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STATUS INTEGRATION AND ALCOHOL PROBLEMS IN THE UNITED STATES (STRESS)

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University of New Hampshire PH.D. 1985

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STATUS INTEGRATION AND ALCOHOL PROBLEMS

IN THE UNITED STATES

BY

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A.B., Princeton University, 1977
M.A., University of New Hampshire, 1981

A DISSERTATION

Submitted to the University of New Hampshire
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Doctor of Philosophy

in

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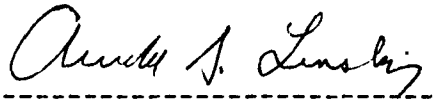
This dissertation has been examined and approved.



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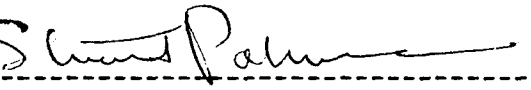

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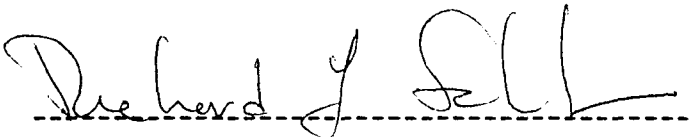

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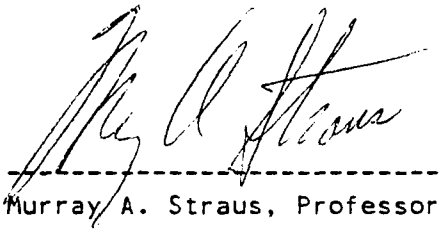

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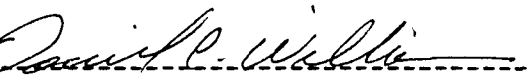

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To Jack and Stell

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ABSTRACT

STATUS INTEGRATION AND ALCOHOL PROBLEMS
IN THE UNITED STATES

by

John Paine Colby, Jr.
University of New Hampshire, September, 1985

This study examines the relation between status integration and alcohol problems in the United States. The study also tests the sociological hypothesis that the level of alcoholism in groups is a function of the extent to which those groups are characterized by norms which encourage or allow drinking and intoxication as means of relieving stress. Measures of status integration (MSI's) are intended as group level indicators of role conflict and indicators of chronic stressful conditions.

The theory of status integration is tested by analyzing the relation of the MSI to alcohol outcomes for the fifty American states through zero-order and partial correlations. To examine the interactive effects of stress and alcohol norms, the fifty states are broken down into quartiles according to their position on an index of alcohol norm content. The index is comprised of four items indicating anti-alcohol sentiments and the level of restrictiveness on the sale and consumption of alcohol for each state. Correlations of the MSI with indicators of alcohol problems

are then replicated for each of the quartiles.

Multiple indicators of drinking problems are employed in this study including measures of heavy drinking (apparent consumption per capita and cirrhosis deaths per 100,000) and arrest rates for alcohol related offenses.

The findings for the fifty states reveal a strong inverse relationship between the level of status integration and heavy drinking. No significant relationship appears between the MSI and alcohol related arrest rates. Tests of the interactive effect of status integration and alcohol norms on drinking problems reveal that: 1) there is a strong inverse relationship between status integration and heavy drinking in permissive but not in proscriptive (i.e., anti-alcohol) states; and 2) there is a strong inverse relationship between status integration and alcohol arrests in proscriptive but not in permissive states. It is suggested that these findings indicate: 1) that members of communities respond to stress in ways that are acceptable to the community; and 2) that agents of social control respond to stress by reinforcing and reemphasizing community values.

CHAPTER I

INTRODUCTION

This study examines the relation of status integration to alcohol problems in the United States. The theory of status integration is part of an area of sociological study that has focused on consistency between statuses. This area of investigation is based on the theory that different status configurations - i.e., combinations of statuses - vary in compatibility, conflict, or stressfulness.

Status integration is essentially a group level indicator of role conflict. The concept of role conflict is based on the notion that two or more roles occupied simultaneously by an individual are in conflict to the extent that conformity to the socially sanctioned expectations of one role entails deviation from the expectations of the other role(s). According to Gibbs, "role conflict stems primarily from the occupancy of incompatible statuses, meaning two or more statuses with conflicting roles" (Gibbs, 1982:228). In the absence of a direct measure of role conflict in groups, measures of status integration (MSI's) are intended as indicators of the extent to which group members occupy incompatible statuses.

The measure is based on the assumption that the rate of occupancy of various status combinations is largely determined by the amount of role conflict inherent in those status combinations. Status combinations characterized by a high degree of role conflict will be less frequently occupied than will more compatible configurations. MSI's, therefore, are based on the actual rates of occupancy of status combinations in populations.

The theory of status integration was originally formulated to explain differences in suicide rates between populations (Gibbs and Martin, 1964). Most subsequent studies of status integration have also used suicide as the dependent variable (e.g., Gibbs, 1982; Stack, 1978; Gibbs, 1969). In effect the theory of status integration and suicide posits that one way in which members of a population vacate statuses with incompatible role demands is by removing themselves from all statuses - i.e., by killing themselves. But what becomes of those who do not vacate their incompatible statuses either through suicide or by more conventional means such as dropping one or more of the incompatible statuses? This is essentially the issue taken up by Dodge and Martin (1970) in their study of status integration and chronic illness. In short their answer to this question is that those who remain in incompatible statuses develop "sociogenic" illnesses at higher rates than do those who occupy more compatible status configurations. In other words, those who endure stress due to incompatible

statuses are more likely to develop and eventually die from stress-related illness than are those far removed from such statuses. Thus far in status integration literature, then, the options for those occupying incompatible statuses are: 1) to vacate one or more of the statuses by changing statuses; 2) to vacate all statuses by committing suicide (Gibbs and Martin, 1964); or 3) to remain in the incompatible statuses and experience a higher risk of stress-related illness (Dodge and Martin, 1970). Not addressed to date have been other possible behavioral outcomes associated with stress. This study is offered as an examination of status integration and behavioral outcomes other than suicide - specifically phenomena associated with the consumption of alcohol.

The theory of status integration may also be particularly appropriate for the sociological study of alcohol problems in other ways. Sociological explanations of alcoholism have emphasized stress-inducing features of cultures or social structures as the major determinants of the level of alcoholism in groups. The most commonly conceptualized sources of stress in sociological literature on alcoholism have been chronic stressors associated with the concept of status. An example of such a conceptualization comes from Robert Bales (1946) in a study which is at the core of sociological theories of alcoholism. One of Bales' three main propositions is that the level of alcoholism in a group is largely determined by social

structural factors which serve to create stress and inner tension for members of that group. This can be referred to as the "stress hypothesis". Bales formulated his theory on the basis of his own study of heavy drinking among men in nineteenth and early twentieth century Ireland. He explained the high rate of alcoholism in that population in terms of a combination of tension and frustration produced by a social structure that denied young men the opportunity for either sexual or status fulfillment - i.e., a form of chronic stress associated with the concept of status.

In terms of the measurement of social stress, status integration could be considered a form of chronic stress. The study of chronic stress is one of the two conceptually different approaches in stress research. The more dominant of the two approaches has involved the study of acute stress as characterized, for example, by the stressful life events school. The general strategy in life events research has been to demonstrate associations between the onset of illness and recent increases in the number of important life events requiring adaptive responses. The more events to which individuals have to adapt, the greater the presumed impact on the onset of illness (Holmes and Rahe, 1967; Dohrenwend, et al., 1978).

Research involving chronic stress, on the other hand, emphasizes ongoing or enduring strains or conditions (such as the occupation of incompatible statuses) that exact a toll over time, not because of new adjustments required but

because of the persistence of noxious or difficult factors in the individual's environment (Pearlin, et al., 1981). Seen in this light, tests of the theory of status integration and alcohol problems can also be interpretted as tests of the long standing sociological proposition regarding the relation of stress to alcoholism and heavy drinking.

In addition to the stress hypothesis, the Bales theory asserts that the level of alcoholism in groups is a function of the extent to which those groups are characterized by norms and values which encourage or allow drinking and intoxication as means of relieving stress. According to this proposition, the relationship between stress and alcohol problems will be strongest in groups characterized by permissive norms regarding the use of alcohol. Members of anti-alcohol groups would presumably be more likely to respond to stress in alternative ways.

The current investigation provides tests of the theory of status integration and alcohol problems using the fifty states as units of analysis. The study also examines the Bales proposition that the stress-alcoholism relationship is mediated by group norms regarding the use of alcohol.*1

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1. The third proposition of Bales' formulation asserts that, in addition to being a function of stress and alcohol norms, the level of alcoholism in a group is influenced by whether or not the culture provides mechanisms other than drinking and intoxication for the relief of stress. This proposition (the "functional alternative hypothesis") is not tested in this study.

There is no single measure which adequately indicates the level of alcohol problems in a group. First, all measures are subject to some level of bias in that they arise or are mediated through social control processes. In addition, it is unlikely that any single indicator can be sensitive to all aspects of the wide range of medical, psychological, and social phenomena associated with alcohol use. Two sets of indicators of drinking problems are employed in this study: measures of heavy drinking and arrest rates for alcohol related offenses. The two heavy drinking indicators are apparent consumption of alcohol per capita (a measure based on the sale of alcoholic beverages) and cirrhosis of the liver mortality rates. The alcohol arrest rates employed are DWI arrests per 100,000, arrests for all other alcohol related offenses per 100,000, and two ratios of total alcohol arrests to total arrests for all offenses. The first two social consequence indicators are straightforward epidemiological measures of the incidence of alcohol related arrests. The latter two indicate the salience of alcohol arrests relative to the overall level of arrests in a state. The use of multiple indicators of alcohol problems in this study does not eliminate measurement bias but it does ensure that the measures will not all share the same type of bias. In addition, the inclusion of indicators of both medical and social alcohol outcomes acknowledges to at least some extent the multi-faceted nature of alcohol problems in society.

The theory of status integration is tested by examining the relation of status integration with each alcohol outcome for the fifty states. To test the interactive effects of stress and alcohol norms, the fifty states are broken down into quartiles according to their position on an index of alcohol norm content developed by Linsky, Colby, and Straus (1985a). The index is comprised of four items indicating anti-alcohol sentiments and the level of restrictiveness on the sale and consumption of alcohol for each state. Correlations of status integration with each indicator of alcohol problems are then replicated for each of the quartiles.

Following this introductory chapter, Chapter II will describe the demographics of alcohol problems in the U.S. and will review the sociological literature on drinking and alcoholism. Chapter III provides an in-depth discussion of the theory and measurement of status integration. The chapter also contains a section in which theoretical and empirical comparisons are made between status integration and other measures of social stress.

Chapter IV presents the methods and materials employed in the study. The chapter reviews the major issues involved in the use of states as units of analysis and describes each of the variables used in the study. Included in the descriptions of the independent and dependent variables are validity tests based on the comparison of the measures with self-reported survey data on heavy drinking and alcohol

problems for the nine census divisions.

Chapter V presents findings of the relation of status integration to alcohol problems and of Bales' theory of alcoholism. The three major sections of the chapter present findings on the relation of status integration to heavy drinking, the relation of status integration to alcohol related arrests, and the interactive effects of stress and drinking norms on alcohol problems.

Chapter VI presents a summary of the study, conclusions and inferences based on the findings, and recommendations regarding further research in this area.

CHAPTER II

ALCOHOL PROBLEMS IN THE UNITED STATES

The present chapter on alcohol problems in the United States is divided into two sections. The first section describes the demographics of alcohol problems in the U.S. The second section is a review of the sociological literature on alcohol problems with particular emphasis on Robert Bales' theory of alcoholism.

DEMOGRAPHICS OF ALCOHOL PROBLEMS

Alcohol abuse is one of the greatest single contributors to health problems and social problems in the United States. Excessive use of alcohol is directly related to accidents and to liver disease - particularly cirrhosis - as well as to a wide variety of other disorders. Alcohol is also a strong risk factor in cancer of the mouth, pharynx, larynx, and esophagus (Knowles, 1977). Around 45% of arrests each year are for alcohol related offenses such as drunkeness and driving while intoxicated (U.S. Department of Justice, 1981). In addition, alcohol use has been found to be associated with more than 50% of arrests for violent crimes and with more than 40% of arrests for property crimes (USDHHS, 1981).

Studies on alcohol use reveal clear demographic patterns. Table 2.1 presents data on alcohol use and drinking problems by sex (for five categories) and by race (for two categories) for the U.S. as a whole. The data show that drinking and alcohol problems are predominantly male phenomena. There are significantly more male than female drinkers (75% to 59%). The male to female differentials for heavy drinking and drinking problems are much greater: male heavy drinkers outnumber female heavy drinkers more than 4 to 1 (21% to 5%); cirrhosis death rates for men are more than twice that for women (19.1 to 8.7 per 100,000); self-reported drinking problems of males exceed those of females by 5 to 2 (15% to 6%); and males are arrested for alcohol related offenses almost nine times more often than females (3114 to 359 per 100,000). These male to female ratios clearly indicate that male drinkers are far more likely than female drinkers to abuse alcohol. The extremely high sex ratio for arrests probably indicates two things: 1) that males engage in more alcohol related law-breaking behavior; and 2) that male alcohol related behavior is more likely to result in police reaction.

The national survey of 1979 (the data of which comprise Columns 1, 2, and 4 of Table 2.1) does not report data by race. Data from a 1965 survey (Cahalan, et al., 1969) not reported in the table show a greater percentage of white than nonwhite drinkers (69% to 64%) but a greater proportion of nonwhite than white heavy drinkers (23% to 19%). Given

Table 2.1. Alcohol Consumption and drinking problems by sex and by race, U.S.

Population	Drinkers (percent) 1979	Heavy Drinkers (percent) 1979	Cirrhosis Deaths pr 100,000 1975-77	Drinking Problems (percent) 1979	Arrests per 100,000 1980
Total	67%	13%	13.6	10%	1698
Male	75	21	19.1	15	3114
Female	59	5	8.7	6	359
White	--	--	12.3	--	1667
Nonwhite	--	--	23.1	--	1868

these relatively equal rates of drinking and heavy drinking, it is somewhat surprising that nonwhites exhibit a cirrhosis death rate almost twice that of whites. The higher nonwhite arrest rate is in line with the higher rate of heavy drinking in that group.

Table 2.2 presents age-specific rates of drinking and alcohol problems. The data show that alcohol consumption and social alcohol problems are associated with the young while cirrhosis death rates are higher among the old and middle age groups.

The group with the highest proportion of drinkers is the 20-24 year-old group (87.4%) followed by the 18-19 group (82.1%). The rest of the groups rank in order of age from young to old. The ranks of the proportion of heavy drinkers is somewhat less orderly. The 20-24 group (21%) again ranks first followed by the age groups 25-29 (17%), 41-50 (15.5%), 31-40 (14%), and 18-19 (11%). The three oldest age groups rank lowest in percent heavy drinkers at sixth, eighth, and seventh respectively.

The two indicators of social alcohol problems - alcohol related arrests and self-reported drinking problems - show a straight decline in rates from young to old. The ranks and the relative rates among the age groups clearly demonstrate that the young are far more prone toward aberrant behavior under the influence of alcohol than are the old. For example, while the 20-24 group has twice the rate of heavy drinkers of the 51-60 group, the proportion of their members

Table 2.2. Alcohol consumption and drinking problems by age, U.S.

Age	Drinkers (percent) 1979	Heavy Drinkers (percent) 1979	Cirrhosis Deaths pr 100,000 1975-77	Drinking Problems (percent) 1979	Arrests per 100,000 1980
Total	67%	13%	13.6	10%	1698
18-20	82.1	11	0.1	25.5	5105
20-24	87.4	21	0.5	19.0	4168
25-29	74.4	17	2.1	16.0	2930
30-34	} 74.0	} 14	5.6	} 13.0	2297
35-39			12.0		2095
40-44	} 62.6	} 15.5	22.1	} 6.5	1991
45-49			31.1		1762
50-54	} 62.3	} 10.5	38.7	} 4.5	1457
55-59			45.7		1073
60-64	} 50.2	} 4.5	49.9	} 3.0	716
65-69			46.1		231*
70-74	48.7*	6.5*	37.5	1.0*	

* Represents last age-group for which data is available. This is for populations 65 years and older or 70 years and older.

reporting drinking problems is more than four times that of the older group, and they are arrested at a rate approximately three times that of the 51-60 group (based on an averaging of arrest rates for the 50-54 and 55-59 groups).

Cirrhosis death rates are highest in the three age groups between 55 and 69. The reason for the high rates among the older groups and the very low rates among the young groups involves the longer duration of heavy drinking among the more elderly.

THE SOCIOLOGICAL STUDY OF ALCOHOL PROBLEMS

Sociological approaches to the study of alcohol use and abuse look to characteristics of cultures and social structures to explain between-group differences in levels of consumption and behavioral seqelae. The emphasis on structural determinants in the study of alcohol-related phenomena represents a departure from the more individual-oriented explanations of biological and psychological approaches.*1

Biological approaches to alcohol problems employ the medical model which tends to locate the cause and potential cure of disease or disorder within the individual. Most

---

1. The discussion of biological and psychological approaches in this chapter does not do justice to the valuable contributions of each approach to alcohol studies. The brevity of the discussion is not intended as a dismissal of either perspective. Rather, they are presented in order to differentiate their individual-level emphasis from the group-level sociological approach.

biological explanations of alcoholism center on genetic predisposition of individuals to excessive drinking (Goodwin, 1979). Other investigators have suggested that alcoholism is caused by allergy, vitamin deficiency, endocrine disorders, or enzyme metabolism (Swanson and Eaves, 1978). Evidence of these biological bases of alcoholism has been contradictory, though the genetic factor has enjoyed increasing support in recent years.

Psychological approaches to alcoholism offer individual-level alternatives to the medical model and the disease concept of alcoholism. Basically, from a psychological perspective alcohol use is viewed as an individual habit explainable through the study of the individual personality. Emotional troubles (Segal, et al., 1980), risk-seeking (Owen and Butcher, 1979), and addictive personalities (Adams, 1978) are all psychological concepts which have been linked to alcohol use and abuse.

Bales (1946) presents a comprehensive sociological theory of alcoholism composed of three main hypotheses linking cultural or social structural factors to patterns of alcohol use and abuse. First, the "stress hypothesis" looks to factors that operate to create inner tension such as culturally induced role conflict or status frustration. Second, the "normative hypothesis" identifies culturally supported attitudes which either encourage or discourage drinking and intoxication as means of relieving stress. Third, the "functional alternative hypothesis" addresses

whether and what tension-resolving methods other than drinking are provided by the culture.

Bales based his three part formulation on his own study of alcoholism among Irish males in the 19th and early 20th centuries (Bales, 1946). He attributed high rates of alcoholism in this group to: 1) a social structure which denied young men the opportunity for either sexual or status fulfillment; and 2) drinking norms which encouraged heavy drinking as a way of dealing with inner tensions.

Despite the relatively long period of time that the Bales formulation has been around, the stress hypothesis has received very little theoretical and empirical attention. Although stress is emphasized as a precondition in most theories of alcoholism, it is seldom operationalized as anything but an inferred global property of the social system. Most sociological studies purporting to test the Bales theory have concentrated almost exclusively on the normative hypothesis. For example, in a summary of studies by Snyder (1958) and Lolli et al. (1958) on the use of alcohol by Jews and by Italians respectively, Straus (1971) presents as evidence of stress the claim that "...both groups appear to have their expected share of various forms of mental illness" (p.254). Thus the researchers themselves fail to define the stress involved in the production of inner tension in group members and the secondary discussant infers the presence of stress from the reported presence of mental illness.

The normative hypothesis has received considerably more theoretical attention than the stress hypothesis in alcohol research. Case studies addressing the alcohol norms of group-centered drinking cultures include Snyder's study of Jews in America (1958,1962) and Lolli's study of Italians in both Italy and the United States (1958). These studies demonstrate that high alcohol intake does not result in alcoholism or alcohol-related social problems when tied to group-centered religious rituals or dietary beliefs. Even intoxication is acceptable in traditional Jewish and Italian cultures as long as it occurs within certain prescribed group contexts. In both case studies it was observed that alcohol "problems" occurred only with the breakdown of traditional ties of the individual to the group.

Other case studies have concentrated on various subcultures in the U.S. which either forbid the use of alcohol or are ambivalent about its use (Chafetz, 1971; Ullman, 1968; Skolnick, 1958; Bacon, 1957; Straus and Bacon, 1962). Studies of groups with strong anti-drinking norms suggest that the guilt and anxiety of those members who violate group norms by drinking may make them more susceptible to alcoholism and drinking problems (e.g., Straus and Bacon, 1962). Societies characterized by opposing views on drinking and intoxication have been shown to exhibit high rates of alcoholism (Chafetz, 1971; Ullman, 1958).

