

## Socioeconomic Position and Major Mental Disorders

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Abbreviation: SEP, socioeconomic position.

### INTRODUCTION

Psychiatric epidemiologists were among the first to use the term "social epidemiology" (1), and the role of the social environment in the etiology and course of major mental disorders continues to be investigated (2–5). A number of reviews published in the late 1990s documented the associations between socioeconomic position (SEP) and specific mental disorders (6–9); in 2003, a comprehensive meta-analysis of the research on SEP and depression (10) concluded that both prevalence and incidence studies show that persons of low SEP (i.e., low educational and low income levels) are at a higher risk of depression.

Here, we examine innovative developments in the study of the associations between SEP and major mental disorders. We use the term "socioeconomic position" for pragmatic and conceptual reasons: 1) it allows us to follow the convention in the first textbook of social epidemiology (i.e., Berkman and Kawachi's *Social Epidemiology* (8)), and 2) socioeconomic "position" is neutral with respect to the relational/ordinal distinction that sets social class apart from socioeconomic status. Thus, the term "socioeconomic position" encompasses both social class (referring to social relations of ownership and control over productive assets) and socioeconomic status (referring to the ordering of persons along a continuum of some valued socioeconomic attribute such as income or education). We focus on the life-course approach (11) taken in studies of the selection-causation issue, using data on ethnic stratification, immigration and schizophrenia, and the long-term impact of early life-course exposures such as fetal stress and childhood poverty. We also highlight new developments in social class concepts and measures that have led to new findings on the effects of SEP, the relative contributions of neomaterial and psychosocial pathways,

evidence on multilevel associations between geographic area SEP and mental disorders, and gender-specific hypotheses. Contrary to the idea that the research on the relation between SEP and mental disorders has been exhausted, these recent innovations are generating promising hypotheses to be tested in future research in upcoming years.

Using multidisciplinary (Current Contents; Thomson ISI, Philadelphia, Pennsylvania) and biomedical (PubMed; National Library of Medicine, Bethesda, Maryland) databases, our review is based primarily on English-language cross-sectional and longitudinal studies published between 1999 and August 2003 that included "social class" or "socioeconomic status" and selected major psychiatric disorders (i.e., schizophrenia, major depression, and anxiety disorders). The period covered was chosen to minimize overlap with previous reviews (6, 7, 9, 12). Disorders were selected on the basis of their prevalence in the population (depression and anxiety) or their centrality to the literature on SEP (schizophrenia, bipolar disorder, and depression).

Evidence on the relation of anxiety disorders to SEP is more limited because the diagnosis has been subject to more fluctuation than that for depression, bipolar disorder, or schizophrenia. For example, the current diagnostic concepts of panic disorder, phobic disorder, and generalized anxiety disorder are new with the 1980 revision of the diagnostic manual of the American Psychiatric Association (13). As a result, few longitudinal studies are available. Prevalence data from the Epidemiologic Catchment Area Study (14–16) consistently suggest that lower socioeconomic status groups have a higher prevalence of panic, all types of phobias, and generalized anxiety disorder. The evidence is less conclusive for obsessive-compulsive disorder. These general findings about socioeconomic status and prevalence were confirmed

in the National Comorbidity Study for generalized anxiety disorder (17), panic (18), and agoraphobia, simple phobia, and social phobia (19). Incidence data from the Epidemiologic Catchment Area Study show that low occupational prestige is a risk factor for panic attacks and panic disorder (20) and that low educational level is a risk factor for agoraphobia (21), social phobia (22), and obsessive-compulsive disorder (23). To our knowledge, there are no population-based incidence data for generalized anxiety disorder.

Since we did not find much innovation in the literature on SEP and anxiety disorders or bipolar disorder, our review focuses on schizophrenia and depression. Because of the breadth of the SEP literature, we have omitted associated work on community integration and the role of access to and utilization of health services in explaining the relation between SEP and the course of major psychiatric disorders (24).

