, it leads to intergenerational downward mobility. The self-reinforcing interplay of these two processes explains not only the fact that the schizophrenias and personality disorders have the highest inverse correlations with SES, but also that the correlation is strongest in urban rather than rural areas where there may be greater stratification and fewer natural social supports.[1]

Implications: Policy

Beginning with Brenner's findings on the consequences of employment levels for psychiatric disability, it became apparent that mental health and economic policy could no longer be compartmentalized. Brenner and others proposed that, at a minimum, the costs of increased mental health hospitalization and

services be included in any benefit-cost analyses of alternative economic policies, especially those expected to affect unemployment levels (Brenner, Paper No. 5, 1976). In fact, the relatively high correlations uncovered in this line of research has made this goal feasible. The proposal raises the larger possibility of factoring in not only service, but other costs of mental illness, such as lost income, into analyses of proposals which could be expected to alter the market distribution of educational, occupational, and cash benefits—critical components of SES—to various populations. Should it be expected that a proposal will increase or aggravate mental illness in some individuals in order that a larger number may receive some other benefit, the Kalder-Hicks principle would dictate not only that this effect be minimized, but that the disadvantaged minority be compensated (Dunn, 1981, p. 237). Alternatively, policies which are successful in addressing the economic problems of low-SES would diminish the need for costly services.

The finding of an inverse SES-MI correlation, some of which can be attributed to the impact of class on pathology, provides a vital element for an empirical basis for determining the resources required to serve the mentally ill. A more immediate need, however, involves the application of this research to decisions concerning allocations between constituent jurisdictions within states, and between subgroups of the mentally ill. Each year state governments distribute billions of dollars to local governments, mental health boards, and agencies and, thus, they must constantly struggle to assess the degree and types of needs of the competing applicants.

A significant portion of state mental health dollars are spent on contracts with private agencies for the delivery of community mental health services. States have evolved a variety of systems for distributing these dollars. Some divide the resources between agencies and localities on the basis of professional assessments of community need and agency capability; however, many states utilize funding formulae. Formula systems are most commonly used whenever there is a strong board or county system of services. A few states, like New Jersey, utilize formula based on need indicators, however, most do not. Other states, such as Arkansas or Minnesota, use a formula based on population.

Whatever the causal direction of the SES-MI relationship, the fact that an inverse correlation has been established—one in which the lowest class has about two and a half times the prevalence of mental illness than the highest class—makes it clear that population and other similar formula tend to discriminate against economically-impoverished regions, and in favor of wealthy areas. For instance, if a state government uses a population formula to distribute community mental health funds to mental health boards serving two counties, each with the same size population, they will both receive the same size grant. If one county is predominately poor and the other wealthy, the mental health board serving the impoverished county may have two to three times the number of mentally ill to serve with the same grant amount as the board in the wealthy county. States which continue to distribute their mental health dollars on a formula basis are clearly moving in the direction of strengthening local authority systems, and along with this trend, implementing the use of population formula. To do this, it has been in the interest of proponents of such systems to promote politically-expedient population formula which superficially appear to be fair but which favor the middle and upper class constituencies in order to build political support.

The bureaucratic allocation of mental health dollars may be more significant in the community mental health portions of state budgets, however, this is not the case with the institutional share which is the larger piece in most cases. These dollars are allocated by current state legislatures and administered by state executive departments of mental health in response to broad or narrow commitment criteria, established by past legislative activity. Commitment decisions are made on a case-by-case basis by mental health professionals and the courts: institutional funding is reactive to the cumulative effect of these individual decisions.

To the extent that a state's laws restrict hospital commitment to only those who are dangerous and mentally ill, mental hospital censuses will be minimized, and the community mental health programs will be pressured to expand to accomodate the de-institutionalized. Since state mental hospitals have served primarily the lower classes, their contraction in recent years has forced the indigent mentally ill either to be 'trans-institutional-

ized' in nursing homes, transferred to Single Resident Occu-
pancy (SRO) and other inadequate community housing resources,
or to become ultimately homeless. When state commitment laws
contain provisions for persons to be hospitalized due to 'grave
disability', the inability to care for oneself, the indigent will
have a greater likelihood of access to hospital care, ameliorating
the inconsistent availability of preventative community services
relative to the middle and upper classes (Durham and Pierce,
1986, p. 42). The success of states in targeting their community
mental health dollars to a full range of community services for
the chronically mentally ill will make possible moving away from
reliance on the hospital as an agent of social control of the 'bad
and the mad,' and the indigent.