In a criticism of sociological explanations based on drinking norms, Room (1976) claims that the theory has never really been tested. He points out that the ethnic case studies from which the hypotheses are derived are not proper tests of those hypotheses. A few studies have compared the rates of alcoholism in preliterate societies based on qualitative global estimates of drinking norms (Whitehead and Harvey, 1974; Stull, 1975). Systematic and comparative studies of this issue in the U.S., however, have been notably absent.

Neither the stress hypothesis nor the normative hypothesis, then, has been subjected to the amount of empirical scrutiny one might expect given their early and relatively thorough formulation. Possibly the major reason for the dearth of systematic research in this area concerns measurement difficulties with regard to most of the variables in the conceptual scheme. In order to make adequate tests of the theory it is necessary to determine in a systematic and objective manner the levels of stress and the alcohol-related norms in comparative social structures. A recent series of articles by Linsky and his associates (Linsky, Straus, and Colby, 1985; Linsky, Colby, and Straus, 1985a-b) has sought to meet these requirements in tests of both the stress hypothesis and the normative hypothesis.*2

---

2. The third part of Bales' theory - the functional alternative hypothesis - has received even less attention than the stress and normative hypotheses. This is probably due to the difficulty of determining what other patterns can serve as alternatives to the abuse of alcohol.

The first two papers in the series present evidence that stress (Linsky, Straus, and Colby, 1985) and proscriptive norms (Linsky, Colby, and Straus, 1985a) are each separately related to alcohol problems. The third paper provides a more complete test of Bales' formulation which implies an interactive relationship between stress, norms, and alcohol problems (Linsky, Colby, and Straus, 1985b). The findings are consistant with the theory: correlations between stress and alcohol problems are highest within the context of strong cultural support for the use of alcohol.

The current investigation presents another test of the Bales stress hypothesis using a specific measure of stress - status integration. It is probably the most direct test of the theory to date because status integration is closer to Bales's idea of stress than is the aggregated life events measure of Linsky, et al. In formulating his theory, Bales refers specifically to chronic stress associated with status frustration or status inconsistancy. Status integration is very much in line with these types of stress. The indicator with which Linsky, et al. test Bales's stress hypothesis is a measure of stressful changes, not chronic conditions. Thus, the present study represents a significant contribution to the sociological literature on stress and alcohol. The availability of the Linsky, et al. measure of alcohol norm content will also enable tests of the interactive effects of stress and norms on alcohol outcomes.

CHAPTER III

THE CONCEPT OF STATUS INTEGRATION

The present chapter is concerned with the theory and measurement of status integration - the independent variable in this study. The chapter is divided into four major sections: 1) Statement of the Theory; 2) The Measurement of Status Integration; 3) Criticisms of Status Integration; and 4) Status Integration and Other Measures of Social Stress. The first section includes a discussion of the conceptual development of status integration and of issues relating to the theory including the effects of status integration on members of the population in question. The second section of this chapter is on the actual measurement of status integration as carried out in this and other studies. The third section addresses the major criticisms of the theory and measurement of status integration. The final section makes theoretical and empirical comparisons of status integration with other measures of social stress.

STATEMENT OF THE THEORY

The theory of status integration is part of an area of sociological study that has focused on consistency between statuses. These studies are based on the theory that

different status configurations - i.e. combinations of statuses - vary in compatibility, conflict, or stressfulness. For example, the roles associated with the combined statuses "married" and "mother" differ in compatibility from those of the combined statuses "single" and "mother". Gibbs (1982) defines status integration as "...the degree to which the population is concentrated in the configuration that comprises [two or more] statuses"(p. 229). Thus, according to Gibbs, the amount of integration of each marital-parental status configuration in the above example is measured by the proportion of the population that occupies each configuration. For those populations in which there is a higher proportion of married mothers than single mothers, the former configuration is, by definition, more highly integrated than the latter. It is important to note that the theory of status integration does not predict a priori <u>which</u> status configuration is more highly integrated. Rather, relative integration is defined empirically by the actual proportions of the population which occupy respective status configurations. These proportions, in turn, are used to predict <u>outcomes</u> such as suicide, chronic illness, or alcohol problems.

In the original statement of the theory (Gibbs and Martin,1964), five postulates are presented from which a major theorem is derived. The postulates are presented below with a brief explanation following each of the five.

> Postulate 1: The suicide rate of a population varies inversely with the stability and durability of social relationships within that

population (Gibbs and Martin, 1964:27).

This postulate is based largely on Durkheim's comments on the nature of integration. In his classic sociological study of suicide, Durkheim (1951) describes integration as being dependent upon the strength of the ties of individuals to society. The stronger the ties in a population, the lower the suicide rate.*1 Gibbs and Martin translate "strength of social ties" into the operational definition "stability and durability of relationships."

Although it is potentially possible to make direct tests of the first postulate, Gibbs and Martin posit that the inadequacy of sociological knowledge and data preclude such tests. Therefore, they follow with Postulate 2 - a statement of the conditions under which the stability and durability of social relationships will be at a maximum.

> Postulate 2: The stability and durability of social relationships within a population vary directly with the extent to which individuals in that population conform to the patterned and socially sanctioned demands and expectations placed upon them by others (Gibbs and Martin, 1964:27).

This postulate is based on the Weberian premise that one's status or social position largely determines the demands and expectations in social relationships.

> Postulate 3: The extent to which individuals in a population conform to patterned and socially sanctioned demands and expectations placed upon them by others varies inversely with the extent

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1. This hypothesis is based only on Durkheim's discussion of one type of suicide - egoistic suicide. See below (p.35) for a discussion of criticisms of Gibbs and Martin's supposedly selective use of Durkheim's theory of integration and suicide.

> to which individuals in that population are confronted with role conflicts.

The third postulate is based on the fact that individuals occupy more than one status and that the role demands associated with different statuses often conflict. Another assumption underlying this postulate is that there is considerable difference in the extent to which persons conform to role-related demands and expectations.

> Postulate 4: The extent to which individuals in a population are confronted with role conflicts varies directly with the extent to which individuals occupy incompatible statuses in that population.

The fourth postulate is based on the assumption that there is an incompatibility of statuses when comformity to the roles of any status interferes with the performance of roles of another status. These incompatible statuses must be occupied simultaneously by the same individual.

> Postulate 5: The extent to which individuals occupy incompatible statuses in a population varies inversely with the degree of status integration in that population.

From these five postulates follows the major theorem:

> The suicide rate of a population varies inversely with the degree of status integration in that population.

It is this theorem on which all working hypotheses in tests of the theory of status integration are based - substituting for suicide the dependent variable being examined.

Incumbants of Incompatible Statuses

Two important issues in the theory of status integration relating to those who occupy incompatible statuses are: 1) the reasons that individuals vacate incompatible statuses; and 2) the reasons why many members of the population remain in incompatible statuses in the face of the difficulties inherent in the occupancy of such status configurations.

Gibbs and Martin cite three reasons why individuals leave incompatible statuses. First, some statuses are recognized as incompatible with others and are consequently socially discouraged. An example of this is the treatment women often receive when pursuing traditionally male occupations such as construction worker. Thus, the status of woman is seen as incompatible with the status of construction worker. Second, the incumbant of incompatible statuses may give up one or both of the statuses because of dissatisfaction arising out of attempts to conform to conflicting roles. Evidence of this phenomenon might be the high rate of divorce among traveling salespersons. Finally, an individual's actual or falsely perceived inability to conform to the roles of one or both statuses may lead to that person's being deprived or barred from one or both statuses. Forced retirement at age 65 is an example of legally mandating the incompatibility of two statuses - worker and elderly person.

As to why population members remain in incompatible statuses at all, Dodge and Martin (1970: 84-86) cite six reasons. First, some statuses such as age, sex, and race are ascribed - not achieved - and therefore cannot be vacated except by the drastic step of suicide. Second, even the shifting between some achieved statuses is difficult due to societal controls.

> For example, to quit a job, divorce a wife, change religious affiliation, or poison a husband, all require a certain initiative (Dodge and Martin, 1970: 85).

Third, some occupants of incompatible statuses are newcomers, many of whom will presumably change their statuses at a later date. Fourth, some incompatible statuses are essential to the group or the community of which they are a part. These statuses, therefore, retain their incumbants through monetary or other compensation. Relatedly, the fifth reason for occupancy of incompatible statuses is that societies or communities characterized by low status integration may on the other hand offer economic or other opportunities to offset the stress aspects. The difference between this reason and the one immediately preceding it is that the former attracts individuals to stressful statuses while the latter attracts individuals to stressful communities. Finally, the relative insensitivity of some individuals to the occupancy of incompatible statuses enables them to continue to occupy these configurations.

Thus there are both structural and indivdual factors which impact upon the willingness or the ability of individuals to vacate or to remain in incompatible statuses.

Social Stress and Non-Incumbants

Gibbs and Martin posit that a major strength of status integration as a theory is that it is sociological in nature. In the tradition of Durkheim's (1951) Suicide the theory of status integration "...looks to a measureable characteristic of the social structure as a source of explanation..." (Gibbs and Martin, 1964:4). As a characteristic of the social structure, the level of integration impacts on the susceptibility to maladaptive outcomes of more of the population than just those who occupy incompatible statuses (Dodge and Martin, 1970:93). According to Dodge and Martin, social stress is diffused in groups to those who are in social networks of the incumbants of incompatible statuses. In short, role conflict can adversely affect those who are close to the role occupant - particularly if they are involved in the conflictive role relationship. For example, if a family member is called upon to devote more time to the work role, then the increased strain on the family role may well be felt by the spouse or other family members as well as by the incumbant of the conflicting roles. Thus, if the role conflict goes unresolved, some members of close social networks other than the incumbant may experience stress, and in some cases may suffer maladaptive stress outcomes. Dodge and Martin refer

to this phenomenon as "social stress contagion" (1970:91-97).

Status integration theorists also address the issue of why some members of high stress populations exhibit no maladaptive outcomes while some members of low stress groups do. Measures of Status Integration (MSI's) are indicators of the relative stressfulness of two or more groups. High stress (low MSI) groups are predicted to exhibit higher rates of maladaptive outcomes than are low stress (high MSI) groups. With specific reference to the maladaptive outcomes in their study, Dodge and Martin summarize that some members of high stress/low MSI groups (Lows) do not appear to have chronic diseases because:

> 1. The development of chronic diseases requires excessive exposure to stress situations and some of the Lows may have been exposed for only a short period.
>
> 2. Some of the Lows may be in the process of developing chronic diseases but the symptoms are not visible because they become apparent only gradually.
>
> 3. Reactions to stress are influenced by individual differences:
>
> > a. Individuals vary in their commitment to statuses and in their sensitivity to role expectations and groups sanctions.
> >
> > b. Individuals differ in their physiological and psychological characteristics and reactions to stress, so that some persons have a greater resistance than others to stress and its possible effects (Dodge and Martin, 1970: 98-99).

On the other hand, there are members of low stress/high MSI groups (Highs) who develop chronic diseases because:

> 1. In addition to the fact that some Highs occupy incompatible statuses, others experience stress via the social stress contagion process.
>
> 2. The data available for constructing measures of status integration are always limited. They never include all important statuses in a population. Thus some Highs occupy incompatible statuses not tapped by the data and procedures used in constructing the MSI.
>
> 3. There are other sources of social stress not included in the MSI; e.g., value conflicts, or individual problems not involving role conflict. Some Highs may experience stress due to these sources (Dodge and Martin, 1970: 99)

THE MEASUREMENT OF STATUS INTEGRATION

The major assumption upon which the measurement of status integration is based is that incompatible statuses in a population are those which are occupied infrequently. That is, the observed occupancy rates of status configurations define the level of status integration of a population. Despite the empirical definition of Measures of Status Integration (MSI's), Gibbs and Martin emphasize that this assumption is based on theoretical grounds:

> ...although the extent to which two statuses are occupied simultaneously is taken to be a measure of the degree to which the two are compatible, the mere frequency of occupancy is not what makes them compatible or incompatible. Rather, the degree of compatibility is a function of the extent to which their roles conflict, and the extent to which they are occupied simultaneously follows from this (1964:26).

The first assumption, then, is based on two other assumptions: 1) that individuals are generally sensitive to

conflicting role expectations; and 2) that individuals possess at least a modest ability to shift certain achieved statuses in order to change status configurations.

In light of this second assumption it is required of MSI configurations that at least one of the statuses be a voluntary, or achieved status (as opposed to an involuntary, or ascribed status).*2 This requirement is essential for purposes of measurement - not for theoretical reasons. Status integration (i.e., the incompatibility of statuses) is defined empirically. That is, the degree of compatibility of a particular status configuration is indicated by the proportion of the population which occupies that configuration. For the measure to be meaningful, the occupation of configurations must be determined by some factor other than those by which ascribed statuses are distributed in a population (e.g., the population structure and composition). The assumption in the theory of status integration is that role conflict is a major determinant of the way achieved statuses are distributed. There must, therefore, be at least a "modest ability" for individuals to change status configurations. A configuration comprised of two ascribed statuses may be incompatible. And a population

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2. An ascribed status is one that is assigned to the individual by legal or other social criteria, without regard to the individual's choice. Age, race, and sex are examples of ascribed statuses. An achieved status involves some degree of self-determination in terms of an individual's entering or vacating the status. Marital status, occupation, and level of education are examples of achieved statuses.

characterized by relatively high rates of incompatible ascribed statuses may exhibit correspondingly high rates of maladaptive outcomes. But for a theoretical model to take into account the stressfulness of ascribed configurations, the incompatibility of statuses must be posited (empirically or theoretically) prior to the determination of the distribution of configurations in a population. If such prior direct measurement of the norms associated with particular statuses were made, then tests of the theory of status integration would be applicable to these configurations - whether they are comprised of ascribed statuses, achieved statuses, or a combination of the two.*3 Efforts made at direct measurement of the stressfulness of particular status configurations may improve the predictive power of MSI's. Direct measurement would also prove valuable in testing the validity of Gibbs and Martin's measures of status integration.

Table 3.1 represents a hypothetical society in which marital integration is at a maximum. Each column represents a status configuration composed of a particular race, R; a particular age, A; a particular religion, Re; a particular occupation, O; a particular sex, S; and a particular parental status, P. Each row represents a particular

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3. This issue is similar to that raised by Hagedorn and Labovitz (1966) regarding reasons other than role conflict for the distribution of populations across status configurations. For a discussion of this issue see the section Criticisms of Status Integration below.

Table 3.1. The integration of marital statuses with selected status configurations in a hypothetical society where marital integration is at a maximum.

	All Occupied Status Configurations				
Marital Status	R1-A1-Re1-O1-S1-P1	R2-A2-Re2-O2-S2-P2	R1-A3-Re3-O3-S1-P1	R1-A4-Re1-O4-S1-P3	R2-A5-Re3-O5-S2-P2
Single.....	.00	.00	.00	1.00	.00
Married.....	.00	1.00	.00	.00	.00
Widowed.....	1.00	.00	.00	.00	.00
Divorced.....	.00	.00	1.00	.00	.00
Sum.....	1.00	1.00	1.00	1.00	1.00
Sum of Squares	1.00	1.00	1.00	1.00	1.00
Proportion of Population	.07	.43	.03	.15	.32

Source: Gibbs and Martin (1964)
Key to column headings: R = race; A = age; Re = religion; O = occupation; S = sex; P = parental status

marital status. It should be apparent that Table 3.1 is incomplete to the extent that it excludes any status configurations that exist in the community. As a practical matter, however, inclusion of every single status configuration comprised of all statuses in a single table is impossible. Table 3.1 is also incomplete in that it portrays only one type of status integration - marital integration. A complete measure of status integration would entail as many tables as there are families of achieved statuses in a society (e.g., parental integration labor force integration, occupational integration, and composite measures made up of two or more achieved statuses).

Three types of MSI's are depicted in Table 3.1. Each type is taken up below along with a discussion of their respective roles in testing the major theorem.

The first type of MSI, the cell MSI, is simply the proportion of members of each status configuration to occupy a particular marital status. In tests of the major theorem, cell MSI's are compared with other cell MSI's in the same column (i.e., different marital statuses within the same status configuration). In Table 3.1, for example, the four marital statuses within each column are compared with each other. Since only one marital status in each column is occupied in Table 3.1, no predictions can be made involving cell MSI's.

Column MSI's are computed by summing the squares of cell MSI's for each status configuration. In tests of the theory, column MSI's are compared to other column MSI's within the population. In Table 3.1 the sum of squares for each status configuration would be compared. In this hypothetical example all column MSI's are equal (each sum of squares = 1.0000). Therefore, no differences in stress outcomes would be predicted for different configurations.

The total MSI is the score for the entire population. It is computed by summing the column MSI's. There are weighted and unweighted versions of the total MSI. The unweighted version is computed by summing the column MSI's. In Table 3.1 the unweighted total MSI equals 5.0. The weighted version takes into account the proportion of the population in each status configuration. In Table 3.1 the weighted total MSI is .07(1.000) + .43(1.000) + .03(1.000) + .15(1.000) + .32(1.000) = 1.000. In tests of the theory total MSI's are compared only with total MSI's from other populations. Thus, in order to use the total MSI in Table 3.1 to test the theory, at least one other table for another population would have to be constructed in order to compute a total MSI with which to compare the one from Table 3.1.

The MSI in the present study is a composite measure comprised of two achieved statuses (marital status and labor force status) and one ascribed status (age). Table 3.2 depicts a truncated version of the type of table that would represent the computation of MSI's for this study. A table

Table 3.2. Composite measure of marital-labor force integration in a hypothetical society.

Marital-labor force Status	Age	
	under 50 years	over 50 years
Single-In labor force	.30	.30
Single-Not in labor force	.10	.20
Married-In labor force	.60	.40
Married-Not in labor force	.00	.10
Sum	1.00	1.00
Sum of Squares	.46	.30
Proportion of population	.60	.40

Total MSI=.46 + .30 = .76

Weighted total MSI= (.60) (.46) + (.40) (.30) = .40

depicting the actual number of categories used in this study would have 14 age groups as column heads and 10 marital-labor force categories incorporating the five marital statuses (single, married, separated, widowed, and divorced) and two labor force statuses (in and out of labor force) in all possible combinations. Table 3.2 employs only two categories from each of the three statuses.

In the hypothetical society represented in Table 3.2 there are eight cell MSI's (four for each age group), two column MSI's (the sum of squares measures), a weighted and an unweighted total MSI. Within each age group the married-in labor force group (group 3) is the most highly integrated. Cell MSI's in this population would predict that, in both age groups, group 3 would exhibit the lowest rate of alcohol problems (or other maladaptive outcomes), followed in order by groups 1, 2, and 4. According to the column MSI scores, the under-50-year-old group has higher marital-labor force integration than the over-50 group. The total MSI (.76) or the weighted total MSI (.40) would be compared to the respective total MSI's of at least one other group from another table.*4 In tests of the theory, the group with the highest cell MSI, the highest column MSI, or the highest total MSI score would be predicted to have the lowest rates of alcohol problems (or other maladaptive outcomes) of their respective comparative groups.

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4. In the present study the weighted total MSI's from each of the 50 states are compared. Thus, Table 3.2 would represent one state.

CRITICISMS OF STATUS INTEGRATION

A wide range of theoretical and methodological issues associated with status integration research has been critically evaluated by many social scientists (Douglas,1967; Chambliss and Steele, 1966; Hagerdon and Labovitz,1966; Li,1971; Schalkwyk, et al.,1979; Mesrovic and Glassner,1983).

The most common theoretical criticism of Gibbs and Martin's formulation regards whether or not status integration is a testable version of what Durkheim meant by integration. Mestrovic and Glassner (1983) exemplify those who claim that Gibbs and Martin are conveniently selective in their theoretical and operational definitions of integration. They claim that the major theorem of status integration ("The suicide rate of a population varies inversely with the degree of status integration in that population") ignores essential elements of Durkheim's discussion of integration and suicide. Specifically cited as being ignored by Gibbs and Martin are other relationships between integration and suicide discussed by Durkheim including a direct relationship between <u>over</u>integration and suicide. Thus, with suicide varying both directly and inversely with integration for Durkheim, Mestrovic and Glassner make the case that status integration is not a testable version of Durkheim's integration.

