

## Chapter 2

# On the Stress Process as Mechanism in the Social Distribution of Mental Disease: Community Studies

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*This chapter examines the hypothesis: that the stress process model—exposure to stress and coping resources—accounts for an important amount of the difference in observed depression across individuals. Based on a more comprehensive effort to estimate stress exposure than has been typical, data are presented that challenge the prevailing view that differences in exposure to stress are of only minimal significance for understanding variations in mental disease. The findings suggest that differences in stress exposure, like differences in vulnerability to stress, offer appropriate targets for prevention and intervention efforts. They further suggest that targeting research interventions to stress exposure or psychosocial resources may influence some status differentials in depression, such as social class and marital status, more than others.*

Convincing evidence of an association between mental health and various social statuses has been available for nearly half a century. Perhaps the most persistent and provocative associations link low socioeconomic status (e.g., Dohrenwend & Dohrenwend, 1969; Gurin, Veroff, & Feld, 1960; Hollingshead & Redlich, 1958; Srole et al. 1961) and being unmarried (e.g., Gove, 1972; Gurin et al., 1960; Farina, Garmezy, & Barry, 1963) with increased risk of both psychological distress and serious psychiatric disorder. More recently the relationship between gender and psychological distress and disorder has received considerable attention (e.g., Al-Issa, 1982; Nolen-Hoeksema, 1987; Weissman & Klerman, 1977).

It has long been assumed that these links hold an important etiologic message, but the nature of this message has been much debated. Since Faris and Dunham's (1939) pioneering work on class and mental illness, it has generally been acknowledged that social epidemiologic observations must be interpreted according to one of two hypotheses—social causation or social selection (Dohrenwend & Dohrenwend, 1969; Turner & Wagenfeld, 1967). The question is whether and to what extent these relationships arise from variations in the environmental experience of individuals differently situated in the social system or whether they reflect the workings of a quasi-open society that sorts individuals into different locations on the basis of physical and mental health, level of social competence.

Prior to the “stress process model,” recent life events were a primary focus of research on social contingencies in mental health. Life stress, thus measured, had been repeatedly associated with physical and mental health (Dohrenwend & Dohrenwend, 1974; Jemmott & Locke, 1984; Jenkins, 1976), leading to the hypothesis that the elevated levels of psychological distress and disorder observed among lower status subgroups might be attributable to greater exposure to stressful life events (Dohrenwend & Dohrenwend, 1969; Kohn, 1972). The plausibility of this appealing hypothesis rests on the assumption that variations in social stress influence well-being rather than the reverse. While mental health status may be a risk factor for eventful stressors (Turner & Noh, 1988), it is clear that at least a substantial portion of the causation goes from social stress to mental health status (Thoits, 1983). In addition, SES-- and perhaps other risk factors such as gender, age, and marital status-- may matter for mental health partly because of associated differences in the nature and availability of social and personal resources that are relevant for either instrumental or social-emotional adaptation.

Despite large literatures suggesting the health significance of social stress and of certain social and personal resources (e.g. Turner and Roszell, 1994; Vaux, 1988), surprisingly little is known about the social distribution of these variables. As Pearlin (1989) has persuasively argued, there are grounds for assuming that variations in exposure to stressors and in the availability of social and personal resources arise substantially out of contemporaneous and developmental conditions of life. To the extent that important differences in such conditions are effectively delimited or defined by one's socioeconomic, marital, gender and age statuses, it would follow that the well-established relationships between these statuses and mental health may arise, at least in part, from differences in these particular risk and protective factors. *The potential practical significance* of the research is that reductions in stress exposure and enhancements in social and personal resources arising from patterned group differences in social experience may be socially or programmatically modifiable, and thus represent promising targets for prevention and intervention efforts.

## **The Stress Process Model of Mental Disease**

### **Stress Exposure**

Although the health relevance of social stress seems generally accepted, this relevance is often perceived as minor in understanding variations in emotional health and well being. This perception appears to derive from the interpretation of two types of evidence: (1) that observed correlations between life event checklist scores and various indices of mental health suggest that the variance accounted for by differences in stress exposure has little practical significance (Rabkin & Struening, 1976; Thoits, 1983); and (2) that differential exposure to stressful life events is substantially less important than differential vulnerability to stress in determining the relationships between psychological distress and social class, sex, and marital status (Kessler, 1979; Kessler & Cleary, 1980; see also Aneshensel, 1992; Thoits, 1987).

While these observations have encouraged efforts to understand the origins of differential vulnerability, a less positive consequence has been the widespread belief, or habit of thought, that social stress is of only minimal mental health significance. It is contended that the hypothesis that social stress is an important determinant of mental health status has never been effectively tested because variations in stress exposure have never been adequately measured. If this is correct, the question of the relative contributions of exposure and vulnerability differences has not yet been answered because unmeasured differences in stress exposure across statuses may parade within research findings as vulnerability differences.