## THE LIFE-COURSE APPROACH

### Schizophrenia

Schizophrenia is considered the most severe and debilitating mental illness. It is characterized by delusions, hallucinations, disorganized behavior, negative symptoms (e.g., flat affect), and social/occupational dysfunction. The relation of SEP to severe mental disorders was the subject of inquiry even a hundred years ago, before the diagnostic distinction between schizophrenia and manic-depressive illness was made (25); research in this area has continued (26–29). Over the years, the literature on schizophrenia has been rich but woefully inadequate on bipolar disorder. Scattered findings show no relation between risk of bipolar disorder and socioeconomic disadvantage as indexed by measures such as income, education, occupation, or area of residence (or a random distribution, as Faris and Dunham (26) concluded). A recent review noted the paucity of research (30). A 1974 review (31) included 17 studies, and all but two (in rural areas) showed a higher risk of schizophrenia for those of lower SEP. A review through 1998, with 13 additional studies, also showed a higher risk (32).

Methodological progress has occurred over these years: the early studies were of prevalence data, later studies used administrative incidence data, and some recent studies have been conducted with large registry systems with data on the SEP of parents or at birth. The theoretical issue has always been whether stresses associated with low SEP increase the risk or whether the occurrence of frank or occult psychosis, or its insidious onset, leads to less-effective performance in the socioeconomic arena and lower SEP—the so-called selection-causation issue (5). Nevertheless, there is no consistent pattern in the literature with regard to the direction and magnitude of socioeconomic differences in schizophrenia.

The latest review (32) was able to determine whether indices of SEP focused on the respondent's SEP or that of the respondent's parents. Studies using the respondent's SEP all reported that schizophrenics had a lower SEP than expected. Of the five studies that used the parents' SEP, three reported a higher risk for those whose parents had a

higher SEP, one reported no difference, and the fifth reported an increased risk for those whose parents' SEP was lower than expected. Since that review was published, three studies have appeared: one showed a higher risk for those whose parents were in a disadvantaged position (33); in two, the findings depended on the measure of SEP used (34, 35). It may be that the finding of high SEP for parents of schizophrenics is explained by earlier treatment (34), but some data suggest that low-SEP schizophrenics are more likely to have positive symptoms, which logically would be expected to be associated with early treatment (36). A recent longitudinal study from the Danish registry helps sort out these complex findings (37). That study found that as many as 19 years prior to treatment, the odds of lower SEP were greater for those who eventually were diagnosed as schizophrenic than for a control population. This study was drawn from the same Danish population as the study by Byrne et al. (35) (albeit with slightly different sample requirements), which found a weak relation of schizophrenia risk to the SEP of parents. Most of the SEP data are consistent with little or no effect of SEP at birth but a gradual onset of subtle educational and occupational disabilities associated with an eventual diagnosis of schizophrenia.

Ethnicity is often defined by a set of cultural patterns (values, beliefs, roles, affective and cognitive styles, and norms), heritage, or ancestry shared by a social group of common national or geographic origin. In many countries, processes of ethnic stratification place disproportionate numbers of persons from some ethnic groups at a substantial social disadvantage. Religion, language, and country of origin, which are ethnic indicators, thus serve as markers for deprived ethnic groups in many national settings (38).

Unlike socioeconomic indicators such as education, occupation, and income, there is no possibility that ethnic status could be determined by schizophrenia or its insidious onset. Seventeen studies conducted prior to 1997 (38) and at least one performed since then (39) have shown a higher risk for deprived ethnic groups in England and the Netherlands, with odds ratios comparing them with the general population ranging from 1.7 to 13.2 (none of the 17 studies adjusted for SEP). Rates of schizophrenia are low in the countries of origin in which these rates have been studied, suggesting that a genetic explanation is unlikely. Rates are high in second-generation immigrants in the ethnically deprived groups, suggesting that the stress of immigration is not the culprit. The possibility of stress to the fetus through cephalopelvic disproportion has been suggested as an explanation, since, compared with the fetus, these mothers tend to have been raised in nutritionally less advantaged environments in their country of origin (40). However, studies show little or no difference between groups in terms of fetal stress (41). It thus appears that something connected to the disadvantaged placement of the group in the society of destination increases the risk of schizophrenia. Building on Murphy's notions of the schizophrenia-evoking role of complex social tasks (42) and work on frontal lobe disturbances in schizophrenia (43), Eaton and Harrison (32) have suggested that the cognitive challenge of formulating a life plan is more difficult for those of a disadvantaged ethnic status, and the difficulty of this task interacts with genetic vulnerability to schizophrenia in

some persons, increasing the risk of schizophrenia for those who are ethnically disadvantaged. This view is consistent with the evidence that persons belonging to deprived ethnic groups are at a greater risk of schizophrenia if they live in neighborhoods with proportionately fewer persons of the same ethnic group (44).