Gibbs (1982) most recently answers these criticisms by claiming that the theory of status integration is only inspired by Durkheim, but is not intended as a rendition of Durkheim. Support for Gibbs' assertion comes from an examination of the original statement of the theory (Gibbs and Martin,1964). While Durkheim is cited extensively by Gibbs and Martin in their general discussion of integration, he is mentioned only once in relation to the development of the five postulates and the major theorem. As theoretical background in this section of their study they rely on work subsequent to that of Durkheim, particularly role conflict theory. Moreover, Li (1971) writes that although the relationship between Gibbs and Martin's status integration and Durkheim's "social integration" may be unclear, this is not a critical weakness. He notes that it has been demonstrated that the only method of associating operational concepts and theoretical concepts is by convention.

Another major criticism of status integration research involves the possibie spuriousness of the relationship between status integration and suicide (Schalkwyk, et al.,1979; Li,1971). In a test of the status integration-suicide theorem using a weighted measure of occupational integration (which supposedly controls for the age structure) the rank order correlations of age structure with suicide and status integration respectively are .57 and -.40, whereas the correlation between status integration and suicide is -.50 (Li, 1971). This demonstrates that the

reported relationship between status integration and suicide may indeed be spurious. Li recommends discarding the concept of status integration and attempting instead to operationalize Gibbs and Martin's first postulate ("The suicide rate of a population varies inversely with the stability and durability of social relationships within that population"). Li's recommendation is probably too drastic, especially in light of findings supportive of the theory which are not susceptible to the influence of age structure. An example of such a test is the part of Dodge and Martin's (1970) study in which age-specific (55-64 years) measures of status integration for thirty states are shown to be inversely correlated with each of the five chronic disease mortality rates being studied. The age issue is nonetheless an important one. In the present study age structure is taken into consideration in each test through statistical control or age-specific analyses.

Hagedorn and Labovitz (1966) critically assess another issue in status integration research having to do with measurement: whether actual rates of status occupancy reflect Gibbs and Martin's theoretical meaning of role conflict among statuses. These authors emphasize that there may be reasons other than role conflict for the entering and vacating of achieved statuses by individuals. In particular they offer the example of those statuses which are economically supported - such as the occupation of physician - as illustrating reasons other than role conflict for

status occupation. Dodge and Martin (1970) cite economic incentive as one reason why individuals remain in configurations made up of incompatible statuses. Their assumption is that it is the role conflict that is being compensated while there may actually be other factors involved such as the difficulty or undesirability of a single role. As Palmer (1981) points out, role conflict is but one of several types of role stress. This criticism may be especially relevant to occupational integration where degree of occupancy may be determined more by socio-economic demands than by status compatibility.

Hagedorn and Labovitz suggest that direct operational measurement of the norms associated with particular statuses may provide more adequate tests of the theory. They conclude that the theory of status integration may potentially go beyond its early success with more direct measurement of the normative expectations associated with various status configurations.

> It is our contention that the scope and predictive efficiency of the theory will increase if norms are considered directly and independently of status integration as measured by Gibbs and Martin.... If normative expectations surrounding status configurations were known, the prediction of suicide rates might be substantially improved (1966:81).

Gibbs and Martin would likely welcome studies of the norms and expectations associated with specific status configurations. The probable limitations of such studies are that the costs of undertaking large-scale studies would be prohibitive. Any such small-scale studies, however, may

make significant contributions to the theory of status integration.

STATUS INTEGRATION AND OTHER MEASURES OF SOCIAL STRESS

Status Integration and Conceptualizations of Stress

Throughout its history stress research has been dominated by the study of stressful life events. Life events research focuses on changes experienced by individuals as the source of stress. Alternative conceptualizations of stress which receive less attention in the popular media if not in professional research include: 1) individual chronic conditions of stress; 2) social structural changes as sources of stress; and 3) social structural conditions as sources of stress. Two characteristics by which stress research can be differentiated, then, are: 1) the source of stress - whether it is the social structure or the individual situation which is stress-inducing; and 2) the type of stressor - whether the stressor is characterized by change or by more chronic conditions.

Figure 3.1 depicts four categories of stress studies according to the source of stress and the type of stressor.

A major conceptual difference between the individual situation and the social structure as the source of stress involves who is considered "at risk" with regard to stress outcomes. Individual-situational studies consider only those who directly experience the change or condition to be

Figure 3.1. Four categories of stress studies according to the conceptualized source of stress and type of stressor

SOURCE OF STRESS	TYPE OF STRESSOR: Change	TYPE OF STRESSOR: Condition
Individual	I	II
Situation / Social Structure	III	IV

potential victims of stress outcomes. In social structural studies, on the other hand, it is often the entire population of the social system which is seen as being susceptible to stress-related outcomes.

"Change" and "condition" are also differentiated in Figure 3.1. Theories and studies of change emphasize the stressfulness of adaptation to new situations by individuals or members of social systems. The other type of stressor is that associated with more chronic or long-term conditions of the individual situation or the social structure.

The example par excellance of a type I (individual-change) approach to the study of stress is life events research. The life events tradition explains physical and mental health outcomes in terms of cumulated recent events such as marriage, divorce, and loss of job which the individuals have recently experienced (Dohrenwend and Dohrenwend, 1978). Scales designed to measure the net impact of recent life events, such as Holmes and Rahe's (1967) Social Readjustment Rating Scale (SRRS) and the Psychiatric Epidemiology Research Interview (PERI) of Dohrenwend and Dohrenwend (1978), are based on the work of stress pioneers Walter Cannon (1933) and Hans Selye (1956). Cannon coined the term "fight or flight syndrome" to describe the state of alarm of an organism faced with an outside threat. Selye, a medical researcher, described the General Adaptation Syndrome (GAS) as the chemical alarm system that gears the body for fight or flight when it is

confronted with a threat. Both of these scientists emphasized the adaptation of individuals to changes.

The life events school, then, has its origins in psychosomatic medicine. Consistant with the medical model, life events research locates the cause and potential cure of illness within the individual. These studies have yielded relatively successful findings particularly in the area of mental health outcomes (Dohrenwend and Dohrenwend, 1978).

Individual-level studies of chronic stressful conditions (category II in Figure 3.1) share with life events studies their individualistic orientation. Stressful conditions are usually inferred from the incumbancy of certain statuses associated with race, income, or occupation or from the incumbancy of status combinations the roles of which may be in conflict (for example, "mother" and "business executive"). Those who occupy more stressful statuses or incompatible combinations of statuses have been found to be at greater risk of developing illness or other stress outcomes.

In an individual-level study on a population of construction workers, Theorell (1976) seeks to integrate the ideas of stressful events and stressful conditions research. The stressful individual conditions (which Theorell calls "discord") in the study include "too much/too little responsibility at work", "dissatsfaction with home life" and others. Under the category of "life changes" are such items as "trouble with boss", "increase/decrease in salary", and

"death of a relative". The results reveal that when workers experienced life change events without discord there was no relation to subsequent illness; when they experienced life change plus discord there was an increase in subsequent rates of illness in general.

These findings imply the importance of conditions in stress research - not only as stressors but also as the context within which stressful changes take place. By remaining on the individual level, however, life events and individual conditions research may be ignoring important structural-level phenomena of both cause and effect. Linsky and Straus (1981) address this issue in constructing an aggregated life events index for American states. In constructing that index - the State Stress Index (SSI) - the authors recognize: 1) that life events can have effects on individuals other than those who experience them directly; and 2) that social systems characterized by high rates of divorce, business failures, and other life events may themselves be sources of stress. This conceptualization of stress fits into category III of Figure 3.1. In tests to date, the SSI has been found to be significantly related to violent and property index crimes (Linsky and Straus, 1981) and to heavy drinking (Linsky, Straus, and Colby, 1985).

By aggregating life events and using the entire membership of the social system as the population at risk of stress outcomes, Linsky and Straus in effect raise a type I individual-change study to a type III stuctural-change

study. More common examples of type III studies come from the anthropological tradition of cultural change and the sociological study of social disorganization. Many of these studies operationalize "stress" with broad concepts such as "urbanization", "Westernization", and "industrialization" (e.g., Scotch and Geiger, 1963; Lowenstein, 1961). Studies linking cultural or stuctural change to stress outcomes include those which have examined the movement of traditionally rural groups into urban areas (Scotch, 1960; Stamler, 1964) and those in which the social structure is changing around a stationary group (e.g., Henry and Cassel, 1969).

While there is evidence that changes in the social structure may be related to stress outcomes, other studies have shown that it may be the more chronic conditions in the social system which are stress-inducing (James and Kleinbaum, 1976; Harburg et al., 1973). According to these studies, certain locations in the social structure are more stressful than others as indicated by high crime rate, family instability, and low income.

Earlier it was shown that there has been some integration of the concepts of "stressful events" and "stressful conditions" on the individual level. This integration is most notably demonstrated by Theorell's (1976) study on the contribution of both individual changes and individual conditions to the production of illness. There is also acknowledgement within the structural level

approach to stress and illness that rapid changes and stressful conditions in the social structure can both be productive of illness. Scotch (1960) attributed higher rates of illness among recent South African black rural-to-urban migrants to two characteristics of the urban environment which set it apart from the rural: rapid change and apartheid (a condition).

Although these alternative types of stressors are recognized by researchers in both the individual and structural areas of stress study, there has been little acknowledgement in either area of the different sources of stress. In terms of Figure 3.1 above, there is horizontal but not vertical recognition of alternative approaches to stress. In their group-level study of social stress and chronic illness, Dodge and Martin (1970) make no reference to any of the life events studies, and Linsky and Straus (1981) found only one passing reference to the Dodge and Martin study in forty-three life events articles in their files. This intra-level bias is in large part due to the fact that each group of researchers has a different emphasis: structural level studies deal for the most part with differences (in stress and illness) between groups while individual level studies are concerned primarily with differences within groups.

The present study uses status integration as an indicator of stressful conditions at the structural level (category IV in Figure 3.1). In a sense, Gibbs and Martin

(1964) do for the individual-level concept of role conflict what Linsky and Straus (1981) do for the individual-level concept of life events: they raise it to a structural-level concept. By aggregating individual life events, Linsky and Straus posit that individual life events can impact on members of the social system other than those who directly experience them. Similarly, Gibbs and Martin point out that role conflict can adversely affect not only the incumbants of incompatible statuses, but also those involved in the social networks of the incumbants (see section on the theory of status integration above).

Empirical Comparison of Structural-Level Stress Measures

The availability of three separate state-level measures of stress makes possible empirical comparisons of these indicators. The three measures are: 1) a composite Measure of Status Integration (MSI) made up of marital and labor force integration for white males in 1970; 2) the State Stress Index (SSI) of aggregated life events for 1976 (Linsky and Straus, 1981); and 3) the Index of Relative Opportunity (IRO), a measure of status frustration for 1970 (Linsky, 1969; Linsky, Straus, and Colby, 1985).

The MSI and the SSI are each described in depth earlier in this chapter. Each is a macro level operationalization of concepts more commonly used on the individual level: role conflict and stressful life events respectively. The IRO is based on the notion of status blockage or status frustration, i.e. residents of communities who have high

aspirations, and investments in achievement (as measured by educational level) but who are blocked by lack of opportunity for occupational attainment (based on the relative availability of high status jobs in the community). The index is calculated by the number of persons employed as professional and technical workers, managers and administrators, sales workers, and craftsmen and kindred workers, divided by the number of residents 18 and over who have a minimum of one year of college education.

Table 3.3 presents intercorrelations of the three stress indexes. It is apparent from the correlations that the three indexes do not measure the same thing. The highest correlation, that between the MSI and the IRO ($r=.32;p<.05$) indicates only a moderate relationship. The correlations between the MSI and the other two indexes show that both the SSI and the IRO work in the same direction as the MSI in terms of their stressfulness. That is, states characterized by high stress according to the MSI (i.e., low status integration) tend also to exhibit high stress according to the other two measures. But they are also measuring different aspects of stress as indicated by the modest level of the correlation coefficients.

Table 3.3. Intercorrelations of three measures of social stress: Marital-labor force integration-1970 (MSI), the State Stress Index-1976 (SSI), and the Index of Relative Opportunity-1970 (IRO). (N=50)

	Social Stress Measure		
	MSI	SSI	IRO
Meas. of Status Integ.	---	-.22	.32*
State Stress Index	---	---	.02
Index of Relative Opp.	---	---	---

*p<.05

CHAPTER IV

METHODS AND MATERIALS

The present chapter describes the methods and materials employed in this study. The chapter is divided into five major sections. In the first section the use of states as units of analysis is discussed. The other four sections provide descriptions of the variables used in this study: the Measure of Status Integration (the independent variable); measures of alcohol problems (the dependent variables); the four control variables; and the Alcohol Proscriptive Norm Index (a mediating variable). Included in the discussion of the dependent variables is a comparison of the geographic distribution of the measures of alcohol problems used in this study with survey-derived self-reported heavy drinking and drinking problems for the nine census divisions. Also presented in the dependent variable section are intercorrelations of the six measures of alcohol problems used in this study.

STATES AS UNITS OF ANALYSIS

The current investigation uses the 50 American states and nine census divisions as units of analysis. The census divisions are used solely to aid in the description of the

geographic distribution of variables. The testing of theoretical hypotheses is done exclusively with states as the units.

This study is facilitated largely by the availability of state level data from the State and Regional Indicators Archive (SRIA) at the University of New Hampshire. The SRIA has been developed for the purpose of bringing together the vast array of data on the social and economic characteristics of American states that is available from diverse sources. Several of the variables used in this study were already available in the SRIA. Indicators such as the Measure of Status Integration and age-specific cirrhosis death rates which were especially added for this study subsequently have become a permanent part of the Archive.

States were chosen as units of analysis for a number of reasons. This is not to say that research using state level data is without problems and limitations. Following is a discussion of the major methodological issues relevant to state level analysis.

State Borders as Social and Political Boundaries

No one would suggest that state boundaries are isomorphic with clearly defined economic and social communities, but neither are they meaningless in that regard. To an equal or greater extent than is the case with cities and counties, states have distinctive social and political identities. The difference between the

neighboring states of Massachusetts and New Hampshire, for example, is large in respect to a wide variety of variables. To take a graphic example comparing Salem, N.H. to Andover, Mass. (places of about the same size just across the state line), teachers in Andover in 1980 earned an average of $6000 (45%) more per year ("They're Different and Like It That Way", Boston Globe, November 30, 1980, p. 38).

Another neighboring state comparison which has been documented is Utah versus Nevada. Age-specific mortality rates are as much as 69% greater in Nevada than Utah. Yet the two states are

> ...very much alike in respect to income, schooling, urbanization, climate, and other variables thought to be the causes of variations in mortality.... What then explains the differences in death rates? The answer almost surely lies in the different life-styles of the residents of the two states (Fuchs, 1974: 53).

Fuchs then goes on to list such life style factors as religion, marital instability, alcohol and tobacco consumption, and geographic mobility. In addition, Fuchs notes:

> And lest the reader think that the higher rate in Nevada is attributable to the "sinful" atmosphere of Reno and Las Vegas, we should note that infant mortality in the rest of the state is almost exactly the same as in these two cities.

The extent to which state borders represent social boundaries is debatable in many cases, but there is little debate that states are meaningful political action systems. With regard to the study of alcohol use and abuse, states set laws regulating the availability and consumption of

alcohol. These laws not only represent state policies, but they also indicate the underlying values of state populations regarding the use of alcohol.

Within-State Variation

Some states are so large and internally heterogeneous that there may be substantial variation within them, and these important internal differences may be masked by the use of average statistics. For example, New York state includes such diverse areas as New York City, the suburbs of Westchester County, and the largely rural upstate region. Each of these areas can be expected to exhibit considerably different social and economic characteristics. To minimize the effects of within-state variation it is important that the researcher be familiar with the characteristics of particularly heterogeneous states such as New York and be aware of the types of variables in his or her research which may be affected by these variables.

Between-State Variation

While within-state heterogeneity is potentially problematic in state level analysis, the high degree of variation between the states on most variables is one of the positive aspects of state research. Some observers have noted a gradual homogenization of the U.S. due to the common influences of the mass media on American cultural life and the increasing role of the federal government in reducing differences in education, health care, and other

areas (Taylor, 1977; Sharkansky, 1970). Despite this trend, however, large and important differences among the states remain. For example, the ratios of the highest state score to the lowest state score for the dependent variables in this study range from 2.9 to 1 for cirrhosis death rates to 34.9 to 1 for DWI arrests per 100,000.

As with any type of data used for theoretical testing, it is essential in state level research to take into account factors other than the independent variable(s) which may contribute to variation in the dependent variable(s). These factors depend largely on the issues being addressed. Among the more commonly controlled variables in state research are urbanicity, level of education, average income, and percent nonwhite population.

Availability of Data and Depth of Research

Other positive aspects of state level analysis involve the availability of state data. Many of the variables critical to this and other research are not available for smaller units such as counties. Also, the number of cases in state research (N = 50) allows for more in-depth and sophisticated statistical analysis than is possible for larger geographic regions such as the nine census divisions.

The availability factor is important to social science research in that many theories can be more easily tested with state data than with other data which may be too difficult, too costly, or even impossible to obtain. In addition, the availability of state data over time allows

researchers to investigate historical depth and to perform time-series and cross-lagged correlation analysis in order to better infer causality (Straus and Jaffe,1985).

In terms of the present study, the availability of state level data allows for: 1) the ability to readily operationalize many items from the same time period; 2) the possibility of replicating or extending the study without great expense; and 3) (common to all state level research) the ability to make meaningful descriptive and empirical comparisons between this and other studies which use states as units of analysis.

Ecological Correlations

Robinson (1950) has criticized the use of ecological correlations (correlations based on group averages), suggesting that they are frequently used as substitutes for the individual correlations in which the investigators are really interested. Others such as Menzel (1950) disagree with Robinson and have argued instead that the "group or social system level" is actually more meaningful for analysis of social phenomena.

In the current case, group level measurement of both status integration and alcohol problems and the resulting ecological correlations appear entirely appropriate. This is because the theory being tested is in fact a theory at the societal or group level, dealing with the relationship between social or cultural characteristics of groups and rates of alcoholism. Hence a research design involving

individuals as units of analysis would in fact be less desirable for testing the theory.

MEASURE OF STATUS INTEGRATION

The independent variable in this study is a Measure of Status Integration (MSI) for white males in 1970 composed of two achieved statuses (marital and labor force status) and one ascribed status (age). *1 The MSI is restricted to one race-sex group primarily due to the cost involved in computing measures for additional groups or for the total population. There are two main reasons for choosing white males over other race-sex groups. First, white males are well represented in all fifty states. The use of black or nonwhite populations would restrict the analysis to fewer than forty states due to the low representation of these groups in some states. Second, white males consume more alcohol and account for more "alcohol problems" than any race-sex group (Cahalan, et al., 1969; USDHHS, 1981). Many of the dependent variables are not available in race-specific or sex-specific rates. The white male poplation, therefore, is the most logical choice as the single race-sex group for the MSI.

The referent year 1970 is used for two main reasons. The first involves the use of published census data on status categories. Marital status and labor force status

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1. See Chapter III for a thorough discussion of the theory and measurement of status integration.

are two of the few statuses cross-classified with age and with each other in the same table (Bureau of the Census, 1973: Table 165). This makes possible the computation of a composite measure involving two achieved statuses rather than the usual single achieved status.*2 The 1970 census is the last in which this table is published.

The second reason for using 1970 as opposed to 1980 census data involves the availability of dependent variable measures for the 1980's. Detailed data from the Vital Statistics are presently published on a four to five year lag basis. Therefore, the most recent year for which cirrhosis mortality rates are available is 1979. Perhaps more important is the ready availability of data on alcohol outcomes for the 1970's from the State and Regional Indicators Archive. All but two of the dependent variables in this study are previous entries in the SRIA from other studies.

The race-sex specificity and the referent year of the independent variables present some problems in terms of comparability with the dependent variables. These issues are taken up in discussions of the respective dependent

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2. According to the theory of status integration, any MSI is an inadequate indicator of stress to the extent that any existing statuses are omitted from the measure. The predictive power of MSI's, therefore, should increase with the number of statuses included in a configuration. Gibbs (1982) has shown that the predictive power of the marital status-labor force status composite measure with regard to suicide is more than two times greater than that of either of its component measures alone.

variables below.

State and Census Division Ranks. Table 4.1 shows the rank order of the fifty states and the nine census divisions*3 according to their score on the Measure of Status Integration. There is no apparent north-south or east-west pattern for the MSI. The ENC is clearly the highest ranked (i.e., most integrated) division with member states Indiana, Ohio, and Michigan placing in the top six, Wisconsin 15th and Illinois 19th. The PAC and NE divisions have average integration scores considerably lower than the other divisions. The five PAC states rank 33rd, 34th, 47th, 48th, and 50th. Of the six NE states only Connecticut (number 11) ranks in the top half of the scale. The other six divisions are packed fairly tightly together between these extremes.