It appears that further research is required before a defensible judgment can be reached on the mental health significance of social stress. However, additional research is unlikely to constitute an advance unless it goes beyond the habit of equating level of social stress with a simple or weighted count from an inventory of recent life events. This chapter summarizes findings based upon research in which stress exposure was estimated much more comprehensively than has been typical.

### **Protective Personal Resources**

Many identifiable personal attributes or dimensions may influence an individual's capacity to cope with environmental demands. Consideration is limited here to the constructs of mastery or personal control and self-esteem, because they have received the most attention.

***Mastery (personal control).*** Of the personal resources studied, stress researchers have by far given greatest consideration to the issue of perceived causal relevance. This construct has been addressed in terms of a sense of powerlessness (Seeman, 1959), effectance motivation (White, 1959), locus of control (Lefcourt, 1976; Rotter, 1966), personal control (Bandura, 1977; Gurin, Gurin, & Morrison, 1978), helplessness (Seligman, 1975; Seligman & Maier, 1967), hopelessness (Abramson, Alloy, & Metalsky, 1989), mastery (Pearlin & Schooler, 1978), and fatalism (Wheaton, 1983). Each of these terms label the same basic attribute. They are thus largely interchangeable, and a few definitions can serve for present purposes. Mastery, according to Pearlin and Schooler, "concerns the extent to which one regards one's life-chances as being under one's own control in contrast to being fatalistically ruled" (p. 5). Wheaton defines fatalism as "a tendency to believe in the efficacy of environmental rather than personal forces in understanding the causes of life outcomes" (p. 211).

There are a number of bases for hypothesizing the mental health significance of mastery. Variations in mastery may affect the number and type of potentially stressful events and circumstances the individual confronts. Since differences in the sense of mastery must be, at least substantially, a product of one's history of successes and failures in social and environmental encounters, this sense must also reflect at least gross differences in social and instrumental effectiveness (White, 1959). Accordingly, individuals high in mastery may avoid or prevent the occurrence of some potentially stressful events and circumstances. Moreover, assuming an individual's appraisal of an event depends on the perception of ability to manage or adapt to the situation, those high in mastery may experience fewer life events or circumstances as problematic.

A sense of personal agency is also believed to be important because of its implications for the initiation and persistence of efforts to resolve problematic situations. Mirowsky and Ross (1989) and Ross & Mirowsky (1989) suggest that a sense of control reduces depression because it encourages active problem solving, whereas powerlessness is both demoralizing in itself and decreases effective coping. The consequence is increased vulnerability to the deleterious effects of environmental stressors. Similar conclusions have been drawn from studies of self-efficacy (Bandura, Adams, Hardy, & Howells, 1980) and fatalism (Wheaton, 1983). Whatever the mechanisms, evidence allows the conclusion that a greater sense of mastery is associated with reduced risk of psychological distress and depression, with or without exposure to life stress (Pearlin & Schooler, 1978; Pearlin et al., 1981; Turner & Noh, 1983, 1988).

***Self-esteem.*** Self-esteem is "the evaluation which the individual makes and customarily maintains with regard to himself or herself: it expresses an attitude of approval or disapproval toward oneself" (Rosenberg, 1965, p. 5). The process of forming self-esteem involves "reflected appraisal," "social comparison," and "self-attribution" (Rosenberg, 1986). Reflected appraisal involves people's interpretation of how they are viewed by others, while social comparison holds that "in the absence of objective information about themselves people judge themselves on the basis of comparison with others" (Rosenberg, Schooler, & Schoenbach, 1989, p. 1006). Self-attribution refers to the tendency to draw conclusions about oneself from observing one's own actions, including the success or failure of efforts. Presumably, the stability and extent of self-esteem are determined by one's cumulative reflected appraisals, social comparisons, and self-attributions.

The apparent relevance of social support and personal control for self-esteem should be noted. Cobb (1976) described social support as consisting of information leading individuals to believe that they are loved and wanted, valued and esteemed, and able to count on others should the need arise. Thus, reflected appraisal represents an element of both social support and self-esteem, and experiences that affect one of these constructs must also be relevant for the other. Moreover, there is basis for assuming a degree of reciprocal causation. Surely the experience of being supported by others contributes to more stable and positive self-esteem, while one's level of self-esteem must set broad limits on the level of perceived social support. Individuals vary in their tendency or capacity to derive meaning and sustenance from a given amount of positive regard and affection. Some cannot seem to incorporate messages of social and emotional support no matter how frequently or clearly they are delivered. Self-esteem presumably contributes to such differences in receptiveness, because one's capacity to experience the esteem of others must require some minimal degree of esteem of self.