As distributional and eligibility issues are settled, questions
of the optimal form in which resources should be provided tend
to emerge on the public agenda. To what extent should these
resources be divided between cash benefits and services? While
the understanding of etiology is not as crucial for resolving dis-
tributional questions, this is not the case in respect to interven-
tion strategy, in which the concern is not only with prediction
but also with ameliorative intervention. Since low-SES contrib-
utes to poor mental health, strategies which impact positively
on the occupational, educational, and the economic conditions
of vulnerable groups can be expected to prevent psychopathol-
ogy. Public education, along with unemployment insurance, so-
cial security, and other income maintenance programs, will tend
to minimize mental illness. The major challenge, however, in-
volves measuring the strength of these associations and their
gradient (or slope). While improved education innoculates some
against mental breakdown, its usefulness as a preventative strat-
egy depends on the strength and slope of this association, and
also the relative costs of education and mental health services.
Since mental illness leads in some cases to poor socioeconomic
conditions, preventing its victims from advancing educationally
and occupationally, services are clearly required, especially those
of a secondary and tertiary nature. When personal vulnerabili-
ties, especially those of a genetic character, play a critical role in
etiology, then a tertiary approach involving either rehabilitation
or maintenance becomes a critical strategy for interrupting the
disabling effects of the more severe pathologies.

Intervention needs to be not only individually-tailored to address individually-variable causative factors through the provision of services, but also tailored to larger units such as communities, so as to manipulate non-personal factors through administrative, community, and political strategies. Personalized case services target dysfunctional attitudes (i.e., fatalism, conformity) and weak interpersonal supports among other variables, but they can not be expected to significantly alter the structure of opportunities for oppressed groups.

Understanding etiology is useful for intervention if manipulation of causative factors is not only possible, but also economical, ethical, and socially acceptable. If etiology resides in the structure of socioeconomic opportunities, manipulation of these opportunities is possible through strategies such as affirmative action. It is probably only politically feasible to manipulate socioeconomic opportunities through guaranteed employment, increased educational provisions, or negative income taxes to the extent that it can be demonstrated that the costs of these programs will be compensated for by savings in service and other factors directly attributable to disability, such as lost income. For this reason preventative strategies must be based on carefully controlled research which identifies the consequences for target populations of manipulating discrete components of educational and occupational opportunities, something which the research to date has not done. The movement in state mental health services away from primary prevention to providing tertiary services for the chronically mentally ill suggests a disillusionment with prevention, and the belief that mental illness is mainly a function of personal psychological and medical factors, best manipulated through rehabilitative services so as to minimize the disabling consequences.

The evidence for social causation indicates that the preventative manipulation of educational and occupational opportunities can be expected to impact on most forms of illness. The problem, however, is more complex with the psychoses considering the evidence for social selection and the particularly strong SES-psychosis relationship. Both social causation and social selection are operative in creating the highest rates of schizophrenia in the lowest classes, as compared with other disorders. Thus, both the preventative and the rehabilitative strategies are

clearly indicated. The optimal mix of services may be charac-
terized by the programming principles embodied in the bal-
anced service system approach involving the utilization of
programs ranging from the least to the most restrictive.

Implications: Practice

The most fundamental implications of the research for direct
practice involves the necessity of careful attention to clients' so-
cioeconomic statuses, the various cultures associated with class,
and their impact on the clients' perceptions of their difficulties
and the treatment relationship itself. Social workers, in their
efforts to establish rapport, are perhaps prone to minimize class
differences, and while doing so, project their particular values
onto their clients as unrealistic expectations. For instance, the
upper middle class conception of a career, of deriving a sense
of meaningfulness out of work, may easily translate into the
expectation that lower-middle and working class clients should
find the same satisfactions in their work, potentially creating
new stress rather than assisting in its mastery.