MEASUREMENT OF ALCOHOL PROBLEMS

No measure of alcohol problems is completely free of bias. That is because the indicators of alcoholism arise or are mediated through social control processes which in turn reflect a social response to alcoholism. This includes

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3. The nine census divisions are New England (NE), Middle Atlantic (MA), East North Central (ENC), West North Central (WNC), South Atlantic (SA), East South Central (ESC), West South Central (WSC), Mountain (MT), and Pacific (PAC). See Appendix A for the list of states included in each census division.

The divisional data for each variable in this section are not divisional rates. Rather they are average rates of the member states of each division. For example, the average MSI of the Middle Atlantic division is the sum of the MSI's of New York, New Jersey, and Pennsylvania divided by 3.

Table 4.1. State and census division ranks of MSI for white males, 1970.

	State	Score
1	DEL	86.
2	INDI	84.
3	OHIO	82.
4	UTAH	81.
5	N.J.	77.
6	MICH	73.
7	IOWA	73.
8	ALA	72.
9	MD	72.
10	KANS	67.
11	CONN	66.
12	N.C.	65.
13	IDA	62.
14	WYO	61.
15	WISC	60.
16	MINN	60.
17	NEBR	60.
18	GA	59.
19	ILL	59.
20	TEX	59.
21	TENN	54.
22	PA	54.
23	MO	53.
24	MISS	53.
25	S.C.	53.
26	COLO	53.
27	VA	52.
28	N.H.	51.
29	LA	50.
30	S.D.	48.
31	OREG	45.
32	OKLA	45.
33	ARIZ	45.
34	WASH	44.
35	N.M.	42.
36	ME	40.
37	ARK	40.
38	MONT	38.
39	MASS	33.
40	FLA	33.
41	N.Y.	32.
42	R.I.	27.
43	KY	26.
44	VT	24.
45	N.D.	22.
46	W.VA	22.
47	CAL	17.
48	ALAS	17.
49	NEV	6.
50	HAWA	5.

Division	Score
ENC	71.6
SA	55.3
WNC	54.7
MA	54.3
ESC	51.3
MT	48.6
WSC	48.5
NE	40.2
PAC	25.6

arrest data, attribution of cause for alcohol related deaths, or self-reports of drinking behavior in community surveys. Thus the normative system surrounding drinking behavior may affect the measurement of the dependent variable in this study. The present study employs several indicators of alcohol problems which depend on diverse sources of data. This in itself does not protect against bias due to societal reaction, but it ensures, at least, that the measures will not all share the same type of bias.

In addition to the methodological advantages of multiple indicators, there are substantial theoretical advantages to the use of the several indicators employed. Alcohol studies which test the "stress hypothesis" tend to emphasize somewhat different alcohol problems than studies testing the "normative hypothesis". The former look to psychosomatic or medical outcomes such as cirrhosis while the latter suggest drunkeness and disruptiveness as outcomes. The present study is primarily a test of the stress hypothesis and secondarily a test of the interactive effects of stress and norms. Thus the inclusion of both types of measures is appropriate.

Measurement of alcohol problems in this study is based upon data on alcohol related deaths, alcohol consumption, and alcohol related arrests. Specifically the following six indicators are employed:

1. Deaths attributed to cirrhosis of the liver per 100,000 adult population for 1975-77 (Vital Statistics of the United States, 1975-77).

2. Apparent alcohol consumption: gallons per

capita for 1970 (USDHEW, 1974).

3. Driving while intoxicated arrest rate for 1978 (U.S. Department of Justice, 1981),

4. Arrest rate for other alcohol related offenses: violation of alcohol laws, vagrancy, drunkeness, and disorderly conduct for 1978 (U.S. Department of Justice, 1981).

5. Arrests for alcohol related offenses as a percent of total arrests for 1978 (U.S. Department of Justice, 1981).

6. Arrests for alcohol related offenses as a percent of total arrests for 1973 (U.S. Department of Justice, 1978).

Where possible, the dependent variables are matched to the independent variable (MSI) in terms of race, sex, referent year, and age-specific categories. The MSI is for white males in 1970. A discussion of the ways in which each dependent variable departs from the specifications of the independent variable is included in the description of each alcohol measure.

Measures of Heavy Drinking

The two indicators of heavy drinking in this study are alcohol consumption per capita for 1970 and a three-year average death rate from cirrhosis of the liver for white males, 1975-77. The three-year average is used to compensate for the potential small sample variability in some states using data from a single year.

Apparent consumption, cirrhosis, and heavy drinking. One of the major issues in alcohol research using states or other aggregates as units of analysis involves the validity of apparent consumption and cirrhosis death rates as

indicators of heavy drinking. Apparent consumption measures are based on alcohol sales for a given geographic unit (e.g., state or nation). One problematic aspect of the apparent consumption indicator is that for geographic units such as states, not all of the alcohol sold is consumed by state residents. Nor is all alcohol that is consumed by state residents purchased in that state. To at least partially take this factor into account, Hyman and his associates (1980) suggest the use of a corrected measure based on tourist expenditures in each state. In a study using both a corrected and uncorrected consumption measure, Linsky, Straus, and Colby (1985) report no significant difference between the two. In fact the two were correlated at $r=.99$ ($p<.001$). The present study utilizes only an uncorrected version of apparent consumption.

Cirrhosis death rates are the most commonly used indicators of alcohol problems for groups. There are several often-cited difficulties involved in the use of cirrhosis death rates to indicate heavy drinking. First, not all heavy drinkers die of cirrhosis: some die from competing drinking related causes (e.g., accidents or heart disease) while others die from causes unrelated to drinking. Second, not all cirrhosis deaths are caused by heavy drinking. Finally, not all who die from cirrhosis have their deaths attributed to the disease. None of these factors would represent a major problem in state analysis as long as officials in different parts of the country did not

vary in their reporting practices and population members in different states did not vary in their physiological response to heavy drinking.

Most tests of validity and reliability of cirrhosis death rates as indicators of alcohol problems in states and other aggregates use apparent consumption as the criterion variable (Wilson, 1984; Hyman, 1981; DeLint, 1981; Furst and Beckman, 1981). As shown above, however, each of these measures is potentially flawed. One remedy to this issue would be to use a more direct measure of heavy drinking such as self-reported survey data on consumption habits (e.g., percent heavy drinkers). Unfortunately, this type of data is not made available at the state level. The smallest geographic units for which this information is available are the nine census divisions. Table 4.2 presents census division ranks of percent heavy drinkers for 1965, apparent consumption per capita for 1965, and cirrhosis death rates for 1975-77. The 1965 consumption rate is used for direct comparison with the 1965 heavy drinking measure. The ten-year difference between the referent year of these two measures and that of the cirrhosis measure is somewhat longer than the more commonly recommended five to seven year lag between measures of heavy drinking and cirrhosis death rates. The ready availability of 1975-77 cirrhosis data, however, made its use more convenient.

Table 4.2. Census division ranks of self-reported heavy drinking (1965), apparent consumption (1965), and cirrhosis death rates (1975-77).

Percent Heavy Drinkers		Apparent Consumption per capita		Cirrhosis Deaths per 100,000	
MA	19	NE	2.8	MA	18.3
NE	16	PAC	2.6	PAC	18.1
PAC	15	MA	2.4	NE	15.5
SA	13	SA	2.3	SA	15.5
ENC	9	ENC	2.1	ENC	13.8
MT	9	MT	1.8	MT	13.5
ESC	9	WNC	1.8	WSC	11.1
WSC	8	WSC	1.5	WNC	9.6
WNC	5	ESC	1.3	ESC	9.4

Comparison of these measures reflects favorably on the use of apparent consumption and cirrhosis mortality rates as indicators of heavy drinking. The rank orders of both consumption and cirrhosis are very similar to that of heavy drinkers with the east coast (NE, MA, and SA) and the west coast (PAC) ranking highest on each of the three measures. The only notable though still minor discrepencies among the other five regions for the three measures involve the WNC and the ESC. The WNC is tied for sixth in apparent consumption while it ranks last in percent heavy drinkers, far below the other divisions. The ESC ranks last in consumption and is in a three-way tie for fifth in percent heavy drinkers. These slightly discrepent rankings would make sense if the proportion of abstainers were high in the ESC and low in the WNC. In other words, a division with a high proportion of heavy drinkers can exhibit a low overall consumption rate if there is not much drinking among the rest of the population. Conversely, a division with a low proportion of heavy drinkers can exhibit a high overall consumption rate if among the rest of the population there is a relatively low rate of consumption. Additional data from the survey which reported the "heavy drinker" findings, however, fail to lend support for this explanation. The low "heavy drinker" WNC reportedly has the highest proportion of abstainers while the ESC reports a lower proportion of abstainers than either the ENC or the MT with which the ESC ranks the same in percent heavy drinkers.

In spite of these unexplained discrepencies, however, divisional analysis appears to recommend the use of apparent consumption and cirrhosis death rates as valid indicators of heavy drinking.

Consumption, cirrhosis, and MSI specifications. The cirrhosis variable meets all of the specifications of the MSI except for one: the referent years are 1975-77 instead of 1970. This discrepency is intentional. It is designed to take into account the time lag between the onset of heavy drinking and death from cirrhosis. Hyman, et al. (1980:17) correlated apparent consumption with cirrhosis mortality for the fifty states with time lags of zero to five years. The highest correlations were registered for the five-year time lag. Results using 1970 cirrhosis mortality data would likely be very similar to those using the 1975-77 data because the geographic distribution of cirrhosis death rates are very stable over time. Wilson (1984) reports that 1970 cirrhosis mortality rates for the fifty states are correlated with the rates from 1975, 1976, and 1977 at r=.90, .91, and .89 respectively. Thus the measures are very closely related.

Apparent consumption is not available by race, sex, or age. Although it does not meet the exact specifications of the independent variable, the use of apparent consumption is appropriate by virtue of the fact that the white male population consumes more alcohol than any other race-sex group. Cahalan, et al. (1970) report similar rates of

alcohol use among white and black men (77 and 79 percent) but relatively more white male than black male heavy drinkers (29 percent to 24 percent). Given the white to black population ratio of more than four to one, it is clear that white males comsume much higher amounts of alcohol than nonwhites. The white male population in the U.S. also ranks higher in rates of alcohol use and heavy drinkers than white females (61 percent and 7 percent) and black females (49 percent and 22 percent).

State and census division ranks. Table 4.3 shows state ranks and census division ranks of the two indicators of heavy drinking: apparent consumption and cirrhosis death rates. Apparent consumption for 1970 reveals a clear pattern of high consumption in the North and West relative to the South. The one exception to this pattern is the inclusion of the WNC in the low consumption Southern group. Of the 16 Southern states, three fall in the top half of the scale (Delaware, Maryland, and Florida) while 13 are in the bottom half. In addition, the three Southern states in the top half are possibly the least "Southern" of the Southern states in population composition if not in terms of geography. Florida's population includes substantial numbers of elderly migrants from the North while Delaware and Maryland are the two Northernmost states of the three Southern divisions.

Table 4.3. State and census division ranks of apparent consumption, 1970, and white male cirrhosis death rate, 1975-77.

	Apparent Consumption per capita				Cirrhosis Deaths per 100,000			
	State	Score	Div.	Score	State	Score	Div.	Score
1	NEV	5.7						
2	N.H.	4.9	NE	3.3	NEV	399.	MA	282.7
3	ALAS	3.8			CAL	342.		
4	VT	3.6	PAC	3.0	FLA	331.		
5	DEL	3.3			N.Y.	326.	NE	254.5
6	WISC	3.3			R.I.	303.		
7	CAL	3.2	MT	2.9	N.M.	284.	PAC	237.8
8	N.Y.	3.1			MASS	283.		
9	MD	3.0			N.J.	268.		
10	FLA	3.0	MA	2.8	W.VA	265.	SA	234.9
11	N.J.	3.0			MICH	261.		
12	R.I.	2.9	ENC	2.6	ILL	259.		
13	ILL	2.9			ME	258.	ENC	221.2
14	MASS	2.9			DEL	258.		
15	CONN	2.9	SA	2.4	PA	254.	MT	219.5
16	ARIZ	2.8			N.H.	254.		
17	MONT	2.8			OREG	253.		
18	MICH	2.8	WNC	2.2	CONN	240.	WSC	182.3
19	COLO	2.8			ARIZ	239.		
20	WASH	2.7	WSC	2.0	WASH	225.		
21	WYO	2.7			MD	222.	ESC	174.9
22	N.M.	2.6			OHIO	213.		
23	HAWA	2.6	ESC	1.6	N.C.	211.	WNC	163.9
24	OREG	2.5			HAWA	205.		
25	MINN	2.5			TEX	202.		
26	NEBR	2.5			GA	200.		
27	LA	2.5			S.C.	200.		
28	N.D.	2.4			KY	196.		
29	ME	2.4			WISC	195.		
30	VA	2.4			LA	195.		
31	MO	2.4			VA	192.		
32	PA	2.3			VT	189.		
33	TEX	2.3			COLO	184.		
34	S.C.	2.3			WYO	184.		
35	OHIO	2.3			MO	183.		
36	IDA	2.1			OKLA	181.		
37	S.D.	2.0			INDI	178.		
38	GA	2.0			IOWA	176.		
39	KY	1.9			MONT	174.		
40	INDI	1.9			NEBR	174.		
41	IOWA	1.9			MINN	173.		
42	N.C.	1.8			ALA	169.		
43	OKLA	1.8			TENN	167.		
44	W.VA	1.7			MISS	166.		
45	MISS	1.7			ALAS	164.		
46	KANS	1.6			S.D.	157.		
47	TENN	1.6			ARK	152.		
48	UTAH	1.5			UTAH	149.		
49	ARK	1.5			KANS	144.		
50	ALA	1.4			IDA	143.		
					N.D.	140.		

The geographic distribution of cirrhosis death rates is similar to that of apparent consumption rates. The South/non-South division is still quite clear with cirrhosis despite an increase in the number of Southern states falling within the top half of the scale (seven for cirrhosis as opposed to three for consumption). Once again the high ranking Southern states are predominantly the Northernmost states from the SA division.

Measures of Alcohol Related Arrests

The four indicators of alcohol related arrests are "DWI arrests per 100,000", "arrests for other alcohol related offenses per 100,000", and "percent of all arrests that are alcohol related" for 1978 and for 1973. The first two and the latter two measures emphasize different aspects of the alcohol problem. The rate of alcohol related arrests and DWI arrests in comparison to total population (presumably at risk of such events) is a straight forward epidemiological measure of the occurrence of an event in comparison to the population at risk of experiencing such events.

On the other hand, percent of total arrests that are alcohol related reflects the salience of alcohol arrests in comparison to arrests for other offenses. It suggests the degree to which alcohol problems have come to be defined as social problems from the standpoint of the community - i.e.,the extent to which the resources of the criminal justice system are consumed by the alcohol problem.

Alcohol arrests and other drinking problems. A discussion in the previous section centered on the validity of apparent consumption and cirrhosis death rates as indicators of heavy drinking in state level analysis. A similar issue with regard to alcohol related arrests in state-level studies concerns whether alcohol related arrests are indicators of the level of social disruption or of the level of social control. As with consumption self-reports, the smallest geographic areas for which self-reported drinking problems are available are the nine census divisions. In this section, alcohol related arrests are compared to self-reported drinking problems for the census divisions. The drinking problem measure involves questions from a 1979 survey about respondents' experiences of drinking related difficulties at home, at work, or in public in the previous 12 months (see Appendix B for actual survey questions). The arrest measure is one of those used as a dependent variable in this study. A ratio of drinking problems to alcohol related arrests was computed from these two measures. The ratio is intended as a measure of the extent to which the alcohol related arrest rate is an indicator of social disruptiveness or of social control. If the ratios are relatively stable across census divisions (i.e., if the relative values of the drinking problem and arrest indicators are similar for each division) then arrest data could be considered an indicator of the level of social disruptiveness. On the other hand, if there is considerable

variation among the divisional ratios then it is more likely that the arrest measure is an index of social control. These interpretations of the ratio findings are based on the assumption that self reports closely approximate the true incidence of drinking problems. The self report is undoubtedly susceptible to regional variations in social reactivity but probably to a lesser extent than is the arrest measure.

Table 4.4 presents census division ranks of the three measures described above. The geographic distribution of self-reported drinking problems is clear: high in the west (PAC and MT divisions) relative to the other the seven divisions among which there are no significant differences or discernible patterns. Aside from the west, therefore, drinking problems seem to be distributed quite regularly across the country. Alcohol related arrests, on the other hand, exhibit a clear pattern of high-south/low-north. The MT division is aligned with the three southern divisions to comprise the top four arrest regions while the PAC division ranks low along with the four northern divisions. Comparison of the ranks and values between the two measures, therefore, suggests that arrest data are tapping a phenomenon other than drinking problems. The ratio of drinking problems to alcohol related arrests further illustrates the differences in divisional patterns between the two measures. The marked differences in ratio values clearly indicate that some divisions are more tolerant of

Table 4.4. Census division ranks of self-reported drinking problems (1979), alcohol related arrests per 100,000 (1978), and the ratio of drinking problems to alcohol related arrests.

Percent with Drinking Problems		Alcohol Arrests per 100,000		Ratio of Drinking Problems to Alcohol Arrests	
MT	13.5	ESC	23.4	PAC	926:1
PAC	7.5	WSC	21.4	MT	823:1
ESC	4.5	MT	16.4	NE	600:1
MA	4.5	SA	15.8	MA	411:1
WSC	4.0	ENC	11.7	WNC	398:1
ENC	4.0	MA	10.2	ENC	342:1
WNC	3.5	WNC	8.8	SA	222:1
SA	3.5	PAC	8.1	ESC	192:1
NE	3.0	NE	5.0	WSC	187:1

drinking problems than are other divisions. The western divisions (PAC and MT) are the most tolerant making one arrest for every 800 or 900 drinking problems. The four northern divisions comprise the second most tolerant group ranging from 342 to 600 drinking problems for every arrest. The southern divisions, meanwhile, rank the lowest in tolerance as a group each having only around 200 drinking problems for each arrest. Thus, it appears that alcohol related arrests may be indicators more of community efforts at the social control of alcohol problems than of the level of alcohol related social disruptiveness.

Alcohol arrests and MSI specifications. The four arrest variables pose the most serious problems in terms of comparibility with the specifications of the independent variable. State arrest data are not published by race, sex, or age. As with alcohol consumption, white males account for most alcohol arrests (Department of Justice, 1981). Although data on alcohol related arrests for race-sex groups are not available, it can be inferred automatically from race-specific and sex-specific data for the U.S. as a whole that white males rank highest among the race-sex groups in the numbers, if not in the rates of alcohol related arrests. Alcohol related arrests for males outnumber those for females more than eight to one (3,150,827 to 384,301 for 1980) while the white to nonwhite ratio is more than four to one (2,883,104 to 635,267). Even though alcohol arrest rates per 100,000 are somewhat higher among blacks (1868 to

1667 for whites), it is apparent that white males account for the vast majority of alcohol related arrests.

Unlike consumption data, arrest data are not available for the referent year 1970. The closest year for which a complete set of alcohol arrest data of is published is 1978 from which three of the variables in this study are taken. The fourth arrest variable is from 1973 and is the same as one of the 1978 variables - percent of all arrests that are alcohol related. Comparison of the results of analyses using these two variables will give some indication of the stability of the rates over time.

State and census division ranks. Tables 4.5 and 4.6 array census divisions and states according to their ranks on four alcohol related arrest variables. Overall, the four variables show a geographic pattern opposite to that of consumption and cirrhosis. All four are characterized by a high-south/low-north pattern. The top half of the "DWI per 100,000" scale contains 12 of the 16 southern states while 14 of the 16 rank among the top 25 states for "arrests for other alcohol related offenses per 100,000". Although only 11 of the 16 southern states are in the top half of the 1978 alcohol arrest/total arrest ratio scale, 10 of these are among the top 11. Similarly, the 1973 ratio scale has 12 southern states in the top half including 8 of the top 9.

The extent to which the southern states dominate the top of the two alcohol arrest-total arrest scales (as opposed to the wider spread distribution in the more

Table 4.5. Census division ranks of alcohol related arrest variables.