The connection between self-esteem and personal control seems equally fundamental. Since the principles of self-esteem formation include self-attribution, one's history of success and failure in social and environmental encounters that underlie personal control is also crucial for self-esteem. The now common view that self-esteem is based, in part, on mastery (Gecas & Schwalbe, 1983; Pugliesi, 1989) was emphasized by Ryan (1967), who suggested that self-esteem differences represent a significant element in the link between poverty and mental health problems and that the experience of oneself as at least minimally powerful is a prerequisite for self-esteem.

The argument that self-esteem is contingent on some level of experienced self-efficacy is compelling, given the difficulty of imagining an attitude of self-value and approval in the context of a belief in one's causal irrelevance. Thus, positive and stable self-esteem may have mediating functions similar to those of mastery (i.e., affecting the number and type of potentially stressful events and circumstances confronted, efforts to resolve problematic situations, and resiliency in the face of challenge), and may also have implications for other psychosocial resources such as social support and personal control. Kaplan (1975, 1980) reviewed evidence that suggested a relationship between self-esteem and problems such as alcoholism, drug abuse, aggressive behavior, and suicidal behavior (Kaplan, 1975), as well as depression (Kaplan & Pokorny, 1969). Research has continued to accumulate indicating a significant inverse correlation between self-esteem and depressive symptomatology (Pearlin & Lieberman, 1979; Rosenberg, 1985; Wylie, 1979) and suggesting that low self-esteem represents a vulnerability factor in the presence of stress generally (Brown, 1987; Brown, Harris, & Bifulco, 1986) and unemployment specifically (Kessler, Turner, & House, 1988; Shamir, 1986).

Despite the evidence for a linkage between esteem and distress, especially depression, the conclusion that low self-esteem represents a risk factor for depression, rather than the reverse, requires consideration. In our view, evidence from longitudinal studies and studies that have suggested a differential relationship between esteem and depression depending on stress level makes it unlikely that the causality goes entirely from depression to self-esteem. Rosenberg et al. (1989) directly tested this issue. They applied linear structural equation reciprocal effects analysis to data from a two-wave panel study that examined self-esteem and depressive symptomatology in adolescent boys. The data revealed compelling evidence for reciprocal causation. Interestingly, stronger relationships were found among subjects from lower SES than among subjects from higher SES. Thus, it seems safe to conclude that some important part of the causation involved in the self-esteem–depression relationship goes from esteem to depression and that self-esteem may be especially significant among the disadvantaged and in high-stress circumstances generally.

## **Protective Social Support Resources**

Social support has become a popular and important construct within mental health research. Indeed, as Veiel and Baumann (1992) noted, “measured by both its impact on current thinking concerning the social etiology of mental and physical disorders, and by the sheer volume of publications, social support has joined stress and coping as one of the three most important constructs in current mental health research” (p.1).

Social support phenomena clearly involve objective (actual events and activities) as well as subjective elements, and an understanding of the significance of social institutions and contexts requires consideration of social networks and resources along with perceived social support (Pearlin, 1989). However, the bulk of evidence pointing to the mental health significance of social support has come from studies of perceived social support (e.g., House, 1981) and there is specific evidence for the primacy of perceived over received support in buffering the effect of stressful events (Wethington and Kessler, 1986).

An ever-growing literature leaves little doubt that perceived social support is importantly associated with emotional well being (e.g., Cohen & Syme, 1985; Cohen & Wills, 1985; Dean & Lin, 1977; Gottlieb, 1981; Kessler, Price, & Wortman, 1985; Sarason & Sarason, 1985; Turner & Noh, 1983; Vaux, 1988; Veiel & Baumann, 1992). Moreover, combined evidence drawn from laboratory animal studies, experimental human studies, and longitudinal field studies clearly supports the contention that part of the causation in the connection between social support and mental health goes from support to mental health (House, 1981, 1987; Turner, 1983).

## **Links Between Social Status and the Stress Process Model**

### **The Social Distribution of Stress Exposure**

Despite the plausibility and long-term prominence of the stress exposure hypothesis and the support of demographic evidence (Kohn, 1973), Thoits noted long ago (1982, p.341) that “very little research has focused on the distribution of stressful life events or on ongoing strains among socio-demographic groups.” Developments since that time appear to correspond with Menaghan’s (1990, p. 1008) observation that “stress research has emphasized the efforts that individuals can make to ward off distress or disturbance, but has paid much less attention to socially structured variations in exposure to stressors.”