The contrast between SEP results as indexed by typical indicators of socioeconomic status and indicators based on ethnic status is informative. It has sometimes been assumed that the stresses associated with socioeconomic deprivation are equivalent to the stresses associated with ethnic stratification (4). However, apparently the causal factors operate differently for these two aspects of social stratification, because ethnic stratification increases the risk of schizophrenia and SEP does not.

### Depression

The clinical syndrome of depression (i.e., major depressive disorder) includes alterations of mood such as sadness, irritability, despair or loss of motivation or pleasure, and psychophysiologic symptoms involving appetite, sleep, libido, energy level, and psychomotor activity. For persons in the lower social strata, the odds of reporting depression are about 1.81 times higher than for those in the higher social strata, according to a recent meta-analysis focusing on socioeconomic status and depression (10). Analyses that use a life-course approach to examine the higher odds of depression in the lower social strata primarily emphasize the association of SEP with depression over long periods of time, decades, or even generations. This topic is difficult to analyze with cross-sectional research because any differences in the association of SEP with depression across age groups are subject to at least three different interpretations. That is, a change could represent 1) an aging effect that reflects differences due to chronologic age or life stage, 2) a cohort effect that reflects the unique characteristics of a cohort, or 3) a period effect that influences all people who experience a historical event. A better design for disentangling these effects is a longitudinal design that includes repeated measures of SEP and depression. Here, we review selected studies based on such data sets (for a list of the most longitudinal data sets that would potentially be suitable for life-course analysis of SEP and mental health, refer to Eaton et al. (12)).

To date, two questions have motivated much of the research on SEP and depression over the life course. The first is the causal direction between SEP and depression. Their association can represent either an influence of SEP on depression, to the extent that the greater prevalence of adversity and stress in the lower social strata fosters psychopathology, or an opposite influence, to the extent that depressive illness leads to downward mobility or impairs upward mobility. Theoretically, this question is important in determining whether studies of the association between SEP and depression are seeking to identify risk factors for depression in instances of lower SEP (such as unemployment, death of a loved one, or financial trouble (45)) or to identify factors that influence SEP.

Analytically, the question is important in determining whether SEP should be treated as an independent variable and depression as a dependent variable, or vice versa. In terms of policy, the question is important in determining whether intervention and prevention efforts should target socially based adversities that foster depression (e.g., poverty) or focus on protecting persons with mental illness from downward social mobility (e.g., by increasing access to treatment and services, reducing employment discrimination and social stigma, and favoring community integration). Most longitudinal analyses focusing on this question suggest a causal direction from SEP to depression (and anxiety). One of the first longitudinal studies to support social causation was the analysis by Wheaton (46). Recent longitudinal studies that include analyses of data from Britain (47), New Zealand (48), and the United States (49, 50) continue to support the causation interpretation, using standard methodologies. Some analysts have attempted to assess causation and selection by using cross-sectional designs that ask respondents to retrospectively report their mental states many years before the date of survey, but the results from these studies are questionable in light of the finding that retrospective reports are subject to substantial recall bias (51).

A second question in recent life-course studies is whether the higher rates of adult depression (and anxiety) observed in the lower social strata reflect influences that took place earlier in the life course, in adolescence, or in earlier stages of adulthood or whether they reflect contemporaneous influences. This question is of theoretical importance in order to determine whether SEP plays an etiologic role in the development of long-lasting depression. Analytically, the answer to this question will help determine whether studies intended to identify factors that lead to an association of SEP with depression and anxiety can reasonably use a cross-sectional research design—which would be appropriate if the association reflects contemporaneous influences—or instead require longitudinal studies with good information on past events.