The assessment process provides the practitioner the oppor-
tunity to gauge the changeability of those factors which are per-
petuating the client's difficulties. It is within the context that
research on the SES-MI relationship is invaluable in its heuristic
ability to generate diagnostic hunches. Each of the variables
which are implicated in psychopathology—illiteracy; repetitive,
menial, deadend jobs; unemployment; lack of social family, and
other interpersonal supports; and such attitudes as a conformity
orientation or fatalism, along with many others, are risk factors
which the practitioner needs to carefully search for, and when
found, explore their significance. The development of hy-
potheses about client difficulties will draw on this exploration
to determine not only the saliency of the identified factors, but
the major directions of influence, and an identification of those
which are manipulable and causally related to maintaining the
psychopathological conditions. In one case, lack of family sup-
port may be both a causative and manipulable factor, whereas
in another, fatalism and the lack of coping efforts may be the
most changeable of those factors maintaining the emotional
disorder.

The assessment of the saliency, manipulability, and continued relevance of factors implicated in the SES-MI and other mental health research provides a basis for treatment planning. Intrapsychic, interpersonal, community, occupational, and educational factors involved are critical in the selection of modality—individual, family, group—or overall strategy—psychotherapy, family life education, advocacy, or employment services. The moderate correlations and extreme individual variability identified in most of the research clearly supports the provision of personalized services, whether psychotherapy or advocacy. The frequent lack of support systems is a critical consideration, one which augurs for the provision of family and group work interventions, both for the neuroses and psychoses.

Direct service with the chronically mentally ill presents a more complex problem than for most groups considering the stronger inverse correlation with SES, one which partly reflects the disabling effects of the illness. The treatment of schizophrenia not only involves medical and social interventions, but also needs to consist of interventions directed at minimizing its impact on employment. Intensive job counseling and placement services, including occupational advocacy, are needed along with the use of night hospitalization to minimize job loss, permitting patients to maintain employment while taking advantage of full-time support, treatment, and structured activities during off hours.

A recursive relationship between SES and mental illness suggests that the ecologically- and systems-oriented social assessment must be attuned to identifying positive feedback loops, at least for the most seriously disturbed. Unlike the negative feedback loop which operates like a thermostat in stabilizing temperatures by adjusting them to a comfortable level each time they go above or below a specified range, a positive feedback loop does the opposite, as each adjustment creates an over-reaction of the variable, serving to magnify rather than reduce its fluctuations, creating accumulating and sometimes uncontrollable changes for better or worse. These positive feedback loops may be the basis for revolutionary and creative leaps to higher levels of insight and adjustment, or in contrast, may be the basis for spiraling destructive conflict or downward psychological

regressions. For this reason such dysfunctional feedback loops between recovering patients and key persons in their occupational and economic lives, such as supervisors or key customers, need to be carefully monitored, and, if possible, interrupted to permit their replacement with stabilizing negative or growth-facilitating positive feedback loops.

Conclusion

The systematic elaboration of the SES-MI relationship has uncovered key intervening variables, such as sex, geographic locale, unemployment, support systems, and psychological and genetic vulnerability, which enable the beginnings of a theoretical understanding of the association. The larger body of research has been hampered not only by its overuse of cross-sectional designs, but under use of multivariate and inferential statistical techniques, and especially longitudinal designs. The few longitudinal studies have usually utilized treated cases, and uncovered only moderate evidence of a causal relationship. The weight of evidence favors social causation for the less severe mental illnesses, however, the picture is more complex with the psychoses. The earlier studies typically provided data to support social causation, however, more recent research, specifically on the occupational progression of schizophrenics, suggests the reverse. Since neither body of research is sufficiently strong to reject the alternative explanation, the hypothesis of a recursive relationship becomes the most tenable.

The relationship has not been fully specified with its multiple causal pathways, nevertheless, this research is sufficiently strong to be a critical component of the knowledge base for both mental health policy and service planning. Its implications for intervention planning can not be divorced from questions of values and objectives; however, mental health policy can no longer be ignored in economic decisions, and the assessment of problems such as homelessness and chronic mental illness, along with their resource needs can not be isolated from an understanding of the realities of socioeconomic stratification. These findings, furthermore, call for careful assessment and intervention planning around issues involving client educational accomplishments and occupational progression, along with their

support systems, individual vulnerabilities, and also treatment interventions aimed at impacting dysfunctional positive feedback loops. As the SES-MI research unravels complex recursive or interactive causal structures, so intuitively meaningful to the practitioner, it will be able to identify practical points of intervention in such potentially destructive interactions.