Nevertheless, a number of investigations have reported findings on the distribution of social stress, at least as indexed by life events. However, this body of evidence allows few confident conclusions. Although several studies have reported that lower status individuals experience more events than those of higher status (Brown & Harris, 1978; Dohrenwend, 1970, 1973; Eckenrode & Gore, 1981; Kessler, 1979), several others have yielded contradictory findings (Dekker & Webb, 1974; Markush & Favero, 1974; Myers, Lindenthal, & Pepper, 1974; Uhlenhuth & Paykel, 1973). Similarly, highly inconsistent observations have been reported in relation to gender, leading Thoits (1982, p. 342) to assert that “...no firm conclusions can be drawn regarding the differential occurrence of events by sex.” Much more consistent results have emerged in relation to both age and marital status. Younger subjects tend to experience more events than older adults (e.g. Dekker & Webb, 1974; Eckenrode & Gore, 1981; Markush & Favero, 1974; Pearlin & Liebermann, 1979) and the unmarried report the occurrence of more undesirable events than do the married (e.g., Brown & Harris, 1978; Eckenrode & Gore, 1981; Kessler & Essex, 1982).

## **The Social Distribution of Protective Resources**

*Personal resources: Mastery.* The connection between social structure and self-efficacy has been a major topic of sociological research (Gecas, 1989), and when parallel concepts such as mastery, internality, personal control, and fatalism are considered, relationships with socioeconomic status have been consistently observed (Gurin et al., 1978; Mirowsky & Ross, 1983; Wheaton, 1980). Nearly 30 years ago Brewster Smith (1968) offered a crucial insight that bears on the interpretation of this relationship. He argued that attitudes of mastery or self-efficacy are closely and reciprocally linked to a perception of the world as trustable and reasonably fair.

Since the perception of oneself as causally important and effective in the world derives substantially from one's history of success and failure, variations in the responsiveness of the social environment must set broad limits on the acquisition of these attitudes. Thus, as Smith (1968) noted, competence and self-efficacy are differentially distributed in the social system because opportunity, respect, and power--and thus the average responsiveness of the social environment-- are differentially distributed.

An opposing interpretation is that the class-mastery relationship is an artifact of a selection process in which more effective and efficient individuals tend to be born into or achieve higher status than those who are less well genetically endowed. From this perspective the relationship implies nothing about the significance of life conditions and experiences, reflecting instead the consequences of inheritance and social competition for the more favored positions in society.

Kohn and Schooler (Kohn, 1972, 1977; Kohn & Schooler, 1978, 1983) have conducted the most compelling research on this issue. In a series of investigations, they observed a relationship between low-level occupations and conforming orientations that includes "a fatalistic belief that one is at the mercy of forces beyond one's control, often beyond one's understanding" (Kohn, 1972, p. 300). They have shown conclusively that an important part of the causation in this linkage goes from conditions of life, or more specifically from individual conditions of work experience, to conceptions of reality that involve attitudes of self-efficacy. The greater one's opportunity for self-direction on the job and the more substantively complex the work, the more likely one is to value

individual freedom and to possess a sense of personal efficacy. Thus, both theory and evidence support the conclusion that causal agency or mastery represents a personal resource relevant to mental health, that arises at least partly from class structure.

The relationship between mastery and the risk factors of marital status and gender is much less clear. Although some findings suggest higher levels of mastery among married than non-married subjects (Kessler & Essex, 1982; Pearlin et al., 1981), information on this question is scarce. The issue with respect to gender is also far from settled. Most evidence suggesting lower levels of mastery among females comes from studies of children (Block, 1983), although some similar results have been reported for adults (Gurin et al., 1978; Ross, Mirowsky, & Cockerham, 1983). In contrast, Turner and Noh (1988) found no sex differences in mastery scores in any age groups.

Nonetheless, the hypothesis remains tenable that the status of female, like lower class status, defines circumstances in which the environment may be less responsive and, thus, less likely to engender the acquisition and maintenance of a sense of mastery. Such facts as the tendency for women to work in lower level jobs, to experience lower wages for the same jobs, to experience financial strains more often (Madden, 1975; Marini, 1989), and to have less power in marriage (Ferree, 1990)

***Personal resources: Self-esteem.*** As Gecas and Seff (1990) have noted, principles of self-esteem theory lead us to expect a positive relationship between self-esteem and social class. “Those in the higher classes typically have greater power, resources, and prestige, all of which should increase self-esteem . . .” (p. 165). Reviews (Wylie, 1979) and research (Gecas & Seff, 1989, 1990; Kohn & Schooler, 1983; Mortimer & Finch, 1986) have confirmed a moderate positive relationship between self-esteem and social class position.