In terms of policy, this question is important in determining whether intervention programs aimed at reducing the negative influence of socioeconomic adversity on adult health should target its influences earlier in the life course. Available evidence indicates that the association of socioeconomic status with adult depression and anxiety reflects *both* short-term influences operating in adulthood and long-term influences rooted in previous life stages. One of the best studies to address this question used the 1958 British birth cohort survey, which collected information on more than 10,000 subjects at birth and at ages 7, 11, 16, 23, and 33 years. Using these data, Power et al. (47) showed that factors measured at age 7 years reduced the association of SEP with depression and anxiety symptoms at age 33 years by as much as 25 percent. These factors included the child's academic ability and parental interest in the child's education. At the same time, the study found that the association of SEP with adult depression also reflected adult-specific factors such as financial hardship and job insecurity. Other analyses have also shown that the association of SEP with adult depression (and anxiety) reflects factors that stem from previous life

stages (48, 52–54) as well as contemporaneous influences (55–57).

### SOCIAL CLASS CONCEPTS AND MEASURES

Interest in social epidemiology has brought to the forefront of the discipline various models and measures of SEP (8). They include the conceptual and empirical separation of social class, understood as a social relation linked to the production of goods and services (e.g., owner, self-employed, worker; manager, supervisor, nonmanagerial employee) (58, 59), from socioeconomic status, understood as the location of persons along a continuum of economic, political, or cultural attributes (e.g., income, educational achievement, occupational prestige).

Several recent studies have tested the potential power of social class measures and models to predict mental health outcomes (60–65). Two findings have emerged from this research: 1) social class and socioeconomic status models lead to different hypotheses regarding the relation between SEP and mental disorders, and 2) measures of social class and socioeconomic status are not empirically equivalent. One study (62), for example, found a small overlap between socioeconomic status and social class measures, but the association between social class and depression, as assessed by the Research Diagnostic Criteria (66), could not be accounted for by socioeconomic status (i.e., education and occupational prestige). This set of specific diagnostic criteria was developed for a selected group of functional psychiatric disorders and is intended to solve a major problem in psychiatric research, namely, the low reliability of psychiatric diagnoses.

Two studies found initial evidence of a nonlinear relation between social class and mental health, as would be predicted by social class models but not by socioeconomic status models (63, 65). Following a “contradictory class location” hypothesis (67), Muntaner et al. (63) found that low-level supervisors (who do not have policy-making power but can hire and fire workers) have higher rates of depression and anxiety than both upper-level management (who have organizational control over policy and personnel) and front-line employees (who have neither). The “contradictory class location hypothesis” stems from Wright’s model of class relations that includes control and authority relations in the workplace, that is, control over organizational assets (67). Control over organizational assets is determined by the possibility of influencing company policy (i.e., making decisions regarding the number of people employed, products or services delivered, amount of work performed, size and distribution of budgets) and by sanctioning authority over others in the organization (granting or preventing pay raises or promotions; hiring, firing or temporarily suspending subordinates). The repeated experience of organizational control at work would protect most upper-level managers against mood and anxiety disorders. Low-level supervisors, on the other hand, are subjected to a “double exposure”: the demands of upper management to discipline the workforce and the antagonism of subordinate workers, while exerting little influence over company policy (67). This “contradictory class location” may place supervi-

sors at greater risk of depression and anxiety disorders than either upper management or nonsupervisory workers. On the other hand, a socioeconomic status hypothesis would have predicted a lower rate of mental disorders among supervisors because they have higher pay, power, and prestige than nonmanagerial workers do. Nevertheless, the literature on social class and major psychiatric disorders still lacks evidence of pathways linking class position to depression and anxiety disorders.