References

Attunes, G., Gordon, C. M., & Scott, J. (1974). Ethnicity, socioeconomic status, and the etiology of psychological distress. *Sociology and Social Research, 58,* 361–368.

Birtchnell, J. (1971). Social class, parental class, and social mobility in psychiatric patients and general population controls. *Psychological Medicine, 1,* 209–221.

Blauner, R. (1964). *Alienation and freedom: The factory worker and his industry.* Chicago: University of Chicago Press.

Boswell, D. (1969). Personal crisis and the mobilization of social network. In C. Mitchell (Ed.), *Social netowrks in urban situations* (pp. 32–56). Manchester: Manchester University Press.

Brenner, M H. (1973). *Mental illness and the economy.* Cambridge, MA: Harvard University Press.

Brenner, M. H. (1976). Estimating the social costs of economic policy: Implications for mental and physical health, and criminal aggrression. (Paper No. 5). Report to the Congressional Research Service of the Library of Congress and Joint Economic Committee of Congress. Washington, D.C.: US Government Printing Office.

Brim, J. A. (1974). Social network correlates of avowed happiness. *Journal of Nervous and Mental Disease, 158,* 432–439.

Brown, G. W., Brolchaim, M. N., & Harris, T. (1975). Social class and psychiatric disturbance among women in an urban population. *Sociology, 9,* 225–254.

Crandell, D. L., & Dohrenwend, B. P. (1967). Some relations among psychiatric symptoms, organic illness, and social class. *American Journal of Psychiatry, 123,* 1527–1537.

Dear, M., Clark, G., & Clark, S. (1979). Economic cycles and mental health care policy: An examination of the macro-context for social service planning. *Social Science and Medicine, 13c,* 43–53.

Dohrenwend, B. P. (1975). Socio-psychological factors in the genesis of mental disorders. *Journal of Health and Social Behavior, 16,* 365–392.

Dohrenwend, B. P. (1980). *Mental illness in the United States: Epidemiological estimates.* New York: Praeger.

Dooley, D. & Catalano, R. (1984). Why the economy predicts help seeking: A test of competing explanations. *Journal of Health and Social Behavior, 25,* 160–176.

Dunham, H. W. (1966). A research note on diagnosed mental illness and class. *American Sociological Review, 31*, 223–227.

Dunn, W. N. (1981). *Public policy analysis.* Englewood Cliffs. NJ: Prentice-Hall.

Durham, M. C. & Pierce, G. L. (1986). Legal intervention in civil commitment: The impact of broadened commitment criteria. *The Annals, 484*, 42–55.

Eaton, W. (1974). Residence, social class, and schizophrenia. *Journal of Health and Social Behavior, 15*, 289–299.

Faris, R.E.L. & Dunham, W. W. (1939). *Mental disorders in urban areas*, Chicago: University of Chicago Press.

Gallagher, B. (1980). *The sociology of mental illness.* Englewood Cliffs, NJ: Prentice-Hall.

Gerhard, R. J., Dorgan, R. W., & Miles, D. G. (1981). *The balanced service system: A model of personal and social integration.* Clinton, OK: Responsive Systems Associates.

Goldberg, E. M., & Morrison, S. L. (1963). Schizophrenia and social class. *British Journal of Psychiatry, 109*, 785–802.

Goldenberg, E., Macey, T., & Lindbergh, S. S. (1979). Socioeconomic factors which influence labeling of mental illness. *Psychological Reports, 44*, 1021–1022.

Hare, E. H., Price, & Stater. (1972). Parental class in psychiatric patients. *British Journal of Psychiatry, 121*, 785–802.

Harkey, J., Miles, D. L., & Rushing, W. A. (1976). The relation between social class and functional states: A new look at the drift hypothesis. *Journal of Health and Social Behavior, 17*, 194–204.

Hollingshead, A. B. & Redlich, F. C. (1958). *Social class and mental illness.* New York: John Wiley & Sons.

Holms, T. & Rahe, R. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11*, 213–218.

Jaco, E. (1960). *The social epidemiology of mental disorders.* New York: Russell Sage Foundation.

Jaffee, A. J. & Shanas, E. (1935). Economic differentials in probability of insanity. *American Journal of Sociology, 44*, 534–539.