With respect to marital status, limited evidence suggests that the currently married display higher levels of self-esteem (Kessler & Essex, 1982; Pearlin & Schooler, 1978; Pearlin et al., 1981). If this finding holds through future research, it follows either that individuals with a more developed and positive sense of self-worth are more likely to marry and remain married or that the status and correlates of being married contribute to, or are protective of, self-esteem, or both.

The grounds for anticipating gender differences in self-esteem include its connection with mastery and hence with environmental responsiveness. In addition, considerable literature points to aspects of the socialization process that result in dependency among women “on the opinions and evaluations of others in making their own judgments of how they are doing, that is, in maintaining self-image and self-esteem” (Gore & Colten, 1991, p. 150). This tendency presumably means greater vulnerability to esteem loss among females. A number of studies have found that women tend to report lower self-esteem than do men (Maccoby & Jacklin, 1974; Pearlin & Schooler, 1978; Pearlin et al., 1981), but researchers have not always observed a gender difference (e.g., Zuckerman, 1989). Miller and Kirsch (1987) have concluded that the evidence is weak and inconsistent.

***Social support resources.*** The fact that socioeconomic status tends to be associated with differences in the social environment’s responsiveness, and in socially significant opportunities more generally, suggests that the structures and processes of relationships may also vary systematically across SES categories. However, evidence is sparse and contradictory on the extent to which the structures and processes of relationships, particularly perceived social support, vary by class status. Some data have suggested that lower SES individuals have social relationships of lesser quality (Belle, 1982; Dohrenwend, 1970), but in a large community study, Ensel (1986) reports no class differences in the appraisal of close relationships. Using a reliable two-item measure of perceived social support, Ross and Mirowsky (1989) found mixed evidence with respect to a social support-socioeconomic status connection. With other demographic variables controlled, level of education was positively associated with support, while family income was completely unrelated.

As House (1981) noted, the “minimum condition for experiencing social support is to have one or more stable relationships with others” (p. 29). Marriage is usually such a relationship—one in which normative expectations involve giving and receiving social support. This assumption of marital status differences in social support has led some researchers to use marital status as a complete or partial index of support (e.g., Berkman & Syme, 1979; Eaton, 1978; Gore, 1978; Lynch, 1977). However, evidence to justify this assumption is slim and not entirely consistent. Based on a three-item index of perceived support, Ensel (1986) and colleagues (Lin, Dean, & Ensel, 1986) reported the highest levels of support among both married men and married women. Gerstel, Riessman, and Rosenfield (1985) also reported positive findings. Married men and women reported more confidants and perceived their support resources as more adequate. However, contrary findings have emerged from studies of married urban men (Stueve & Gerson, 1977) and of married nurses (Norbeck, 1985).

Although numerous studies have provided social support data by gender, the question of sex differences in level of support experienced also appears unsettled. Based on a rather complete review of evidence, Vaux(1988) concluded that “empirical findings regarding gender differences in social support are mixed and inconsistent” (p. 169). However, others have read the evidence as indicating that women experience more supportive relationships than men (Flaherty & Richman, 1986; Leavy, 1983;), and in a community study, Ross and Mirowsky (1989) found higher levels of perceived social support among women than among men. But, while women appear to be advantaged in terms of confidants and certain other support resources, many studies report little or no difference by sex in level of perceived social support (e.g., Fusilier, Ganster, & Mayes, 1986; Holahan & Moos, 1982; Turner & Noh, 1988).

Most age-related research in social support has focused on differences in support networks or support resources rather than social support (Vaux, 1988). These studies generally indicate a decline with age in the quantity and quality of available networks and resources (e.g., Fischer, 1982). In contrast, findings on perceptions or appraisals of social support have been inconsistent, with results indicating a decline in support across age (Zautra, 1983), no differences by age (Turner & Noh, 1988; Turner & Wood, 1985), and increases in support with increasing age (Lin et al., 1986). Thus, the connection between age and level of social support remains to be established.

## Population

The data for this chapter derive from interviews conducted in 1990–91 with 1,393 adult residents of metropolitan Toronto. Eligible subjects included all individuals 18 to 55 years of age who were living in their principal residence, fluent in English, and physically and mentally capable of responding to the questionnaire. Since our random sample was of household units, we used the Kish (1965) procedure to ensure the random selection of individuals from sampled households. The resulting unequal probabilities of selection have been corrected for by the application of appropriate weights. Our success rate in interviewing selected subjects was 76%, which we believe allows the assumption of reasonable representativeness.