DWI Arrests per 100,000 1978		Other Alcohol Arrests per 100,000 1978		Ratio of Alcohol Arrests to Total Arrests 1978		Ratio of Alcohol Arrests to Total Arrests 1973	
WSC	10.1	ESC	23.4	ESC	50.8	ESC	54.5
MT	9.5	WSC	21.4	WSC	45.8	WSC	49.5
ESC	9.1	MT	16.4	SA	37.8	SA	43.0
PAC	8.5	SA	15.8	WNC	37.4	MT	41.6
SA	8.2	ENC	11.7	MT	34.6	WNC	40.7
WNC	6.6	MA	10.2	ENC	34.4	NE	37.3
ENC	4.8	WNC	8.8	PAC	32.0	ENC	35.2
NE	3.8	NE	5.0	MA	24.3	MA	30.0

Table 4.6. State ranks of alcohol related arrest variables.

	DWI Arrests per 100,000 1978		Other Alc. Arrests per 100,000 1978		Alc. Arrests as Percent of Total Arrests 1978		Alc. Arrests as Percent of Total Arrests 1973	
	State	Score	State	Score	State	Score	State	Score
1	D.C.	17.09	NEV	46.37	W.VA	58.	GA	67.
2	GA	16.04	KY	31.88	S.C.	56.	ARK	63.
3	ARIZ	15.72	OKLA	26.67	OKLA	55.	W.VA	62.
4	OREG	15.40	W.VA	26.18	KY	54.	KY	60.
5	NEV	14.96	S.C.	25.24	TENN	51.	S.D.	59.
6	ARK	13.44	TEX	25.19	ARK	51.	S.C.	59.
7	ALAS	13.23	WYO	24.59	N.D.	50.	ALA	57.
8	ALA	12.57	TENN	23.88	ALA	49.	MISS	54.
9	OKLA	11.93	ALA	23.66	GA	49.	OKLA	53.
10	WYO	10.43	ARK	20.83	MISS	49.	NEBR	52.
11	N.D.	9.94	ILL	20.05	TEX	48.	ME	50.
12	ME	9.77	GA	19.68	WYO	47.	TEX	50.
13	S.C.	9.24	VA	18.37	NEBR	45.	MONT	48.
14	KY	9.11	ALAS	16.54	CAL	44.	WYO	47.
15	VA	8.82	PA	15.80	N.H.	44.	TENN	47.
16	IDA	8.57	UTAH	15.45	S.D.	43.	N.M.	46.
17	COLO	8.40	N.D.	14.91	PA	42.	ARIZ	45.
18	TEX	8.40	MISS	13.99	IOWA	41.	N.D.	43.
19	S.D.	8.09	DEL	13.79	NEV	41.	VT	43.
20	WISC	7.90	NEBR	13.50	OREG	40.	FLA	43.
21	NEBR	7.45	LA	12.94	INDI	39.	WASH	43.
22	MISS	7.43	WISC	11.86	VA	37.	NEV	42.
23	TENN	7.35	N.C.	11.39	ILL	37.	N.H.	42.
24	UTAH	7.08	IOWA	11.02	ARIZ	37.	IOWA	40.
25	LA	6.81	INDI	10.78	ME	36.	N.C.	40.
26	N.M.	6.46	OREG	10.26	ALAS	36.	INDI	40.
27	FLA	6.11	ARIZ	9.57	N.C.	35.	MASS	39.
28	MICH	5.80	OHIO	9.25	WISC	35.	VA	39.
29	MO	5.65	COLO	9.10	UTAH	35.	WISC	38.
30	WASH	5.34	N.J.	9.06	OHIO	33.	CAL	38.
31	KANS	5.18	N.M.	8.94	MINN	32.	PA	37.
32	IOWA	5.12	IDA	8.57	N.M.	31.	OHIO	37.
33	MINN	4.66	MONT	8.56	MONT	31.	IDA	37.
34	HAWA	4.56	CONN	8.36	IDA	30.	CONN	36.
35	MASS	4.42	WASH	7.77	DEL	29.	COLO	35.
36	N.H.	4.22	S.D.	7.72	LA	29.	MINN	34.
37	W.VA	4.19	ME	6.98	MICH	28.	UTAH	33.
38	CAL	4.12	MICH	6.70	WASH	27.	OREG	33.
39	MONT	4.08	FLA	6.11	MASS	27.	ALAS	33.
40	OHIO	4.02	MD	5.68	KANS	26.	LA	32.
41	INDI	3.72	N.Y.	5.64	CONN	25.	MICH	31.
42	MD	3.41	R.I.	5.41	MO	25.	ILL	30.
43	N.J.	2.83	MO	5.22	COLO	25.	MO	29.
44	ILL	2.43	KANS	5.18	FLA	22.	KANS	28.
45	N.Y.	2.42	CAL	4.12	N.J.	21.	N.Y.	28.
46	PA	2.14	MINN	4.11	VT	21.	N.J.	24.
47	R.I.	1.80	MASS	4.11	R.I.	16.	MD	19.
48	VT	1.56	N.H.	3.52	MD	16.	HAWA	17.
49	CONN	1.14	HAWA	2.03	HAWA	13.	DEL	15.
50	DEL	0.49	VT	1.72	N.Y.	10.	R.I.	14.

straightforward epidemiological scales) illustrates the difference between the two sets of indicators. The first two measures indicate a relatively high rate of alcohol related arrests in the south. These measures, however, do not take into account the level of overall arrests. It is possible that there is a high overall level of arrests in the south of which alcohol related arrests are no greater part than for other regions. The latter two measures, which take the overall arrest rate into account, reveal that southern states exhibit high rates of alcohol related arrests relative to other arrests. In other words, the high alcohol related arrest rate is not due solely to a high overall arrest rate.

Interrelationships of Alcohol Indicators

Cirrhosis death rates are important in alcohol research because of their frequent use in formulas which estimate rates of alcoholism and heavy drinking in groups. The use of cirrhosis rates to indicate alcoholism is consistent with the disease-concept of alcoholism. Perhaps most of society's problems with alcohol, however, are social - not medical. If alcoholism (the disease) is the origin of other alcohol problems such as alcohol related arrests and "drinking problems" then cirrhosis and consumption have more than merely medical implications. If, on the other hand, these indicators of heavy drinking are not related to other alcohol problems, then their usefulness in social research is more limited. In short, heavy drinking may be but one

small aspect of the alcohol problem. It may be that variations in alcoholism and heavy drinking do not account for variations in other problems defined as alcohol related.

Table 4.7 presents intercorrelations of the six alcohol indicators used in this study. The high positive relationship between consumption and cirrhosis is not surprising in view of their similar geographic distribution as described above. The consumption-cirrhosis relationship has also been well established in other studies (Hyman, et al., 1980; Wilson, 1984; Linsky, Straus, and Colby, 1985). The DWI arrest rate is moderately correlated with the other alcohol related arrest rate and with the two arrest ratio measures. The "other alcohol related arrest" variable is highly correlated with both of the arrest ratios. Finally, the "alcohol arrests as percent of all arrests" measures are highly intercorrelated indicating relative stability of that measure over time.

Both arrest rates per 100,000 are uncorrelated with cirrhosis deaths and with consumption. The correlations approach zero. This suggests that alcohol arrests do not arise as a response to heavy drinking since there is apparently no more drinking in states with high arrest rates than in states with low arrest rates. In fact, the significant negative correlations of the alcohol arrest-total arrest ratios with consumption and cirrhosis suggest that alcohol related arrests might be inversely associated with heavy drinking.

Table 4.7. Intercorrelations of indicators of alcohol problems. (N=50)

	2	3	4	5	6
1.Consumption per capita 1970	.61***	-.13	-.04	-.32**	-.34**
2.Cirrhosis death rate 1975-77	----	-.19	.02	-.28*	-.25*
3.DWI arrest rate 1978	----	----	.48**	.49***	.49***
4.Other Alcohol arrest rate 1978	----	----	----	.68***	.49***
5.Alcohol-total arrest ratio 1978	----	----	----	----	.78***
6.Alcohol-total arrest ratio 1973	----	----	----	----	----

p<.05, p<.01, p<.001

Two possible explanations for these differences between heavy drinking and social alcohol problems are: 1) differential behavioral responses to alcoholism and heavy drinking in populations; and 2) differential reaction to drinking-related behavior by groups and their agents of social control. Thus, in two separate communities there may exist similar consumption patterns and differential behavior patterns or similar consumption patterns, similar behavior patterns, and differential societal reaction.

In a study by Linsky, Colby, and Straus (1985a) it was found that anti-alcohol norms are associated inversely with consumption and cirrhosis and positively with arrests. Those findings, along with the divisional analysis on drinking problems and alcohol related arrests above, support the notion that heavy drinking and alcohol related arrests are separate phenomena - at least at the group level. It appears that variations in alcohol related arrests depend more on variable normative boundaries and societal reactions than on levels of consumption.

CONTROL VARIABLES

It is possible that the relationships between status integration and alcohol problems are spurious or are masked due to factors that are related to both status integration and alcohol problems. The following four factors are statistically controlled in this study through partial correlation:

1. education - percent of population with four years of high school of more;

2. poverty - percent of families below the poverty line;

3. urbanicity - percent of population living in metropolitan areas;

4. race - percent black of population.

Age is taken into account in this study in two ways. First, the version of the MSI used in the study is weighted according to age. Second, the relationships between age-specific MSI's and corresponding age-specific cirrhosis rates are examined in separate analyses.

INTERVENING VARIABLE:ALCOHOL NORM CONTENT

In their study of social stress and chronic illness, Dodge and Martin posit that illnesses such as cirrhosis of the liver and arteriosclerotic heart disease occur due to more or less automatic bodily reactions to stress. While they recognize that some individuals may have greater resistance to stress than others for various reasons, they do not point out the possible role of norms in stress outcomes. Dodge and Martin conceptualize cirrhosis and heart disease solely as psychogenic diseases - a direct result of stress. If, in the case of these illnesses, there are behavioral intervening variables (i.e., drinking and smoking), then the question of behavioral norms comes into consideration. According to the psychogenic scheme, the individual has a more or less automatic physiological reaction to stress. In the behavioral model, the intervening drinking behavior would likely vary according drinking norms. Members of groups with prohibitive drinking

norms may be less likely to react to stress by drinking than might members of of groups with relatively permissive norms. (Members of prohibitive groups may well exhibit alternative stress outcomes.)

As discussed in Chapter II, the "stress hypothesis" and the "normative hypothesis" are the two fundamental components of sociological theories of alcoholism. While stress is seen as the major "cause" of heavy drinking, whether or not drinking occurs in response to stress is viewed largely as a function of group alcohol norms. The present study is primarily a test of the relationship between status integration (i.e., social stress) and alcohol problems. The ready availability of a state level index of alcohol norm content from the SRIA makes possible a series of analyses on the interaction of stress and alcohol norms with regard to alcohol outcomes.

The Alcohol Proscriptive Norm Index (APNI) was computed by Linsky, Colby, and Straus (1985a) for each of the 50 states based on percent of population residing in legally dry areas, the degree of legal restrictiveness on the sales or consumption of alcoholic beverages, and the percent population Mormon and Fundamentalist. Proscriptive norms were found to be inversely associated with indicators of heavy drinking (i.e., the more proscriptive, the less heavy drinking) and positively correlated with alcohol related arrests. Another study found that the relationships between aggregated stressful life events and alcohol problems were

strongest within the context of strong cultural support for the use of alcohol, thus supporting Bales' original theory (Linsky, Colby, and Straus, 1985b). The present study will replicate this analysis substituting the MSI for aggregated stressful life events as an alternative measure of stress.

CHAPTER V

STATUS INTEGRATION AND ALCOHOL PROBLEMS

The present chapter reports findings from tests of the major theorem of the theory of status integration: The rate of alcohol problems of a population varies inversely with the degree of status integration in that population. Also reported are findings from tests of the Bales theory of alcoholism concerning the interactive effects of stress and alcohol norms on alcohol problems. Bales' proposition asserts that the relation of stress to alcohol problems should be strongest in areas which encourage or allow drinking and intoxication. Two categories of "drinking problems" containing six specific measures are employed:

1) Heavy drinking

   a) apparent consumption per capita, 1970

   b) deaths from cirrhosis of the liver, 1975-77

2) Alcohol related arrests

   a) DWI arests per 100,000, 1978

   b) Other alcohol related arrests per 100,000, 1978

   c) Alcohol arrests as a percent of total arrests, 1978

d) Alcohol arrests as a percent of total arrests, 1973

Thus the major theorem can be broken down into two categorical or six specific hypotheses by substituting the appropriate category or measure for "alcohol problems" in the major theorem.

For the indicators of heavy drinking the specific hypotheses are clear: the higher the level of status integration, the lower the levels of consumption and cirrhosis. With regard to the arrest variables, however, the proposed relationships are not so clear. As discussed in the previous chapter, geographic variations in arrests appear to indicate variations in the control of alcohol problems more than they do variations in the level of drinking problems. In the literature on stress and alcohol there is no hypothesized relationship between stress and the level of control of alcohol problems. It may be that socially-induced stress impacts upon the community's tolerance of alcohol related behavior but there is little empirical or theoretical basis on which to hypothesize such a relationship. There may be more reason to expect the level of social control to be associated with the community's norms regarding alcohol use. Thus, tests of the relationship between status integration and alcohol arrests will be more exploratory than they will be tests of specific hypotheses.

As discussed in Chapter III, status integration is a group-level measure of role conflict or social stress. One potential point of confusion in the presentation of the findings regards reference to the independent variable as either "integration" or "social stress". The two are inverse concepts: high stress equals low status integration while low stress equals high integration. With reference to the major theorem, the findings could be presented as "the greater the degree of status integration, the lower the rate of alcohol problems" or "the greater the level of stress, the greater the rate of alcohol problems". In this chapter the term "integration" will be used except in presenting the findings on the interaction of status integration and alcohol norms. In that section, the use of the term "stress" proves less awkward.

STATUS INTEGRATION AND HEAVY DRINKING

Total MSI's

Table 5.1 reports zero-order correlations and 4th-order partial correlations of state total MSI's with the two indicators of heavy drinking. Column A shows that status integration is moderately and significantly correlated with both apparent consumption ($r = -.36$; $p<.01$) and cirrhosis mortality ($r = -.35$; $p<.01$) in the expected direction (i.e., the more integration the less heavy drinking).

To account for the possible spuriousness of the correlations education, poverty, urbanicity, and race were controlled through partial correlation. These findings

Table 5.1. Zero-order and partial correlations of MSI with indicators of heavy drinking. (N=50)

Indicators of Heavy Drinking	Correlation With MSI	
	A.Zero-order	B.4th-order
Consumption per capita 1970	-.36**	-.50***
Cirrhosis Deaths per 100,000 1975-77	-.35**	-.43**

p<.05, p<.01, p<.001

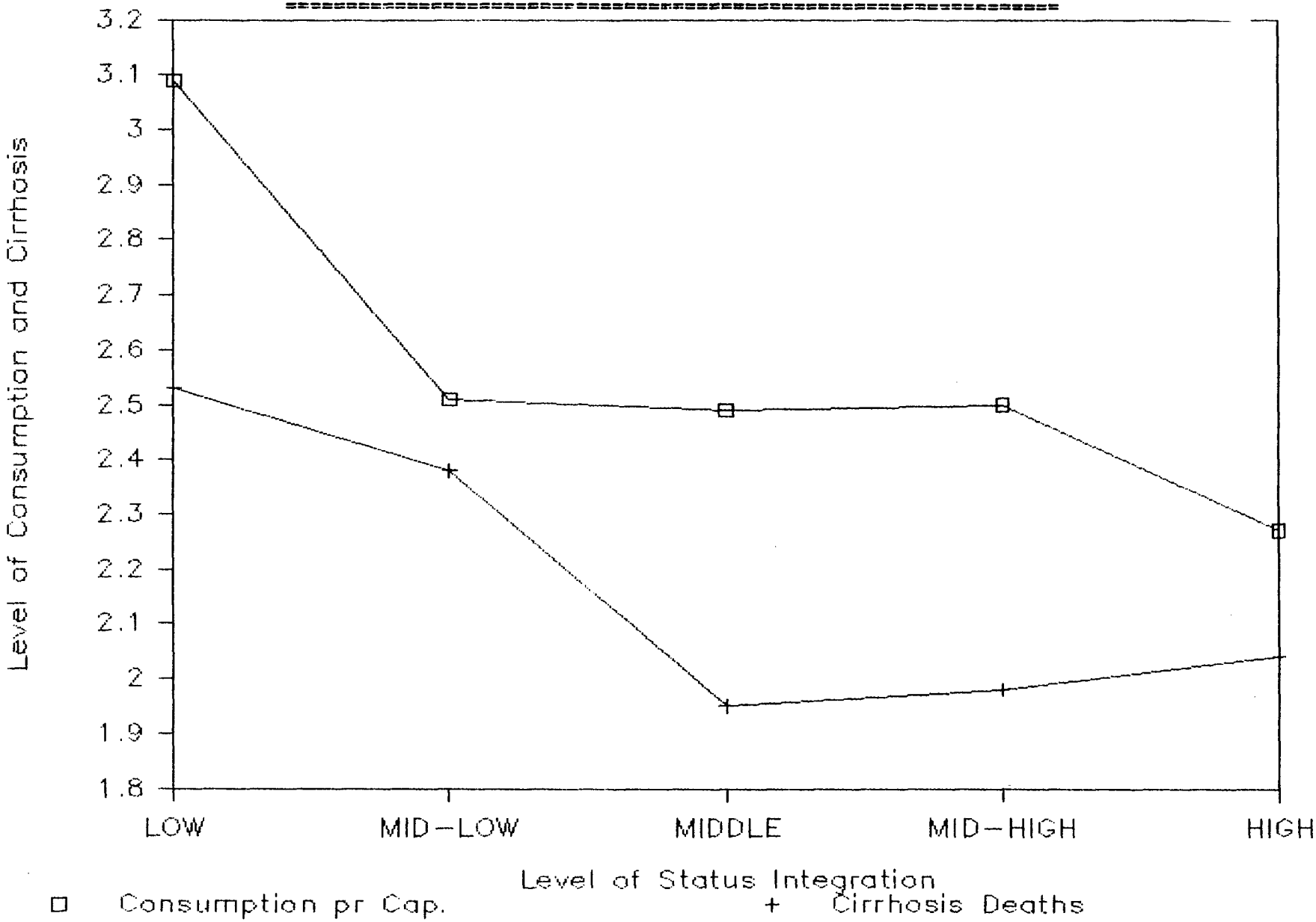
(Column B of Table 5.1) reveal an increase in the strength of the relationship between the MSI and each indicator of heavy drinking: consumption ($r = -.50$; $p < .001$) and cirrhosis mortality ($r = -.43$; $p < .01$). Regression analysis shows that the MSI and the four controls explain 33% of the variation in apparent consumption and 38% of the variation in cirrhosis mortality.

Test for non-linearity. Zero-order and partial correlations are summary measures of the linear relationship between independent and dependent variables. To test for the possibility of a nonlinear relationship, the MSI was divided into quintiles and the means of each ten-state group were plotted on the graph on Figure 5.1.

Among the consumption quintiles, the Low Integration group shows the highest average consumption, the High Integration group the lowest, with the three middle groups virtually equal. The line implies a double threshhold effect with low integration associated with high consumption and high integration associated with low consumption while the middle gradients of integration appear to be unrelated to variations in consumption.

The cirrhosis quintiles offer a somewhat different pattern than the consumption quintiles. The findings reveal a possible threshhold effect beginning with the Middle Low Integration quintile and extending through the Low quintile. There is no apparent relationship between integration and cirrhosis for the Middle to High quintiles.

Figure 5.1. Mean rates of apparent consumption and cirrhosis deaths for MSI quintiles.



Taken together, the two lines appear to strongly support the notion that groups characterized by low integration (i.e., high stress) exhibit high rates of heavy drinking. The corresponding idea that the most highly integrated groups have the lowest rates of heavy drinking receives support only from the consumption findings.

Age-Specific MSI's and Age-Specific Cirrhosis Rates

Table 5.2 presents zero-order correlations and third order partials*1 of age-specific MSI's with age-specific cirrhosis death rates for six age groups. Other age groups are not included because of their low numbers of cirrhosis deaths. In order to make direct comparisons of the same age cohorts there is a five year difference between the 1970 age-specific MSI's and the 1975-77 cirrhosis age groups with which they are correlated. For example, the 45-49 MSI age group is compared to the 50-54 cirrhosis age group. This is because those who were 45-49 in 1970 were 50-54 in 1975.

The zero-order findings reveal a consistently strong relationship in the predicted direction (the more integration the fewer cirrhosis deaths). The partials strengthen the relationship significantly for the middle four age groups while the youngest and oldest age groups remain essentially unchanged. These six separate tests of

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1. In the age-specific analysis the "percent black" control is omitted since it is not relevant to either the independent or the dependent variable.