Kadushin, C. (1983). Mental health and the interpersonal environment: A reexamination of some effects of social structure on mental health. *American Sociological Review, 186*.

Kendler, D. S. & Eaves, L. J. (1986). Models for the joint effects of genotype and environment on liability to psychiatric illness. *The American Journal of Psychiatry, 143*, 279–289.

Kohn, M. L. (1969). *Class and conformity: A study in values.* Homewood, ILL: Dorsey.

Kohn, M. L. (1972). Rejoinder to David Mechanic. *Social Forces, 50*, 311.

Kulka, R. A., Veroff, J., & Douvan, E. (1979). Social class and the use of help for personal problems: 1956 and 1976. *Journal of Health and Social Behavior, 20*, 2–17.

Langner, T. & Stanely, M. (1963). *Life stress and mental health*. New York: Free Press of Blencoe.

LaPouse, R., Mond, M. A., & Terris, M. (1956). The drift hypothesis and socioeconomic differentials in schizophrenia. *American Journal of Public Health, 46,* 978–986.

Lee, R.P.L. (1976). The causal priority between socioeconomic status and psychiatric disorder: A prospective study. *International Journal of Social Psychiatry, 22,* 1–8.

Lystad, M. (1957). Social mobility among selected groups of schizophrenic patients. *American Sociological Review, 12,* 223–227.

Liem, R. & Liem, J. (1978). Social class and mental illness reconsidered: The role of economic stress and social support. *Journal of Health and Social Behavior, 19,* 139–156.

Marshall, J. R. & Funch, D. P. (1979). *Mental illness and the economy*: A critique and partial replication. *Journal of Health and Social Behavior, 20,* 282–289.

Mechanic, D. (1972). Social class and schizophrenia: Some requirements for a plausible theory of social influence. *Social Forces, 50,* 306.

Merton, R. K. (1957). *Social theory and social structure*. Glencoe: Free Press.

McKinlay, J. (1973). Social networks, lay consultation, and help seeking behavior. *Social Forces, 51,* 275–292.

Mishler, E. G. & Scotch, N. A. (1965). Sociocultural factors in the epidemiology of schizophrenia. *International Journal of Psychiatry, 1,* 258–305.

Myerson, A. (1940). [Review of *Mental disorders in urban areas.*] *American Journal of Psychiatry, 96,* 995–997.

Roman, P. M. & Trice, H. M. (1972). Psychiatric impairment among 'middle Americans': Surveys of work organizations. *Social Psychiatry, 7,* 157–166.

Rushing, W. A. & Ortega, S. T. (1979). Socioeconomic status and mental disorders: New evidence and a sociomedical formulation. *American Journal of Sociology, 84,* 175–1200.

Schwab, J. (1979). *Social order and mental health: The Florida health study*. New York: Brenner/Mazel.

Srole, L., Langner, T. S., Michael, S. T., Kirkpatrick, P., Opler, M., & Rennie, T.A.C., (1977). *Mental health in the metropolis: The Midtown Manhattan study*, (rev. ed.). New York: Harper & Row.

Tausig, M. (1982). Measuring life events. *Journal of Health and Social Behavior, 23,* 52–64.

Turner, R. J. & Wagenfeld, M. O. (1967). Occupational mobility and schizophrenia: An assessment of the social causation and social selection hypotheses. *American Sociological Review, 32,* 104–113.

Wheaton, B. (1978). The sociogenesis of psychological disorder: Reexamining the causal issues with longitudinal data. *American Sociological Review, 43,* 399.

Wheaton, B. (1980). The sociogenesis of psychological disorder: An attributional theory. *Journal of Health and Social Behavior, 21,* 100–124.

Wheaton, B. (1983). Stress, personal coping resources, and psychiatric symptoms: An investigtion of interactive models. *Journal of Health and Social Behavior, 24,* 208–229.

Footnote

1. Furthermore, it becomes understandable why such nominal to moderate relationships are found when only one hypothesis or the other is examined separately in spite of the relatively high overall correlations found when the relationship is examined in cross-sectional data. For instance, a 0.62 overall relationship between two variables can be accounted for in a recursive relationship in which the two directional relationships each have a 0.50 and a 0.40 correlation. See James A. Davis, "The Logic of Causal Order," A Sage University Paper #55, 1985, pp. 66–67.