## Measurement

***Stress exposure.*** Measures included not only stressful life events (Avison & Turner, 1988; Turner & Avison, 1992) but also enduring or chronic stressors (Wheaton, 1991, 1994; see also Turner, Wheaton, & Lloyd, 1995) and major lifetime traumas (Turner & Lloyd, 1995; Turner et al., 1995). Stressful life events were assessed using a 31-item inventory that considered events occurring to significant others as well as to the respondent and that obtained data on both the starting and end dates of reported events. Exposure to enduring or chronic stressors was estimated using Wheaton's 51-item inventory, which provides subjective reports in such areas as ambient stress, financial stress, work stress, marital/relationship stress, and parenting stress. Finally, major traumatic experiences were assessed with a 20-item inventory that distinguished major events that occurred before adulthood (8 items) and those that may have occurred at any time (12 items).

***Personal resources: Mastery.*** Mastery was assessed with a 7-item scale developed by Pearlin and Schooler (1978). For each item, respondents rated themselves on a 5-point scale ranging from "strongly agree" to "strongly disagree." In this study the internal reliability of this measure, estimated by Cronbach's alpha, is .74. Higher scores indicate a greater sense of mastery.

***Personal resources: Self-esteem.*** This resource was measured using a 6-item subset from the well-known scale developed by Rosenberg (1979). Factor analysis confirms a single underlying determinant of responses to these items with loadings ranging from .74 to .51. Chronbach's alpha (.78) also demonstrates a high level of internal reliability; again, higher scores indicate greater self-esteem.

***Social-support resources.*** In selecting measures we recognized the possible relevance of support derived from four sources: spouse/partner, relatives, friends, and coworkers. The experience or perception of being supported was assessed in three of these domains using a reliable modified and shortened version of the Provisions of Social Relations Scale (Turner et al., 1983). Using subsets of items from this scale, we separately assessed the level of support each respondent experienced from husband/wife/partner, from friends, and from relatives. Spouse/partner support data were obtained from married respondents and from those who defined themselves as in a romantic relationship, whether or not they lived with their partner. We used a separate three-item scale to assess coworker support. Each of the four scales shows highly satisfactory internal reliability. The alpha coefficients (Cronbach, 1951) based on the present data are spouse/partner support .83; friend support .94; relative support .94; and coworker support .75.

**Outcomes.** The outcomes measured in the literature on the social distribution of mental illness/mental health and the stress process range from multiple disorders to single disorders, symptoms of disorder, psychological distress variously defined, mental health, and emotional well being. Because of depression's visibility and generalizability within the social epidemiological literature, we use it as an illness outcome of significant interest. Depressive symptomatology is assessed for a 2 week period using the widely used and highly reliable Center for Epidemiologic Studies Depression Scale (CES-D) (Devins & Orme, 1985); Radloff, 1977). Major depressive disorder was defined in terms of the *Diagnostic and Statistical Manual of Mental Disorders*, third edition, revised (DSM-III-R) (American Psychiatric Association, 1987). The occurrence of the disorder was estimated over a 12 month period utilizing the Michigan revision of the Composite International Diagnostic Interview (CIDI) (World Health Organization, 1990), which was developed in a World Health Organization-National Institute of Mental Health Collaborative Project aimed at fostering cross-cultural comparative research (Robins, Wing, Wittchen, & Helzer, 1988). Evidence of inter-rater reliability (Wittchen et al., 1991) and good test-retest reliability (Wacker, Battegay, Mullejans, & Schlosser, 1990) is available, as is evidence for validity based on concordance with clinical diagnoses (Jance, Robins, Cottler, & Early, 1992; Spengler & Wittchen, 1989).

**Socioeconomic and Marital Status.** For reasons detailed elsewhere (Turner & Marino, 1994; Turner et al., 1995), socioeconomic status was operationalized in terms of occupational prestige; the jobs of all employed respondents, including those who were temporarily laid off, and those of married respondents' spouses were coded according to Hollingshead's (1957) seven occupational prestige categories. Unemployed subjects were assigned to the prestige level of their last job. The prestige level of married respondents equaled their own or their spouse's, whichever was higher. While this procedure results in a somewhat elevated class structure, we believe it more adequately estimates each respondent's position in the social hierarchy. To maintain adequate sub sample sizes, subjects in the semiskilled and unskilled categories have been combined. Marital status is defined in terms of three categories: married, previously married (divorced or separated), and never married. Since only 11 widows were encountered, they have been excluded from consideration.

## Results

### The Stress Process and Depression

We sought to test whether the frequently observed relationships between the various elements of the stress process model and mental health status are observed in the present data set. Table 1 presents the results of multiple ordinary least squares (OLS) and maximum likelihood logistic regression analyses assessing the *associations between measured components of the stress process and depressive symptomatology and 1-year major depressive disorder*, respectively.

- The expected relationships are confirmed in these results, leaving little doubt that the stress process is relevant to understanding depressive disorder as well as depressive symptomatology. The fact that nearly 40% of observed variation in *depressive symptomatology* is accounted for by the model suggests the nontrivial nature of these collective risk and protective factors.