Table 5.2. Zero-order and partial correlations of age-specific MSI's with age-specific cirrhosis death rates, white males. (N=50)

MSI Age Group	Correlation With MSI	
	A.Zero-order	B.4th-order
35-44	-.61***	-.58***
45-49	-.40***	-.48***
50-54	-.37**	-.54***
55-59	-.34**	-.64***
60-64	-.29*	-.52***
65-69	-.47***	-.49***

p<.05, p<.01, p<.001

the major theorem provide strong evidence in support of the major theorem that status integration is inversely associated with heavy drinking.

STATUS INTEGRATION AND ALCOHOL RELATED ARRESTS

Table 5.3 presents zero-order and partial correlations of the MSI with the four alcohol related arrest variables. Column A shows that although all of the correlations are in the expected direction, they are all quite low with one correlation (the MSI with the 1978 arrest ratio) approaching zero.

The MSI-arrest partials (Column B) show no significant differences from the zero-order correlations. The partial of MSI with alcohol arrests per 100,000 is somewhat stronger in the predicted direction than the zero-order correlation but still does not reach the $p<.05$ level of significance. The alcohol arrest/total arrest ratio for 1978 changes directions (making it the only partial correlation <u>not</u> in the predicted direction) but remains essentially zero. The 1973 ratio loses strength and also approaches a zero relationship with the introduction of the controls.

Regression analysis shows that the MSI and the four controls explain only 7% of the variation in DWI arrests and 8% of the variation in other arrests per 100,000. The percent of variation explained in the two arrest ratios is 23% for the 1978 ratio and 49% for the 1973 ratio. These relatively high percents are accounted for primarily by the poverty control which is highly correlated with both the

Table 5.3. Zero-order and partial correlations of MSI with alcohol related arrests. (N=50)

Alcohol Related Arrests	Correlation With MSI	
	A.Zero-order	B.4th-order
DWI arrests per 100,000 1978	-.15	-.15
Other alcohol arrests per 100,000 1978	-.11	-.19
Ratio of alcohol arrests to total arrests 1978	-.01	.03
Ratio of alcohol arrests to total arrests 1973	-.13	-.06

$p<.05$, $p<.01$, $p<.001$

1978 measure ($r=.63$; $p<.001$) and the 1973 measure ($r=.63$; $p<.001$).

In summary, status integration is: 1) slightly though insignificantly related to the alcohol related arrests per 100,000 measures; and 2) unrelated to the alcohol arrest/total arrest ratios.

Test for non-linearity. According to the zero-order and partial correlations there is no apparent linear relationship between status integration and any of the arrest variables. Figures 5.2 and 5.3 present arrest means for MSI quintiles to determine if there exist any meaningful non-linear trends. Figure 5.2 presents data for each measure of arrests per 100,000: "DWI" and "Other alcohol related offenses". Neither indicator reveals any clear nonlinear pattern. There is only one finding from each set of quintiles that supports the major theorem: the most highly integrated group has the lowest DWI arrest rate while the lowest integrated group has the highest "other" arrest rate. The only other finding which slightly supports the major theorem is that the relationship between the High and Low MSI groups is similar in direction and magnitude for both measures. The Low group has 31% more DWI arrests and 40% more other alcohol related arrests than the High group. Overall, however, there is no discernible pattern for either variable.

Figure 5.2. Mean DWI and alcohol related arrest rates per 100,000 for MSI quintiles.

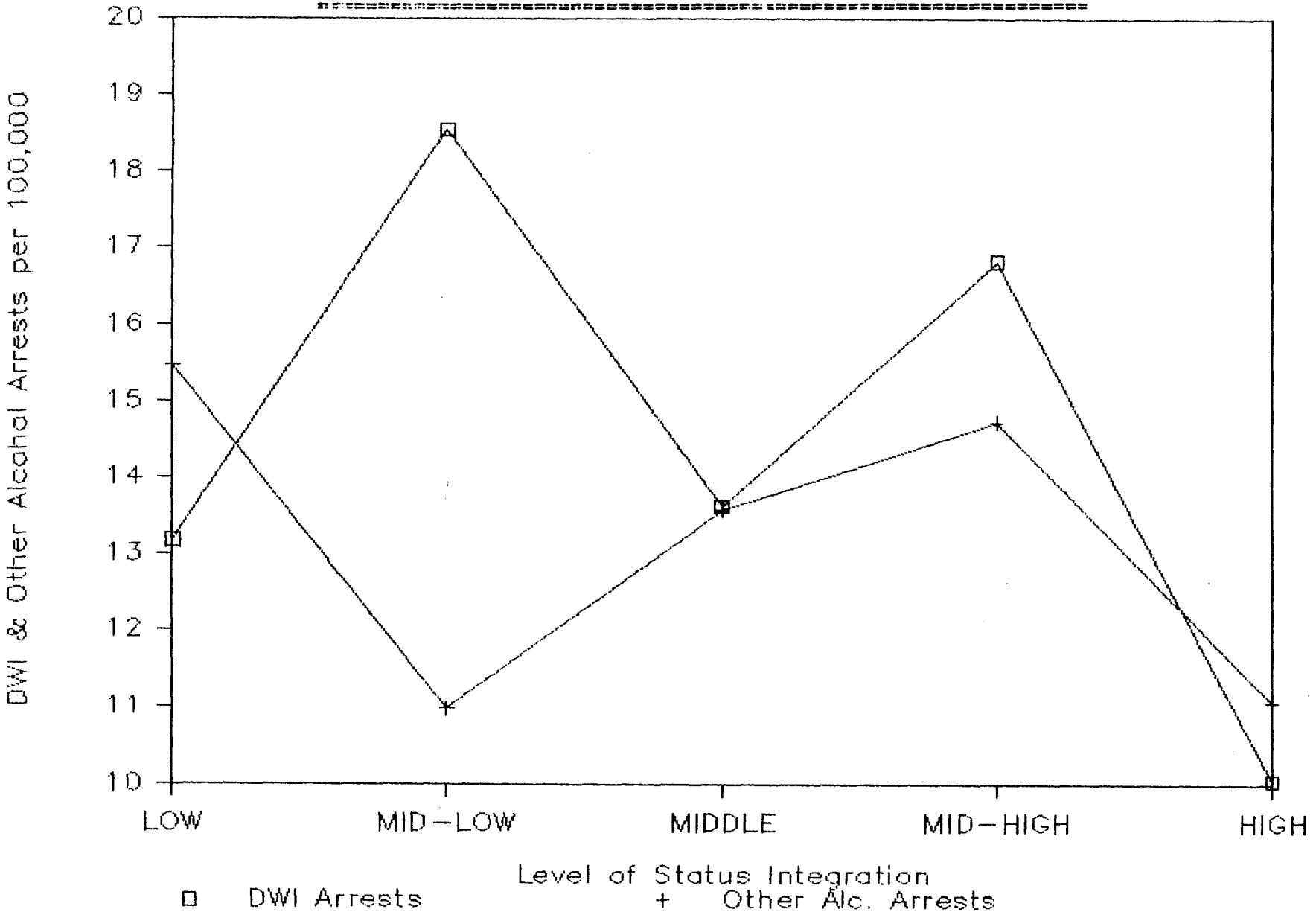

Figure 5.3. Mean alcohol arrest/total arrest ratios for MSI quintiles.

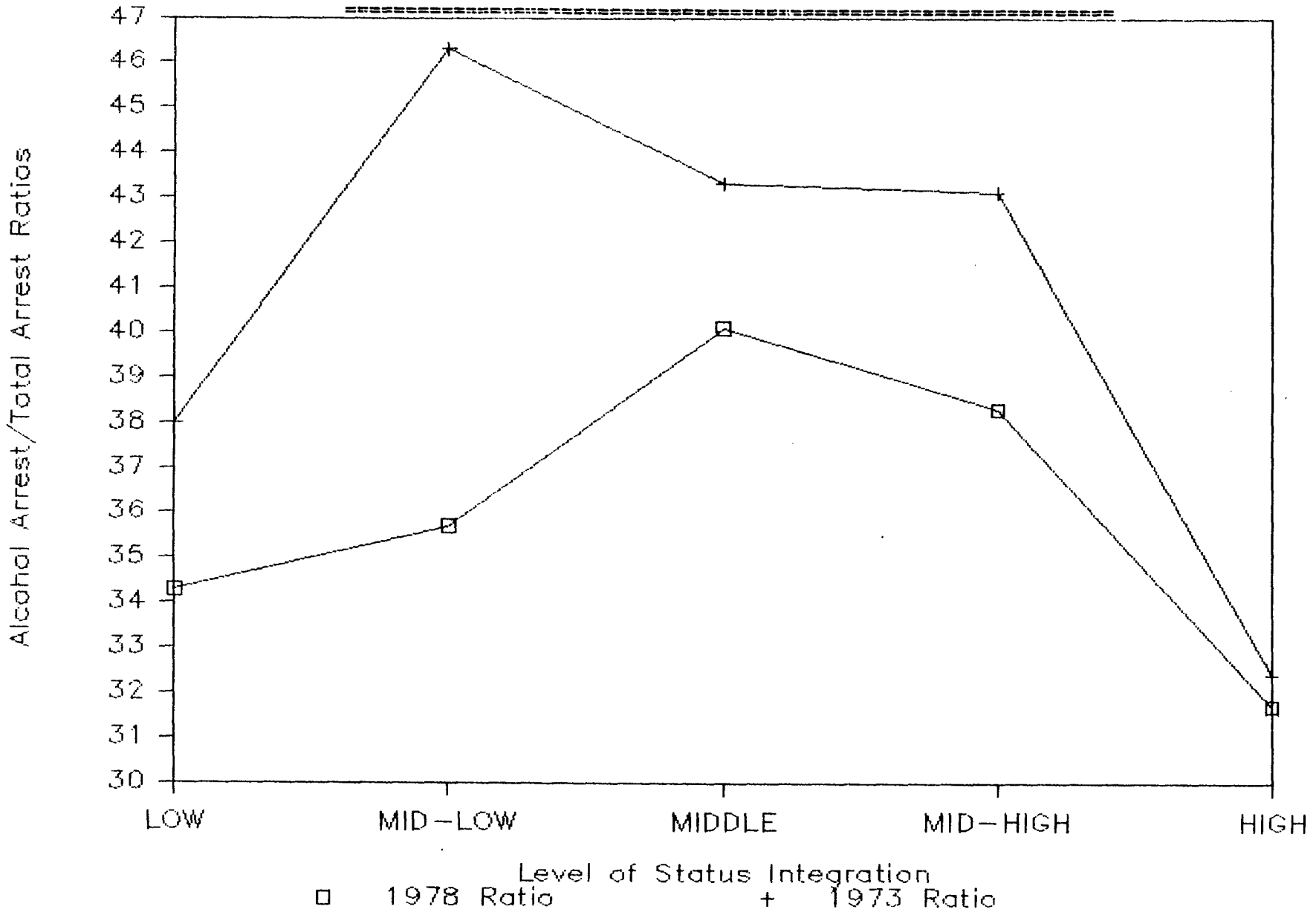

Figure 5.3 presents means of the two alcohol arrest/total arrest ratios for MSI quintiles. The 1978 ratio exhibits a curvilinear relationship with status integration with the highest mean in the middle and the two lowest means at each end. The 1973 ratio shows a similar pattern with one exception: the Middle Low MSI group mean for 1973 is considerably higher than its 1978 mean. Despite this discrepency, the overall findings indicate that alcohol arrests relative to total arrests are lowest in the most integrated areas, and next lowest in the least integrated areas.

INTERACTIVE EFFECTS OF STRESS AND DRINKING NORMS

This section presents findings from tests of the theory that the stress-alcoholism relationship is affected by norms regarding drinking. According to Bales' theory, the highest rates of alcoholism should prevail in situations where high stress (i.e., low integration) is linked with norms encouraging and allowing alcohol consumption. This proposition was tested by correlating the MSI with measures of heavy drinking and alcohol related arrests. These correlations were replicated for groups of states (quartiles) according to their position on the Alcohol Proscriptive Norm Index (Linsky, Colby, and Straus, 1985a).*2

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2. See Appendix C for a list of the states in each quartile.

Tables 5.4 and 5.5 address the question of whether the normative system of a state influences the stress-heavy drinking relationship. If the theory is correct, the MSI should be linked most strongly to heavy drinking in states that are most permissive regarding alcohol use.

The correlations in Table 5.4 lend some support to Bales' theory. Six of the eight correlations are in the predicted direction. Only the correlations for the moderately proscriptive states deviate. The two permissive categories contain the strongest relationships (i.e., the more integration the less heavy drinking), though neither indicator exhibits a clear linear pattern from proscriptive to permissive. The correlations of the MSI with consumption are more clearly in line with the predictions of the normative hypothesis: low integration is most strongly associated with high consumption in permissive states, and least strongly associated with consumption in moderately proscriptive states.

Table 5.5 presents correlations of age-specific MSI's with age-specific cirrhosis death rates. These findings provide stronger support for the Bales hypothesis than do those from Table 5.4. All twelve of the correlations in the two permissive categories are in the expected direction, all are moderate to high and 10 of these reach a significance level of $p<.05$. Of the twelve correlations in the proscriptive categories, eight are in the predicted direction though at a low to moderate level, and only one

Table 5.4. Zero-order correlations of MSI with heavy drinking for Proscriptive, Moderately Proscriptive, Moderately Permissive, and Permissive states.

Heavy Drinking Measure	All States (N=50)	Correlation of Status Integration with Heavy Drinking for States in which Alcohol Norms are: Pro-scriptive (N=13)	Mod. Prosc. (N=13)	Mod. Perm. (N=12)	Permissive (N=12)
Consumption per capita 1970	-.36**	-.19	.59*	-.31	-.74**
Cirrhosis Death Rate 1975-77	-.35**	-.28	.02	-.64*	-.29

p<.05, p<.01, p<.001

Table 5.5. Zero-order correlations of age-specific MSI's with age-specific cirrhosis death rates for Proscriptive, Moderately Proscriptive, Moderately Permissive, and Permissive states.

MSI Age Groups	All States (N=50)	Correlation of Status Integration with Cirrhosis Deaths for States in which Alcohol Norms are: Pro-scriptive (N=13)	Mod. Prosc. (N=13)	Mod. Perm. (N=12)	Permissive (N=12)
35-44	-.61***	.03	-.39	-.68**	-.92***
45-49	-.40**	-.06	-.32	-.47	-.65**
50-54	-.37	-.31	-.12	-.80***	-.82***
55-59	-.34*	-.01	-.12	-.69**	-.62*
60-64	-.29*	-.04	.10	-.62*	-.48
65-69	-.47***	-.54*	.30	-.54*	-.65**

p<.05, p<.01, p<.001

reaches the $p<.05$ level of significance. The relationship between the MSI and cirrhosis is pretty clearly linear from proscriptive to permissive groups, although in two cases the moderately permissive group correlation is stronger than that of the permissive group. Also, the 65-69 age group shows a curvilinear pattern with peaks in the stress-drinking relationship occurring at each end of the norm continuum.

To summarize for stress, norms, and heavy drinking, it appears that the Bales theory of alcoholism is strongly supported by these findings: high stress (low integration) is most strongly associated with heavy drinking in states that are most permissive regarding the use of alcohol.

Alcohol Related Arrests

A very different pattern emerges from Table 5.6 in which the dependent variables are arrests related to alcohol. In the two proscriptive categories, all eight of the correlations are in the predicted direction and six of those reach a significance level of $p<.05$. Of the eight correlations in the two permissive categories, only four are in the predicted direction with only one reaching the significance level of $p<.05$. The alcohol arrest variables, then, exhibit a clear relationship to stress and norms: stress is more strongly associated with alcohol arrests in the more proscriptive states. In view of the analysis in the previous chapter which concluded that alcohol arrests are more likely indicators of social control than of the

Table 5.6. Zero-order correlations of MSI with alcohol arrests for Proscriptive, Moderately Proscriptive, Moderately Permissive, and Permissive states.

Alcohol Related Arrests	All States (N=50)	Correlation of Status Integration with Alcohol Arrests for States in which Alcohol Norms are: Pro-scriptive (N=13)	Mod. Prosc. (N=13)	Mod. Perm. (N=12)	Permissive (N=12)
DWI arrest rate 1978	-.15	-.08	-.48*	.14	-.49*
Other alcohol arrest rate 1978	-.11	-.59*	-.36	.74**	-.39
Alcohol-total arrest ratio 1978	-.01	-.63**	-.61**	.54*	-.06
Alcohol-total arrest ratio 1973	-.13	-.60*	-.78***	.60*	-.38

p<.05, p<.01, p<.001

level of disruption, it appears that there is a link between stress and the control of alcohol problems in anti-alcohol states while there is no such link in permissive states.

Chapter VI presents interpretations and elaborations of the findings from the present chapter.

Chapter VI

SUMMARY AND CONCLUSIONS

The present study provides tests of the theory of status integration and alcohol problems and of Bales's (1946) sociological theory of alcoholism and heavy drinking. According to the theory of status integration, the level of alcohol problems in a population varies inversely with the degree of status integration in that population. The Bales theory emphasizes that drinking is not an automatic response to stress or lack of integration. Rather, the stress-drinking relationship is seen as being mediated by group norms regarding the use of alcohol and by the availability of alternative mechanisms for the relief of stress.

This chapter is divided into four sections. The first section presents a chapter by chapter summary of the findings and the basic implications of those findings. Section two provides an elaboration of the theoretical scheme concerning the relationship of status integration and arrests for alcohol related offenses. The third section presents some of the major issues relating to the validity of the concept of status integration. The final section

offers suggestions as to future directions in alcohol research.

SUMMARY OF THE FINDINGS

According to data for the U.S. as a whole (Table 2.1), drinking and alcohol problems are associated with males more than with females, nonwhites more than whites, and young people more than the elderly. Survey data show that a somewhat higher percentage of males than females consume alcohol on at least some occasions (75% to 59%). It is with regard to heavy drinking and alcohol problems, however, that rates for males far exceed those for females. More than four times the percentage of males than females categorize themselves as "heavy drinkers" while the percentage of males reporting "drinking problems" is two-and-one-half times the female percentage. Male-female ratios for cirrhosis death rates and for alcohol related arrests are about 2:1 and 9:1 respectively. The main point to be derived from this information is that drinking and alcohol problems are predominantly male phenomena. A perhaps equally important point can be inferred from the wide variation in sex ratios among the indicators. These variations suggest that there is not a one-to-one correspondence between, for example, drinkng and alcohol related disruptiveness or between disruptiveness and the social control of alcohol problems.

Regarding race, the cirrhosis death rate of nonwhites exceeds that of whites by almost two to one. Alcohol related arrests per 100,000, on the other hand, are only

slightly higher for nonwhites than for whites (1868 to 1667).

Age-specific data reported in Table 2.2 reveal that drinking, heavy drinking, drinking problems, and alcohol arrests occur at much higher rates among the young than among middle- and old-age groups. Cirrhosis deaths, however, are very rare among the young age groups. Cirrhosis rates increase with age to a peak at the 60-64 group; then they decline slightly with age. The fact that cirrhosis is highest among the middle-aged and older groups is indicative of the chronic, degenerative nature of the disease.

Despite a rich theoretical tradition of sociological literature on alcoholism, there has been a dearth of systematic testing of the major propositions of theories of alcoholism and heavy drinking. The present study is offered as a test of the relationship of status integration to alcohol problems and of the interactive effects of status integration and alcohol norms on alcohol problems.

Chapter III addresses issues associated with the theory and measurement of status integration. Status integration is intended as a group-level measure of role conflict.*1 Included in the chapter is a section in which theoretical and empirical comparisons of MSI's (Measures of Status Integration) with other types of stress are made. The most

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1. The validity of MSI's is discussed in a later section of this chapter.

common conceptualization of stress in the literature involves the adaptation of individuals to stressful life events such as death of a spouse, divorce, and marriage. This type of stress can be characterized as acute stress stemming from individual situations. Status integration, on the other hand, is best described as chronic stress with its source in social structural conditions. It is noted that chronic stress is the type most often mentioned in the sociological literature on alcoholism and heavy drinking.

Also in Chapter III is an empirical comparison of the MSI used in this study with two other state level measures of stress: 1) the State Stress Index (SSI) of aggregated life events for 1976 (Linsky and Straus, 1981); and 2) the Index of Relative Opportunity (IRO), a measure of status frustration for 1970 (Linsky, 1969; Linsky, Straus, and Colby, 1985). The SSI is a group level measure of acute stress (i.e., change) which has been found to be related to heavy drinking (Linsky, Straus, and Colby, 1985) and to violent and property crime rates (Linsky and Straus, 1981). The IRO is based on the notion of status blockage or status frustration (i.e., chronic stress). It has been found to be related to the rate of hospitalized depression (Linsky, 1969). Correlation analysis reveals that there is a slight tendency for the MSI to work in the same direction as the other two indicators. Despite this tendency, however, it is clear from the size of the correlations that the three indexes measure different phenomena.