### “NEOMATERIAL” VERSUS “PSYCHOSOCIAL” MECHANISMS

Publication of Richard Wilkinson’s *Unhealthy Societies* (68) sparked controversy regarding the relative importance of “neomaterial” determinants (contemporary physical or biologic risk or protective factors) and “psychosocial” determinants (e.g., perceptions of relative standing in the income distribution) of SEP gradients in health in wealthy countries (69–76). Neomaterial indicators of SEP (e.g., owning a car, owning a house, indices of deprivation) have recently been incorporated in the social epidemiology of mental disorders, particularly in the United Kingdom (77–82). For example, in a national survey of households in the United Kingdom, Lewis et al. (78, 79) found an independent association between housing tenure, access to a car, and neurotic disorder (a category encompassing some forms of anxiety disorders) and depression. In addition, an analysis of the British Household Panel Survey found that a low material standard of living (including living in a rented accommodation and having no access to a car or van) was associated with a risk of depression and anxiety disorders (77). A geographic area (i.e., an electoral ward in the United Kingdom) deprivation index, including housing tenure and car ownership, has been associated with the prevalence of depression. Although deprivation indicators suggest that absence of material goods increases the risk of psychiatric disorders, the research has yet to uncover the specific mechanisms linking material factors to depression or anxiety. On the other hand, a number of studies have provided cross-sectional and prospective evidence of the association of psychosocial factors (e.g., perceived job demands, perceived financial hardship) with depression, symptoms of depression, and anxiety disorders (77, 83–86). A common limitation of both “material” and “psychosocial” studies is overreliance on self-reported measures of depression and anxiety and infrequent use of diagnostic interviews to assess mental disorders.

In spite of this prolific debate, the argument that “material” (i.e., physical, chemical, or biologic) exposures are more relevant than psychological pathways in explaining the association between SEP and most mental disorders (e.g., depression) seems less plausible than for other illnesses. Although material exposures related to material deprivation, such as viral exposure brought on by household crowding, could explain the association between SEP and schizophrenia, mood disorders such as depression are clearly affected by sociopsychological risk factors that cluster among persons of low SEP (e.g., job insecurity, interpersonal violence, humiliation, stressful life events).

**TABLE 1. Multilevel studies on socioeconomic position and mental health**

Study, year (reference no.)	Design	Instrument	Socioeconomic position indicator/index	Geographic area	Country	Was area's lower socioeconomic position or greater inequality associated with mental disorder?
Ross, 2000 (94)	Cross sectional	CES-D Scale*	Disadvantage	Census tract	United States	Yes
Rasul et al., 2001 (97)	Cross sectional	GHQ*	Deprivation	Not reported	United Kingdom	Yes
Yen and Kaplan, 1999 (92)	Longitudinal	CES-D Scale	Poverty	Multiple census tracts	United States	Yes
Reijneveld and Schene, 1998 (90)	Cross sectional	GHQ	Deprivation	Boroughs	Netherlands	No
Driessen et al., 1998 (91)	Longitudinal	Nonpsychotic and nonorganic diagnoses	Deprivation	Neighborhoods	Netherlands	Yes
Sturm and Gresenz, 2002 (87)	Cross sectional	CIDI*	Income inequality	Metropolitan areas	United States	No
Gresenz et al., 2001 (101)	Cross sectional	CIDI	Income inequality	Metropolitan areas	United States	No
Silver et al., 2002 (100)	Cross sectional	DIS*	Disadvantage	Census tracts	United States	Yes
Fiscella and Franks, 2000 (96)	Cross sectional	CES-D Scale	Income inequality	US states	United States	Yes
Weich et al., 1998 (77)	Cross sectional	GHQ	Income inequality	Region	United Kingdom	Yes
Weich et al., 2003 (98)	Cross sectional	GHQ	Deprivation	Electoral wards	United Kingdom	Yes
Kahn et al., 2000 (95)	Cross sectional	GHQ	Income inequality	US states	United States	Yes

\* CES-D Scale, Center for Epidemiologic Studies Depression Scale; GHQ, General Health Questionnaire; CIDI, Composite International Diagnostic Interview; DIS, Diagnostic Interview Schedule.