While our effort to index *stress exposure* is more comprehensive than has been typical, it clearly falls well short of a fully adequate estimate of variations in social stress. The conclusion does seem warranted, however, that social stress represents a considerably more powerful determinant of health and well being than has generally been assumed in the social psychological literature.

- Note, however, that only two of the three measures of stress exposure used are represented in the table, because once the chronic stress and operant event indices were entered, level of exposure to major life traumas no longer made a significant contribution to the equation.
- Nonetheless, the results are impressive, accounting for 23% of observed variation in depressive symptoms. This finding is nearly 2.5 times the upper range of reports from previous studies that considered only life event scores. (Rabkin & Struening, 1976; Thoits, 1983)

Table 1  
*CES-D Score Regressed on Stress Process Factors*

	$\beta^{**}$	$b^{**}$	$\beta$	$b$	$\beta$	$b$	$\beta$	$b$
Multiple regression, N = 1,369								
Stress exposure								
Chronic stress	.40	3.77*					.24	2.28*
Operant events	.17	1.57*					.16	1.54*
Personal resources								
Mastery			-.27	-.51*			-.21	-.39*
Self-esteem			-.33	-1.07*			-.23	-.76*
Social resources								
Spouse support					-.21	-.27*	-.11	-.14*
Relatives support					-.16	-.23*	-.05	-.07*
Friends support					-.11	-.18*	.00	.00
Coworker support					-.09	-.26*	-.03	-.10
R Squared		.233		.256		.121		.388

*12-Month MDD Regressed on Stress Process Factors*

	$\beta$	$b$	$\beta$	$b$	$\beta$	$b$	$\beta$	$b$
Logistic model, N = 1,369								
Stress exposure								
Chronic stress	.30	.55*					.19	.35*
Operant events	.16	.29*					.15	.28*
Personal resources								
Mastery			-.22	-.08*			-.18	-.07*
Self-esteem			-.19	-.12*			-.12	-.08*
Social resources								
Spouse support					-.20	-.05*	-.12	-.13*
Relatives support					-.18	-.05*	-.10	-.03*
Friends support					.05	.02*	.14	.04
Coworker support					-.13	-.07*	-.09	-.05+
-2 Log Likelihood		868.25		885.76		905.01		821.09

\*\*Beta = standardized regression coefficients; b = unstandardized regression coefficient; \*p < .05

The fact that the impact of cumulative life traumas on depression was mediated through more recent stress experiences and thus not reflected in Table 1 requires elaboration. In this set of analyses, the outcomes were recent depressive symptoms (preceding 2 weeks) and 1-year major depressive disorder-- which here (Turner & Lloyd, 1995) and in general (Kessler & Magee, 1994) turns out to consist largely of recurrent rather than onset cases. *The data direct the attention of interventionists to recent stress-- not only to understand symptoms but even in the presence of a recent major depressive disorder.* However, it also suggests a probable causal path from recalled traumatic experiences during the developmental years through earlier disorder to current stress experiences and symptomology. (Turner & Lloyd, 1995)

## **The Stress Process and the Social Distribution of Depression**

Space limitations do not permit more than a summary of results on the hypothesis that the social distribution of depressive symptoms and major depressive disorder can be accounted for by stress process variables. Both depressive symptoms and major depression were regressed (separately) on the four social risk factors. Measures representing each stress process concept were then added to each equation, first one at a time and then all together.<sup>1</sup>

- Reductions of the regression coefficients of individual risk factor variables, when stress process variables were controlled, indicate that *the social distribution of stress process variables accounted for essentially all (96%) of the variability in CES-D (depressive symptom) scores across occupational level and approximately half of observed marital status score differences, controlling for other risk factor variables.* (Reductions in regression coefficients of both age and sex were small, and the coefficients remained statistically reliable.)
- Logistic regression coefficients indicate that the social distribution of stress process variables accounted for significant variability in MDD (major depression) scores across occupational level and marital status, respectively.

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<sup>1</sup>These analyses included consideration of the nonlinearity of the associations between occupational level and depression and between occupational level and the availability of personal and social resources. To assess whether the significance of personal and social resources for the occupational level-CESD relationship is underestimated by a linear model, three alternatives were considered. The fit of each was examined both in a bivariate regression and in a multiple regression including the other social risk factors. A linear model provides a conservative estimate of the explanatory value of the stress process variables. An analogous set of tests for the assumption of a linear association between occupational level and the log-odds of 12-month Major Depressive Disorder was also conducted. Only one alternative model fit the data significantly better, and this was in the bivariate case where the additive term for the deviant class was included. None of the alternative specifications of occupational level was significantly better in the context of the other demographic risk factors.