These findings suggest the importance of recognizing stress as a phenomenon of many dimensions. It may be that different types of stress contribute to the same maladaptive outcome such as heavy drinking. On the other hand, different types of stress may be more productive of certain outcomes than they are of others (e.g., status frustration and mental illness; life events and psychogenic illness). These are ultimately empirical issues which must be settled by reviews of existing stress literature and by new tests of various types of stress with a wide array of outcomes on both the individual and the group level.

The dependent variables used in this study are divided into two sets: 1) measures of heavy drinking; and 2) arrests for alcohol related offenses. Variables from each set were aggregated for the nine census divisions for comparisons with self reports of heavy drinking and alcohol problems. These self reports are generally considered to be more direct indicators of alcohol related phenomena than are the measures employed in the present study. Unfortunately, however, the smallest geographic units for which survey-derived self reports are available are the nine census divisions. Comparison of the measures used in this study with the self reports should provide at least some indication of their validity.

The heavy drinking indicators are apparent consumption per capita and cirrhosis death rates. The geographic analysis comparing these two measures with self-reported

heavy drinking for the nine census divisions supports the validity of consumption and cirrhosis as indicators of heavy drinking. The geographic distributions of consumption and cirrhosis deaths are virtually identical to that of heavy drinking.

The four arrest rates employed as dependent variables in this study are DWI arrests per 100,000, arrests for all other alcohol related offenses per 100,000, and ratios of total alcohol arrests to total arrests for all offenses for two different years. The first two rates are straightforward epidemiological measures of the incidence of alcohol related arrests. The latter two indicate the salience of alcohol arrests relative to the overall level of arrests in a state. Geographic analysis comparing alcohol related arrests to self-reported drinking problems for the nine census divisions suggests that alcohol arrest rates do not indicate the level of alcohol related disruptiveness. The geographic distribution of alcohol related arrests is unrelated to that of self-reported drinking problems. It may be the case that alcohol arrests are better indicators of the efforts of agents of social control (or of community tolerance) than they are indicators of levels of drinking or drinking related disruptiveness. Interpretation of the findings regarding the relationship between stress and arrest rates must take this factor into account. This issue is discussed in depth in the next section of this chapter.

Tests of the theory of status integration in Chapter V reveal strong support for the MSI-heavy drinking relationship but no support for the MSI-arrest relationship. Status integration is shown to be moderately to strongly correlated with both consumption and cirrhosis. Moderate to strong correlations are also revealed between six age-specific MSI's and the corresponding cirrhosis mortality rates. This makes for a total of eight separate (though not independent) tests of the stress-heavy drinking relationship. Seven of the eight correlations are strengthened with the introduction of controls (poverty, educational level, and urbanicity), and five of these reach a higher level of significance. Multiple regression analysis reveals that the MSI and controls together explain 33% of the variance in apparent consumption and 38 % of the variance in cirrhosis deaths.

A test for linearity of the MSI-heavy drinking relationship was run by dividing the fifty states into quintiles according to their rank on the MSI and plotting their mean consumption and cirrhosis scores on a semi-log graph. The test shows particular support for the hypothesized relationship between high levels of stress and high levels of consumption and cirrhosis. The high stress quintile exhibits by far the highest mean consumption and cirrhosis rates. The rates of heavy drinking among moderate to low stress states do not vary significantly. This may imply that there is a threshhold beyond which increased

stress results in increased drinking. Below that threshhold, however, changes in stress do not appear to impact on the level of heavy drinking. If this threshhold effect stands up to other tests it may have policy implications for the prevention and treatment of alcoholism. Areas or groups which rank high on this type of stress could be targeted for: 1) prevention programs aimed at reducing the lack of marital-labor force integration; 2) programs and policies designed to alleviate the impact of low marital-labor force integration (e.g., child support, day care, jobs programs); and/or 3) alcoholism treatment programs in low integration areas possibly incorporating family and job counselling into the treatment.

Zero-order and partial correlations of status integration with arrests for alcohol related offenses for the fifty states reveal no apparent relationship. Regression analysis reveals that the MSI and controls account for only 7% and 8% of the variance in the "DWI" and "Other" alcohol arrest rates per 100,000 respectively. The variance explained in the 1978 ratio of alcohol arrests to total arrests is 23% while for the 1973 ratio it is 49%. These relatively high percentages are accounted for almost entirely by the poverty control. This finding may mean that poverty is more strongly associated with alcohol arrests than it is with total arrests. The implications of this finding are discussed later in this chapter in the section on future directions in alcohol research.

In light of the findings summarized thus far, it appears that low status integration is associated with increased drinking. Despite this relationship, status integration has no impact on the level of arrests for alcohol related offenses.

Tests of the interaction of stress and alcohol norms with regard to heavy drinking show that, consistant with the Bales theory, heavy drinking is most strongly related to stress in states characterized by permissive alcohol norms. In fact, the evidence suggests that the stress-heavy drinking relationship holds only for permissive and moderately permissive states - i.e., not for proscriptive or moderately proscriptive states. This implies that stress provokes alcohol consumption only in groups which encourage or at least condone the use of alcohol. More generally, this finding suggests that group members tend not to respond to stress in ways that are unacceptable to the community. In the case of states characterized by anti-alcohol sentiments, group members may respond to stress by engaging in other, more acceptable behaviors - legal or illegal. For groups that provide few behavioral avenues for resolving stress it may be hypothesized that stress is more likely to result in psychogenic illness such as peptic ulcers or hypertension than it will result in maladaptive behaviors such as drinking problems or crime. This, however, is not the subject of the current study.

A clearly different pattern emerges from tests of the interaction of stress and drinking norms with regard to alcohol arrests. In anti-alcohol states, high levels of stress are associated with high levels of alcohol related arrests. In permissive states, on the other hand, stress is unrelated to the level of alcohol arrests. The most apparent point raised by these findings is that the stress-arrest relationship is apparently contingent upon the alcohol norm variable. On the basis of census division analysis in Chapter IV it was proposed that state variations in alcohol arrests are more indicative of differences in the level of social control activities than of differences in the actual level of drinking problems. Given this proposition, it appears that increased stress impacts on the tolerance of alcohol related disruptiveness in proscriptive but not in permissive states. In other words, one of the ways in which anti-alcohol states respond to stress is by tightening the normative boundaries around (or uncovering more) alcohol related disruptive behavior. This issue is discussed more fully in the next section.

INTERPRETATION OF THE STRESS-ARREST RELATIONSHIP

As noted in Chapter IV and elsewhere, one problematic aspect in the interpretation of the findings involves the relationship between status integration and arrests for alcohol related offenses. According to the theory of status integration, the degree of integration in a group is inversely related to the level of alcohol problems in that

group. If alcohol arrests were an indicator of drinking related disruptive behavior then the hypothesized relationship would be clear: the higher the degree of status integration, the lower the level of alcohol related arrests. The case has been made, however, that alcohol arrests do not reflect the level of disruptive behavior but instead indicate only the level of social control activity. This makes the relationship between status integration and alcohol problems more difficult to predict. This is because there is little theoretical or empirical work addressing the relationship of generalized stress to the level of social control. The present section discusses the implications of the stress-arrest findings of this study. Studies by Catalano and his associates (Catalano and Dooley, 1979; Catalano, et al., 1981) and a study by Erikson (1966) provide the context within which the findings of this study are discussed.

There are at least three possible explanations for a positive relationship between the level of stress and the level of alcohol arrests. One explanation would have stress resulting in increased levels of drinking which in turn would result in increased behavior in violation of alcohol laws. The increased law-breaking activity would subsequently result in an increase in alcohol related arrests. This is consistant with the stress hypothesis of alcoholism providing that disruption and control follow more or less automatically from drinking. This explanation

probably does not pertain to the present study because the the heavy drinking indicators were found to be uncorrelated with the arrest measures for the fifty states. In other words, the level of arrests varies independently of the level of heavy drinking.

A second explanation would posit that stress impacts directly on the level of behavior in violation of alcohol laws regardless of the level of drinking. The law-breaking behavior would in turn determine the level of alcohol arrests. This proposition is along the lines of the "ambivalence hypothesis" which has been discussed by several writers in a different context (Chafetz, 1971; Ullman, 1958; Room, 1976). According to the ambivalence hypothesis, those who drink within a predominantly dry culture are especially vulnerable to loss of control over their drinking. This is because a conflict between acceptance and rejection of alcohol competes within the psyches of persons who drink and they experience anxiety and guilt over drinking. Similarly, generalized stress may have little effect on the level of drinking yet still act to increase drinking-related disruptiveness. Evidence from the census division analysis in Chapter IV implies that behavioral "drinking problems" vary independently of alcohol related arrests. This suggests that the level of alcohol related disruptiveness, like heavy drinking, is not the major determinant of the level of alcohol related arrests.

According to the two explanations discussed thus far, the level of social control is determined not by the level of stress directly, but rather by the level of alcohol related disruptiveness. The third possible relationship between stress and the social control of alcohol problems would have increases in stress directly related to increases in arrests regardless of the level of drinking and law-breaking behavior. Thus, increased levels of stress are seen as affecting the actions of agents of social control, either directly or through community pressure to increase the enforcement of alcohol laws. This explanation is more in line with the sociological perspective of labeling than with the common sense notion that social control arises in response to increases in deviant behavior. One labeling theorist notes that,

> ...though [official arrest] statistics may not be particularly valid indicators of the actual distribution of deviant acts, they may tell us a great deal about the operations of official agencies of social control (Schur, 1971:33).

According to this view, increases in arrests (due to stress or any other source) may indicate nothing more than increased social control activities.

Increases in the level of arrests (or other forms of social control) necessarily involve increased activities by agents of social control. It is always problematic whether these increases accurately reflect the actual changes in the level of the behavior in question. Linsky (1978) addresses this issue in a paper on crime waves and other epidemic

deviance in which he describes three types of crime waves. First, a true prevalence crime wave is one in which there is an increase in the actual level of law-breaking behavior. The other two types of crime waves involve no increase in the actual level of the behavior in question. Moral passage crime waves result from a expansion of the normative boundaries or definitions of crime. For example, a state which changes its acceptable blood alcohol level for drivers from .15 to .10 could conceivably exhibit an increase in DWI arrests independent of changes in the actual level of drinking-and-driving behavior because more drivers would qualify as under the influence. Closely related to moral passage crime waves are fabricated crime waves which are characterized by perceived increases in the level of criminal behavior without a corresponding increase in the actual level of behavior. Fishman (1978) attributed the apparent epidemic of crimes against the elderly in New York City to increased media coverage of such crimes. The study found that at the time of this so-called "media wave" the number of crimes against the elderly reported to police actually declined somewhat.

The question in the present study goes beyond the issue of whether the level of alcohol arrests indicates the actual or only the perceived level of alcohol related disruptiveness. Instead the focus is on whether potential positive relationships between stress and alcohol arrests result from the direct impact of stress on agents of social

control or from the impact of stress on the drinking and/or the drinking related behavior of group members. Although the level of generalized stress in a community may impact on the level of social control in that community, there is little sociological literature that directly addresses this issue. One pair of studies (Catalano and Dooley, 1979; Catalano, et al., 1981) found that, in times of economic difficulty, both in-patient and out-patient mental health facility admissions increased during the same time period in which epidemiological analysis revealed that there was no demonstrable decline in the mental health of the population. The authors conclude that their studies offer no support for the proposition that economic change is directly productive of increases in symptoms of mental illness among population members (the "provocation hypothesis"). Their findings instead suggest support for the "uncovering hypothesis": that economic hard times are associated with increased admissions to mental health facilities as a result of decreases both in families' tolerance of marginal behavior and in their ability to care for disordered members. Hence, stress in this case operates directly on the social control mechanism of the community.

In the present study, support for the provocation explanation could be inferred from an inverse relationship between the MSI and the indicators of heavy drinking. The absence of such a relationship, combined with an inverse relationship between the MSI and alcohol arrests may imply

support for the uncovering hypothesis. In terms of the Linsky typology, the question being asked is whether stress causes either a true prevalence or a moral passage epidemic. A stress-induced true prevalence epidemic would involve a positive relationship between stress and the level of heavy drinking and/or disruptiveness. A stress-induced moral passage epidemic would involve a positive relationship between stress and alcohol arrests with no corresponding relationship between stress and the level of drinking or disruptiveness.

The findings from this study for the fifty states show support for the provocation (or true prevalence) hypothesis and none for the uncovering (or moral passage) hypothesis. The strong inverse correlations between the MSI and the indicators of heavy drinking imply that this particular type of stress does "provoke" heavy drinking. The lack of correlation between the MSI and arrest rates provides no indication of increased uncovering activities as a result of low integration.

When the fifty states are arranged in quartiles according to their rank on the alcohol norm index (see Appendix C), tests of the relationship of the MSI to the two sets of alcohol outcomes suggest support for both the provocation and the uncovering explanations. For permissive states, high stress appears to provoke high levels of heavy drinking but is unrelated to high levels of alcohol related arrests. It appears that despite the increased amount of

stress-related drinking in permissive states (and presumably some increase in the amount of drinking-related behavior), the tolerance level of those states is such that there is no increase in alcohol related arrests. For proscriptive states, stress does not appear to be related to levels of drinking but instead seems to evoke increased levels of social control of alcohol related behavior.

These findings imply that communities may respond to social stress in ways different and independent from the ways in which the individual members of those communities respond to stress. In other words there is an identifiable group-level reaction to stress distinct from the individual-level reaction. Specifically, the findings suggest that members of communities respond to stress in ways that are acceptable to the group while communities (through agents of social control) respond to stress by reemphasizing and reinforcing the normative boundaries around behaviors which are perceived as threatening to community values.

As suggested by the general nature of these statements, the hypothesized differential between individual and community responses to stress may apply to areas other than alcohol use. For example, let us take two hypothetical societies: one characterized by a relatively higher regard for human life than the other. According to the explanation posited above, members of the "low regard" society would be expected to respond to stress in part by engaging in

increased violence toward others - violence toward others being a manifestation of a low regard for human life. In this example violence is presumed to be a relatively acceptable manner of venting stress-induced frustration in this society. At the same time the level of tolerance of this society toward violence against others is such that there is no concommittant increase in the social control of violence.

In the society characterized by a relatively high regard for human life, an increase in stress would not result in an increase in the level of violence against others: this is not an acceptable response to stress in this society. The level of social control of violence in that society, however, would increase with increases in stress. The increase in the social control of violence is a reaffirmation of community values regarding human life.

Inferring support for the uncovering hypothesis is somewhat more problematic in the present study than in the Catalano studies. This is due to the inablity in this study to directly measure alcohol related disruptive behavior. Divisional analysis in Chapter IV suggests that the level of alcohol arrests does not accurately reflect the level of alcohol disruptiveness. It is also possible that alcohol related disruptive behavior varies independently of heavy drinking. Thus, without a direct measure of disruptiveness it cannot be determined for certain whether or not increased arrests are a response to increased disruptiveness.

The present study also differs from the Catalano studies with regard to who does the "uncovering" of the behavior in question. The Catalano studies emphasize the role of family members (and others in close social networks) in the increased reporting of mental illness. The present study uses arrest rates which are more directly indicative of the uncovering activities of official agents of social control than of family members. It may be the case that formal agents of social control react differently than less formal agents to marginal behavior in response to stress.

In addition, Catalano, et al. overlook a possible alternative explanation to their family-oriented uncovering explanation. It could be that the belief within the mental health profession that economic hard times pose a threat to the mental health of community members results in an increased likelihood of mental health professionals to detect mental illness in those cases which are brought to their attention. This explanation - that agents of social control react to the vested interests and beliefs of their profession - may be more in line with other sociological explanations of the relationship of stress to social control. For example, Erikson (1966) cites increases in the social control of religious deviance in Puritan New England as resulting from perceived threats to religious values. Although Erikson is not absolutely clear on the point, it can be inferred from his description that increases in religious persecution resulted more from an expansion of

normative boundaries than from any increase in the actual level of "heretical" behavior. The Puritan community responded to perceived threats to its religious values. In terms of the Linsky typology, the Puritans experienced a moral passage epidemic, not a true prevalence epidemic.

In both the Erikson study and the Catalano studies, therefore, agents of social control may have responded to what were perceived to be direct threats to the concerns of their area of specialization. This is a different issue from the one addressed in the present study in that it is not posited that increases in alcohol arrests occur in response to direct threats to the values represented by the laws. Rather, according to the findings in this study, increases in the social control of alcohol problems (in anti-alcohol states) result from increases in generalized stress.

VALIDITY OF MEASURES OF STATUS INTEGRATION

The theory and measurement of status integration have been criticized from many fronts. Perhaps the most common criticisms involve the validity of Measures of Status Integration (MSI's). Critics claim that MSI's are not indicators of what it is proposed they measure - role conflict. Proponents of status integration note that it is a testable theory which has yielded promising findings. Critics counter that the ability to make empirical comparisons of one concept to others has nothing to do with the validity of a concept.

Without a doubt, findings from tests of the major theorem of status integration have been promising in this and other studies. The findings have been so consistently supportive of the theory, in fact, that more in-depth analysis of the major assumptions of the theory may be overdue. The basic tenet of the theory of status integration is that the major determinant of the rate of occupancy of status combinations is role conflict. One of the underlying assumptions of this tenet is that individuals have relative freedom of movement between statuses. Empirically speaking, those populations whose members are concentrated in few statuses are those which (according to the theory) are characterized by high integration. Tests of the theory in this and other studies have clearly demonstrated that the rate of occupancy of status combinations does tap <u>something</u> which is related to maladaptive outcomes. It is far from clear, however, that this "something" is role conflict. Two alternatives to the "role conflict" explanation are discussed below: 1) the "lack of control" explanation; and 2) the "alternative role stress" explanation.

As stated above, one of the underlying assumptions of the theory of status integration is that individuals have relative freedom to move in and out of achieved statuses. The theory does not take into account, however, that freedom of movement may vary according to factors beyond the control of the individual. For example, in areas of high

unemployment, the ability to change occupational or labor force status may be more difficult than in areas of low unemployment. Similarly, areas with strict divorce laws would likely be more restrictive of certain changes in marital status than would areas with liberal divorce laws. Thus the "lack of control" explanation may be offered as an alternative to the role conflict explanation proffered by the theory of status integration.

Lack of control may be directly or indirectly related to maladaptive outcomes in several ways. First, lack of control may be a source of stress in and of itself. Structural factors inhibiting movement between statuses may also be associated with maladaptive outcomes in connection with role conflict. Restricted status movement would tend to perpetuate existing role conflict in addition to instilling the feeling of frustration associated with lack of control.

Another possible explanation for the impressive results of tests of the theory of status integration is that MSI's are indicators of types of role stress other than role conflict. In an extensive review of the literature on the subject, Palmer (1981) arranges types of role stress into seven broad categories: 1) inadequate role playing; 2) over demand in a role; 3) underdemand in a role (i.e., too little challenge); 4) conflict within or between roles; 5) role rejection; 6) loss of role (through death or departure); and 7) role encroachment. MSI's may be sensitive to several of

these types of role stress. For example, the stressfulness of the statuses "divorced" and "unemployed" may come from role conflict involved in their simultaneous occupation or it may derive from difficulties inherent in each individual role. Demographic studies of alcohol use show that there is more drinking and heavy drinking among divorced people and among the unemployed than among married individuals and employed individuals. To borrow two examples from the Palmer typology, it may be that the "underdemand" of unemployment and the "loss of role through departure" of divorce contribute to the stressfulness measured by MSI's. The simultaneous occupation of the statuses "divorced" and "unemployed" may aggravate the existing stressfulness of either status, but it is questionable whether the level of role conflict in a group is the major determinant of the level of maladaptive outcomes over other types of role stress.

One step which may be taken to determine whether MSI's measure the amount of role conflict in a population involves an individual level study of exactly which status combinations are the more stressful for individuals. According to the theory of status integration, the relative stressfulness of status combinations is indicated by their respective rates of occupancy. Given the rates of occupancy of one set of status combinations for a state or other area, a sample could be drawn in an effort to determine if they are in fact arranged in statuses according to the amount of

stressfulness. Stress could be measured by the frequency and duration of conflicting demands as well as by known stress outcomes such as psychogenic illness.