## MULTILEVEL MODELS

The study of the associations between contextual SEP (e.g., the poverty rate or income inequality of a respondent's area of residence, neighborhood, or city) and mental health is a growing area of social epidemiology (87–101). These studies as a whole, across all areas of inquiry, have expanded exponentially since the mid-1990s and have begun to make significant contributions to our knowledge about the direct association of area-level SEP with health outcomes (even after accounting for individual SEP) as well as the potential for area-level SEP to modify the association between individual-level risks and individual health status (refer, for example to O'Campo et al. (102)). Although studies to date in the area of mental health have been descriptive or exploratory, findings on associations between residential poverty (e.g., indices of deprivation, disadvantage or poverty rate indicators) and mental health are consistent across type of study, country, level of aggregation, and outcome (table 1). Although stronger in design, only two studies have been longitudinal (Yen and Kaplan's analysis of the Alameda County cohort (92) and Driessen et al.'s study (91)). Income inequality studies have produced less consistent findings, with two out of five studies reporting no association between income inequality and depression or anxiety (table 1).

## GENDER-SPECIFIC STUDIES

Rates of major mental disorders have been examined extensively by gender. Compared with men, women have been shown to be at two times or more the risk of depression and anxiety disorders (103–105). Most of the research on mental disorders among women, or that comparing men with women, has focused on depression; relatively few studies have looked at anxiety. SEP, as measured in a variety of ways, has been consistently demonstrated to be inversely related to the risk of anxiety and depressive disorders among women (106–108). However, studies of SEP and depression among women have focused exclusively on status measures—educational attainment, occupational ranking or income; no known studies have examined the associations of social class with depression and anxiety among women.

Recent studies of mental disorders among women have extended previous reports on SEP, stress processes, and the role of social support in explaining the higher prevalence of depression among women compared with men. The studies of women continue to find that low SEP (poverty, low income) increases the risk of depression (109). Low-income samples of women continue to show higher rates of depression than samples of women with higher incomes or the general population of women (110–114). Recent studies of samples of women of mixed socioeconomic standing have reported that factors such as financial strain and level of debt

are associated with higher rates of depression among women (83, 109, 115). Hence, SEP has been shown to be associated with a higher risk of depression among women.

Recent studies of SEP and gender also confirm that, compared with men, women are at a higher risk of depression and depression persistence, in part because of their lower socioeconomic standing and higher exposure to stressors (e.g., higher relative levels of the “double burden” of home and work stress or negative residential environments) (116–118). The most recent studies of depression and gender have examined in detail the pathways by which SEP is related to mental disorders among both men and women. Elliott (117) reported that financial strain and neighborhood stressors mediated the relation between SEP and depression among men and women, but women were exposed to greater stress than men in the sample. Researchers have also begun to examine area-level socioeconomic characteristics in relation to the mental health of women (95). For example, Kahn et al. (95) found that, in a national sample, women residing in states with the highest levels of income inequality (highest quintile) had substantially higher rates of depression than women living in states with the lowest quintile of income inequality. Moreover, rates of depression among low-income women were affected by levels of income inequality at the state level: low-income women residing in high income inequality states had higher rates of depression than low-income women residing in low income inequality states (95).

Despite heightened awareness of the potential severity of postpartum depression, relatively few recent studies have focused on this problem. Among these few, Seguin et al. (119) found that new mothers of low SEP had higher rates of postpartum depressive symptoms at 2 months postpartum when compared with women of high SEP. This finding may in part have been due to the smaller social networks providing emotional support for low-income women.

## FUTURE DIRECTIONS

### The life-course approach

A general consensus is beginning to form on the “selection-causation” issue and early life-course SEP influences on mental disorders. The consensus in the field is that the association of socioeconomic status with depression is due almost entirely to social causation, whereas the inverse association of socioeconomic status with schizophrenia almost certainly includes a role for selection. Of course, given the overall paucity of data, more analyses are needed to bolster or challenge this consensus and to determine the extent to which the conclusions from existing studies are replicable across different cultures and different historical periods. However, eventually the marginal benefit from pursuing these questions further will be outweighed by the benefit of pursuing new questions about the association of socioeconomic status with mental health over the life course.