**TABLE 2**

**Percent Change in b-Coefficients, with Addition of Stress Exposure (2), Psychological Resources (3), and Social Support (4) Measures to Baseline Social Status Model**

	% Change (M2-M1)/M1 x 100			
	2	3	4	5
OLS Models				
Intercept	-5.85	135.53	37.64	106.09
Female	-16.57	-23.12	16.66	-25.61
Age	-2.25	-27.93	-13.15	-27.22
Age Squared	4.76	-36.55	-16.59	-29.98
Never Married	-13.11	11.41	-152.50	-40.85
Prev. Married	-63.46	6.23	-57.72	-54.31
Occ. Prestige	-42.10	-85.82	-6.91	-96.24
Logistic Models				
Intercept	75.79	-778.67	-218.96	-551.03
Female	-9.05	-15.50	10.91	-20.40
Age	-13.49	5.60	-3.05	-9.92
Never Married	1.15	12.56	-69.81	-21.78
Prev. Married	-95.87	-1.34	-90.84	-120.19
Occ. Prestige	-22.66	-39.64	-1.25	-43.70

When measures of each of the stress process concepts were separately controlled, reduction in regression coefficients and their reliabilities estimated the concept's contribution to explaining the social risk-depression link.

- Stress exposure as well as mediating psychological resources, such as self-esteem and self-efficacy, appear to explain much of the inverse relationship between occupational prestige and depressive *symptoms*, with psychological resources relatively more important.
- Both stress exposure and social support appear to explain a significant portion of the links between marital status and depressive symptoms. However, the absence of social support is considerably more salient to explaining the depressive *symptom* links with both “never married” and “separated/divorced” status, while stress exposure assumes more salience in the separation/divorce links with *symptoms*.
- Psychological resources (self esteem and mastery/self efficacy) reduce most of the inverse and curvilinear links between age and depressive symptoms.
- Interestingly, the coefficients in the logistic regressions of *major depressive disorder on both occupational prestige and marital status*, and their reliabilities, suggest that it is not exposure to stress but psychosocial vulnerabilities that account for these disorder links. Psychological resources again mediate the occupational prestige link, social support the marital status link. However, unreliable trends in the data suggest that both exposure to stress and the absence of social support explain the link between separation or divorce and major depression.

Clearly, different components of the stress process account for different components of the association between social status and depression.

## Discussion

The results summarized in this chapter support a number of conclusions that are suggestive with respect to both future research and future intervention efforts. At the most general level, the “stress process” model appears to specify crucial contingencies of both depression and the status correlates of depression in this Canadian study-community. Exposure to stress, social support, a sense of self-efficacy, and self-esteem emerge as potential targets for intervention efforts. Social support, self-efficacy, and self-esteem are among the factors that have been conceptualized as coping resources and that are seen as defining individual differences in vulnerability to stress.

Recently, both clinical and community researchers have focused on understanding the origins of differential vulnerability, while interventionists have concentrated on decreasing vulnerability through the enhancement of coping resources. While the results presented here support the potential of such efforts, they also call into question the nearly exclusive preoccupation with vulnerability differences that seems to characterize current thinking. Social stress has been shown here to represent a substantially more powerful risk factor for both depressive *symptoms and depressive disorder* than has generally been assumed. As such, there is a need to develop an understanding of the factors that influence or condition exposure to stress and to take seriously the prospect of developing interventions to reduce such exposure. While some stressors are clearly adventitious or fateful in nature, the present data make it clear that other stressors arise from patterned group differences in social experience and thus are likely to be amenable to modification.

Our tendency to ignore these possibilities in our research and intervention efforts may reflect an explanatory habit called “blaming the victim” that Ryan (1971) described nearly a quarter century ago. He noted that social scientists tend to seek explanations for social problems in terms of personal differences between the afflicted and mainstream society. In his words the “...problem is analyzed in such a way that the causation is found to be in the qualities and characteristics of the victim rather than in any deficiencies or structural defects in his environment”(p.262). According to Ryan, even though these characteristics are usually attributed to deficiencies in the social environment and are not seen as the fault of the victims, they are nevertheless defined as problems basically rooted in personal characteristics.

This perspective implies that intervention programs should concentrate on modifying the social, motivational, and behavioral characteristics of the individuals involved-- which well describes most contemporary prevention programs. We are not suggesting that there should be fewer such programs; our demonstration of the significance of psychosocial resources adds further weight to the immense body of evidence testifying to the crucial importance of personal effectiveness and social competence. What is also needed is complementary attention to adverse events and circumstances and to the social, structural, and familial factors that influence the level of exposure to such important risk factors.

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