In conclusion, it seems likely that MSI's are tapping some form of "role stress". It is problematic as to what type of stress they actually indicate. Gibbs and Martin claim that MSI's measure the amount of role conflict in groups by virtue of their assumption that individuals are relatively free to move in and out of achieved statuses. A more deterministic view would posit that the way in which population members are distributed among statuses is more a function of factors beyond the control of individuals (e.g., the economy, norms and laws regarding marriage and divorce) than it is of individual volition. Another view would propose that it is the stressfulness of individual statuses which accounts for the relation of MSI's to maladaptive outcomes. In view of the empirical success of the theory of status integration it is time to investigate more fully the validity of the theoretical foundation on which it relies.

FUTURE DIRECTIONS IN ALCOHOL RESEARCH

The Measurement of Alcohol Problems

The disease concept of alcoholism has assumed a central place in professional research as well as in the public mind (Gusfield, 1963). Despite this fact, definitions of alcoholism invariably include psychological, social, and economic components in addition to their medical dimensions. The present study goes beyond most previous alcohol research

by employing a wide range of alcohol related outcomes including two indicators of heavy drinking (apparent consumption per capita and cirrhosis death rates) and four separate arrest rates for alcohol related offenses. State level indicators of alcohol problems, however, are inadequate in some significant ways. The current investigation would have benefitted from the availability of measures more directly indicative of heavy drinking and alcohol related disruptiveness. Future research would also benefit from a wider range of indicators of the social control of alcohol problems.

The heavy drinking indicators employed in this study are apparent consumption per capita and cirrhosis deaths per 100,000 population. As discussed in Chapter IV, neither of these is an ideal indicator of the level of heavy drinking: apparent consumption largely because it is based on alcohol sales which may vary for reasons other than the consumption patterns of state residents; and cirrhosis deaths because as the most severe medical outcome of alcohol consumption it may lack sensitivity to many changes in drinking patterns.

One way in which heavy drinking could be measured more directly is through self-reported consumption patterns. To date, the disaggregation of national survey self reports has been restricted to the four major regions or the nine census divisions of the U.S. The most desirable set of state level self reports would be from surveys generated from within each state. Such an undertaking is probably too costly to

be realized. Even without such costly measures, however, it is possible to obtain state level survey data by disaggregating national surveys as long as steps are taken to insure that the sample data is representative. This can be done by obtaining in the survey demographic and other information which can be compared to existing aggregate data as a reliability check on the survey data. Straus and Jaffe (1985) have shown that national surveys with a sample size of 2100 provide reliable data for 31 of the 50 states. It is likely that surveys with greater numbers of respondents will yield findings that are more reliable, and for all 50 states.

Cirrhosis of the liver is an important indicator of heavy drinking. While aggregate consumption statistics may be misleading and survey respondents may misrepresent their drinking practices, it is thought by many researchers that the liver does not lie. Unfortunately, however, mortality statistics are subject to many of the same problems of bias and reactivity that affect other measures. As discussed in Chapter IV, cirrhosis mortality rates are most likely susceptible to regional variations in reporting practices. Relatedly, cirrhosis competes with many other official causes of death for eventual publication in the Vital Statistics and other documents.

One remedial step with regard to the shortcomings of mortality data would be to improve researchers' access to existing information on "contributory" causes of death in

addition to the currently available data on the "primary" (or "underlying") cause of death. An even more desireable development would be the establishment of health surveys to determine state levels of morbidity for cirrhosis and other chronic diseases. There is an acute need for more and better morbidity data not only for the testing of theories of disease etiology but also for epidemiological analysis. Chronic diseases are the top killers as well as the top disablers in the U.S. It is therefore important to know who has the disease in question in addition to knowing who dies from it. Many answers may also be derived from information concerning who has the disease but does not die from it.

Poverty and the Control of Alcohol Problems

Regression analysis in Chapter IV reveals that the poverty level of states is strongly associated with alcohol arrest-total arrest ratios but not with alcohol arrests per 100,000 poulation. The fact that poverty is associated with alcohol arrests only when total arrests are taken into account implies that the category of alcohol arrests may be one in which what some might refer to as the "crime" of being poor is included. If, as the case has been made, variations in alcohol arrests indicate variations in social control activities rather than in the actual level of alcohol related disruptiveness, then the poverty-alcohol arrest link may indicate either that police are more zealous in their control of poor drunks than of rich drunks or that drinking problems of the poor are more visible than are

those of the non-poor. The visibility explanation would be consistant with Catalano and Dooley's (1979) "uncovering hypothesis" as described earlier in this chapter. According to this proposition, in economic hard times families (and possibly communities) are less tolerant of, and less able to care for marginal characters such as the mentally ill or heavy drinkers. It therefore follows that in a cross-sectional study such as this one, poor areas would exhibit higher rates of alcohol arrests regardless of the actual rates of drinking problems. It may also be that alcohol related arrests such as public drunkeness and vagrancy are dumping grounds for residual deviants (e.g., the poor) who are not so much doing something wrong as they are clearly not doing anything right.

It is impossible to conclude on the basis of ecological correlations whether poor drunks are more likely than rich drunks to be arrested. All that is known is that poor states exhibit more alcohol arrests relative to total arrests than do rich states. Individual-level studies are needed to directly address this and related questions. Group level analysis can be employed to examine the relationship of poverty to heavy drinking, total arrests, and other variables which may pertain to this issue.

CONCLUSION

This study has looked at several aspects of the relation of status integration to alcohol problems. MSI's are precise and complex measures but they lack a strong

theoretical foundation. The sociological study of alcohol problems, on the other hand, has a rich theoretical tradition but is lacking in empirical testing of the major propositions from this tradition. The current investigation takes at least some steps toward remedying each of these shortcomings.

The study's findings lend support to the longstanding but heretofore seldom tested hypothesis regarding the relation of chronic stressful conditions to heavy drinking. The findings also support the proposition derived from ethnic case studies that alcohol norms play a major role in drinking practices and other alcohol related phenomena. With regard to the theory of status integration this study demonstrates that the predictive power of MSI's extends beyond the areas of suicide and certain types of chronic illness - two areas with which the theory has been previously associated. In addition, this is the first study in which status integration has been shown to stand up to the statistical control of major demographic variables such as age, class, and urbanicity. In short, this study underscores the importance of continued research directed at the testing of sociological propositions of alcoholism and at the theoretical foundation of the theory of status integration.

Finally, the use of multiple indicators in this study demonstrates that "drinking problems" are multi-faceted. Heavy drinking, alcohol related disruptiveness, and the

social control of alcohol problems are phenomena which are apparently at least somewhat independent of each other. Heavy drinking has predictable and identifiable physiological consequences. But to paraphrase sociology's labeling theorists, it seems that the extent of other drinking problems is "in the eye of the beholder".

APPENDICES

Appendix A. States arrayed according to census divisions.

NEW ENGLAND
- Maine
- New Hampshire
- Vermont
- Massachusetts
- Rhode Island
- Connecticut

MIDDLE ATLANTIC
- New York
- New Jersey
- Pennsylvania

EAST NORTH CENTRAL
- Ohio
- Indiana
- Illinois
- Michigan
- Wisconsin

WEST NORTH CENTRAL
- Minnesota
- Iowa
- Missouri
- North Dakota
- South Dakota
- Nebraska
- Kansas

SOUTH ATLANTIC
- Delaware
- Maryland
- Virginia
- West Virginia
- North Carolina
- South Carolina
- Georgia
- Florida

EAST SOUTH CENTRAL
- Kentucky
- Tennessee
- Alabama
- Mississippi

WEST SOUTH CENTRAL
- Arkansas
- Louisiana
- Oklahoma
- Texas

MOUNTAIN
- Montana
- Idaho
- Wyoming
- Colorado
- New Mexico
- Arizona
- Utah
- Nevada

PACIFIC
- Washington
- Oregon
- California
- Alaska
- Hawaii

Appendix B. Checklist of self-reported "drinking problems" from the 1979 national survey by the National Institute on Alcohol Abuse and Alcoholism (USDHHS).

Reports that in the past 12 months one or more of the following events due to drinking took place:

- -A spouse, a friend, or a relative of the respondent either threatened to break off the relationship or actually did so, because of the respondent's drinking, or friends advised the respondent to cut down on drinking.

- -Police questioned or warned the respondent about drinking, or the respondent was arrested for drunkeness or drunk driving.

- -Drinking contributed to the respondent's being involved in an accident (automobile or other) in which someone was hurt or property was damaged.

- -People at work indicated that the respondent should cut down on drinking, or the respondent felt that drinking had cost him or her a chance at a raise, a promotion, or a better job; or the respondent had lost a job, or nearly lost one, because of drinking.

Appendix C. States arrayed according to alcohol norm quartiles.

Proscriptive States	Moderately Proscriptive States	Moderately Permissive States	Permissive States
MISS	MINN	OREG	WYO
UTAH	MO	INDI	OHIO
KY	VA	COLO	MD
GA	FLA	MASS	ILL
TENN	S.D.	WASH	N.Y.
S.C.	N.M.	IOWA	N.J.
ALA	W.VA	CAL	MONT
OKLA	ARIZ	NEBR	ALAS
ARK	DEL	LA	PA
IDA	ME	HAWA	WISC
TEX	N.D.	R.I.	VT
N.C.	CONN	N.H.	NEV
KANS	MICH		

REFERENCES

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Adams, J. Winstead
1978 Psychoanalysis of Drug Addiction. New York: Grune and Stratton.

Bacon, Seldon
1957 "Social settings conducive to alcoholism: A sociological approach to a medical problem." Journal of the American Medical Association 164: 177-181.

Bales, Robert F.
1946 "Cultural differences in rates of alcoholism." Quarterly Journal of Studies on Alcohol 6: 482-498.

Bureau of the Census
1973 Census of the Population: 1970. PC(1)-B1. Washington, D.C.: U.S. Government Printing Office.

Cahalan, Don, Ira H. Cisin, and Helen M. Crossley
1969 American Drinking Practices: A National Study of Drinking Practices and Attitudes. New Haven, Ct.: College and University Press.

Cannon, Walter
1933 Wisdom of the Body. New York: Norton.

Catalano, Ralph and David Dooley
1979 "Does economic change provoke or uncover behavioral disorder?" Pp. 321-46 in Louis Ferman and Jeanne Gordus (eds.), Mental Health and the Economy. Kalamazoo, Mich.: Upjohn Foundation.

Catalano, Ralph, David Dooley, and Robert Jackson
1981 "Economic predictors of addmissions to mental health facilities in a nonmetropolitan community." Journal of Health and Social Behavior 22(September): 284-297.

Chafetz, Morris
1971 "Introduction." Pp. 1-4 in First Special Report to the U.S. Congress on Alcohol and Health. Washington D.C.: National Institute on Alcohol Abuse and Alcoholism.

Chambliss, W.J. and M.F. Steele
1966 "Status integration and suicide: An assessment." American Sociological Review 31: 524-532.

De Lint, J.
1981 "Alcohol consumption and liver cirrhosis mortality: The Netherlands, 1950-1978." Journal of Studies on Alcohol 42: 48-56.

Dodge, David and Walter Martin
1970 Social Stress and Chronic Illness: Mortality Patterns in Industrial Society. Notre Dame, Indiana: University of Notre Dame Press.

Dohrenwend, B.S., L. Kranoff, A.R. Askenasy, and B.P. Dohrenwend
1978 "Exemplification of a method for scaling life events: The PERI life events scale." Journal of Health and Social Behavior 19 (June): 205-229.

Douglas, Jack
1967 The Social Meanings of Suicide. Princeton, N.J.: Princeton University Press.

Durkheim, Emile
1951 Suicide. New York: Free Press.

Erikson, Kai T.
1966 Wayward Puritans. New York: John Wiley and Sons.

Fishman, Mark
1978 "Crime waves as ideology." Social Problems 25(5):531-543.

Furst, C.J. and L.J. Beckman
1981 "Alcohol-related mortality and alcohol consumption statistics: stability of estimates for small areas." Journal of Studies on Alcohol 42: 57-63.

Gibbs, Jack P.
1982 "Testing the theory of status integration and suicide rates." American Sociological Review 47: 227-237.
1969 "Marital status and suicide in the United States: A special test of the status integration theory." American Journal of Sociology 74: 521-33.

Gibbs, Jack P. and Walter R. Martin
1964 Status Integration and Suicide: A Sociological Study. Eugene, Oregon: University of Oregon Books.

Goodwin, Donald W.
1979 "Genetic determinants of alcoholism." Pp. 59-82 in The Diagnosis and Treatment of Alcoholism edited by Jack H. Mendelson and Nancy K. Mello. New York: McGraw-Hill.

Gusfield, Joseph R.
1963 Symbolic Crusade. Urbana, Ill.: University of Illinois Press.

Hagerdon, R. and S. Labovitz
1966 "A note on status integration and suicide." Social Problems 14: 79-84.

Harburg, E., J.C. Erfurt, L.S. Hauenstein, C. Chape, W.J. Schull, and M.A. Schork
1973 "Socio-ecologic stress, suppressed hostility, skin color, and black-white male blood pressure: Detroit." Psychosomatic Medicine 35: 276-295.

Henry, James P. and John C. Cassell
1969 "Psychosocial factors in essential hypertension: Recent epidemiological and animal experimental evidence." American Journal of Epidemiology 90 (September): 171-200.

Holmes, T.H. and R.H. Rahe
1967 "The social readjustment rating scale." Journal of Psychosomatic Research 2: 213-218.

Hyman, Merton M.
1981 "'Alcoholic', 'unspecified' and 'other-specified' cirrhosis mortality: A study in validity." Journal of Studies on Alcohol 42: 336-343.

Hyman, Merton M., Marilyn A. Zimmerman, Carol Gurioli, and Alice Helrich
1980 "Drinkers, drinking and alcohol-related mortality and hospitalizations." Center of Alcohol Studies, Rutgers University, New Brunswick, N.J.

James, Sherman A. and David G. Kleinbaum
1976 "Socio-ecologic stress and hypertension-related mortality rates rates in North Carolina." American Journal of Public Health 66(4): 354-358.

Knowles, John H.
1977 "The responsibility of the individual." Pp. 57-80 in John H. Knowles (ed.), Doing Better and Feeling Worse: Health in the United States. New York: Norton.

Li, W.L.
1971 "Status integration and suicide: A methodological critique." Issues in Criminology 6: 85-93.

Linsky, Arnold S.
1969 "Social structure and depressive disorders." Social Problems 17: 120-131.

1978 "Crime waves and other deviance epidemics: A typology." Paper presented at the Society for the Study of Social Problems Annual Meeting, San Francisco, August, 1978.

Linsky, Arnold S., John P. Colby, Jr., and Murray A. Straus
1985a "Drinking norms and alcohol problems in the United States." Paper presented at the Eastern Sociological Society Annual Meeting, Philadelphia, March, 1985.
1985b "Social stress, normative constraints, and alcohol problems in American states." Paper presented at the Society for the Study of Social Problems Annual Meeting, Washington, August, 1985.

Linsky, Arnold S. and Murray A. Straus
1981 "Social stress in the United States: Some preliminary findings." Paper presented at the Society for the Study of Social Problems Annual Meeting, Toronto, August, 1981.

Linsky, Arnold S., Murray A. Straus, and John P. Colby, Jr.
1985 "Stressful events, stressful conditions, and alcohol problems in the United States: A partial test of Bales's theory." Journal of Studies on Alcohol 46 (1): 72-80.

Lolli, Giorgio
1958 Alcohol in Italian Culture. Glencoe, Ill.: Free Press.

Lowenstein, Frank W.
1961 "Blood pressure in relation to age and sex in the tropics and subtropics: A review of the literature and an investigation in two tribes of Brazil Indians." Lancet 1 (Feb.): 389-392.

Menzel, Herbert
1950 "Comments on Robinson's ecological correlations and the behavior of individuals." American Sociological Review 15: 674.

Mesrovic, Stjepan and Barry Glassner
1983 "A Durkheimian hypothesis on stress." Social Science and Medicine 17 (18): 1315-1327.

Owen, Patricia L. and James N. Butcher
1979 "Personality factors in problem drinking: A review of the evidence and some suggested directions." Pp. 67-91 in Roy W. Pickens and Leonard L. Heston (eds.) Psychiatric Factors in Drug Abuse. New York: Grune and Stratton.

Palmer, Stuart H.
1981 Role Stress. Englewood Cliffs, N.J.: Prentice-Hall.

Pearlin, L.I., M.A. Lieberman, E. Menaghan, and J.T. Mullan
1981 "The stress process." Journal of Health and Social Behavior 22: 337-356.

Robinson, W.S.
1950 "Ecological correlations and the behavior of individuals." American Sociological Review 15 (June): 351-357.

Room, Robin
1976 "Ambivalence as a sociological explanation: The case of cultural explanations of alcohol problems." American Sociological Review 41 (Dec.): 1047-1065.

Schalkwyk, J., C. Lazer, and E. Cumming
1979 "Another look at status integration and suicide." Social Forces 57: 1063-1080.

Scotch, Norman A.
1960 "A preliminary report on the relation of sociolcultural factors to hypertension among the Zulu." Annals of the New York Academy of Science 84: 1000-1009.

Scotch, Norman A. and Jack H. Geiger
1963 "The epidemiology of essential hypertension: A review with special psychologic and sociocultural factors." Journal of Chronic Diseases 16 (October): 1183-1213.

Segal, Bernard, George J. Huba, and Jerome L. Singer
1980 Drugs, Daydreaming, and Personality: A Study of College Youth. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Selye, Hans
1956 The Stress of Life. New York: McGraw-Hill.

Sharkansky, Ira
1970 Regionalism in American Politics. New York: Bobbs-Merrill.

Skolnick, J.
1958 "Religious affiliations and drinking behavior." Quarterly Journal of Studies on Alcohol 19 (Sept.): 452-470.

Snyder, Charles R.
1958 Alcohol and the Jews: A Cultural Study of Drinking and Sobriety. New Haven: Yale Center of Alcohol Studies.

Stack, Steven
1978 "Suicide: A comparative analysis." Social Forces 57: 644-53.

Stamler, Rose
1964 "Acculturation and negro blue-collar workers." Pp. 282-306 in Arthur Shostak and William Gomberg (eds.), Blue Collar World. Englewood Cliffs, N.J.: Prentice-Hall.

Straus, Murray A. and David Jaffee
1985 Social Indicators and Social Research on American States. Prepublished monograph.

Straus, Murray A. and Arnold S. Linsky
1985 Social Stress in the United States. Prepublished monograph.

Straus, Robert
1971 "Alcohol and alcoholism." Chapter 5 in Robert K. Merton and Robert Nisbet (eds.), Contemporary Social Problems, 3rd edition. New York: Harcourt, Brace Jovanovich Inc.

Straus, Robert and Seldon Bacon
1953 Drinking in College. New Haven: Yale University Press.

Stull, Donald
1975 "Hologeistic studies of drinking: A critique." Drinking and Drug Practices Surveyor 10: 4-10.

Swinson, Richard P. and Derek Eaves
1978 Alcoholism and Addiction. Totowa, N.J.: Woburn Press.

Taylor, Peter J.
1977 Quantitative Methods in Geography. Boston: Houghton Mifflin.

Theorell, T.
1976 "Selected illnesses and somatic factors in relation to two psycho-social stress indices - A prospective study on middle-aged construction workers." Journal of Psychosomatic Research 20 (1): 7-20.

Ullman, A.D.
1968 "Sociolcultural backgrounds of alcoholism." The Annals of the American Academy of Political and Social Science 135 (Jan.): 48-54.

U.S. Department of Health, Education, and Welfare
1974 Alcohol and Health: First Special Report to the U.S. Congress on Alcohol and Health from the Secretary of Health, Education, and Welfare. Rockville, Md.: DHEW Publication.

U.S. Department of Health and Human Services
1981 "First statistical compendium on alcohol and health." National Institute on Alcohol Abuse and Alcoholism, Rockville, Md.
1975-77 Vital Statistics of the United States: Volume I, Part B, Mortality. National Center for Health Statistics, Washington, D.C.

U.S. Department of Justice
1981 Sourcebook of Criminal Justice Statistics. Bureau of Justice Statistics, Washington, D.C.
1978 Sourcebook of Criminal Justice Statistics. Bureau of Justice Statistics, Washington, D.C.

Whitehead, P.C. and C. Harvey
1974 "Explaining alcoholism: An empirical test and reformulation." Journal of Health and Social Behavior 15: 57-65.

Wilson, Robert A.
1984 "Changing validity of the cirrhosis mortality-alcoholic beverage sales construct: U.S. trends, 1970-77." Journal of Studies on Alcohol 45: 53-58.