One question that has not yet been examined closely is the persistence of excess mental illness in lower-SEP cohorts as they age. We do not know whether these are a subset of persons who experience chronic mental disorders over the life

course or whether this excess represents an ever-changing group of persons, as some develop mental disorders while others recover from them. The question is important in determining whether SEP places only a small group at risk of mental disorders or affects a much larger number of persons (120). It is particularly relevant for understanding the role of SEP in the onset of depression among women during adolescence. The answer to this question is also relevant for deciding whether a single assessment of mental disorder at one point in time is sufficient to identify those persons who represent a cohort’s excess of mental disorders in the lower social strata over the entire life course. In terms of policy, the question is important in determining whether a program that treats persons with mental illness in the lower social strata early in the life course can be expected to have lasting effects or whether new subsets of persons in the same cohort can be expected to develop new cases of mental disorders over time. As with most questions concerning the association of SEP with mental disorders over the life course, the answer to this question will require longitudinal studies with repeated measures of SEP and mental disorders.

### Social class concepts and measures

To establish social class as a distinct social mechanism, we need additional evidence from longitudinal data, examination of mediating pathways (e.g., work organization, material deprivation), recruitment of a wider range of class positions, and measurement of household social class (121) to account for weaker associations among women. We also need assessment of intergenerational class mobility as well as childhood class positions (122).

### Neomaterial versus psychosocial mechanisms

Even in prospective studies that take into account reverse causation, it is difficult to rule out the possibility that features of the material environment (i.e., physical and biologic exposures) are confounded by a respondent’s perceptions (74, 123). However, the reported associations of job insecurity or remaining in a downsized organization with symptoms of anxiety and depression suggest that psychosocial exposures can have independent effects on psychiatric disorders (124, 125).

### Multilevel studies

Researchers have tested few mechanisms to explain how contextual SEP might affect a person’s risk of mental disorders. In that respect, Weich et al.’s (99) finding that income inequality was associated with symptoms of depression among affluent persons suggests the need to expand mechanism-driven hypotheses in future studies. The emergent area of multilevel studies of mental disorders would also benefit from more longitudinal designs to establish causality.

### Gender-specific studies

Gender inequalities (organizational gender inequality, gendered occupations, wage inequality) represent a substan-

tial source of socioeconomic inequality (126), but relatively few studies have examined socioeconomic inequality in relation to gender and gender differences in mental health. One of the methodological challenges that must be addressed in future mental health research in this area is that different measures of SEP (e.g., income vs. education) may not perform consistently for men and women (127). For example, Mathews et al. (127), using a national British sample, examined the relation among income, education, gender, and psychological distress (using the Malaise Inventory of psychological and somatic symptoms). The relation between SEP and mental health for men and women differed by choice of SEP indicator and by life stage (age 23 or age 33 years). This pattern of differential associations for varied measures of SEP by gender is not unique to mental health but has been demonstrated for other health outcomes (e.g., lung cancer and overweight (128)) and should be addressed in future studies concerned with gender and mental health. Moreover, studies on policies that alleviate poverty among women and their impact on mental disorders are needed to document the impact of contemporary social policies (129). In particular, there are few studies of the mental health impact of housing policy, child care policy, wage ordinances, and social services among low-income women (130–132).

## CONCLUSION

Research on SEP and major mental disorders continues to furnish new findings and hypotheses. Recent innovations include use of large administrative databases, ethnic stratification, and migration hypotheses in schizophrenia research; adoption of the life-course perspective (e.g., early life-course hypotheses involving fetal stress mechanisms and early childhood exposures); development of theory-based social class indicators yielding to distinct findings and explanations from traditional socioeconomic status indicators; uncovering of material and psychosocial pathways leading to mental disorders; evidence of contextual effects and multilevel mechanisms at different levels of geographic aggregation; and gender-specific findings involving household labor, financial strain, neighborhood factors, and postpartum depression. These innovations, added to a greater focus on mental health assessment (e.g., diagnostic interviews, disorder subtypes, comorbidity) and determinants of persistence (e.g., access and utilization of mental health services, community integration), are likely to fuel further research on the relation of SEP to major mental disorders in the upcoming years.

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