Stigma and utilization of mental health services

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Stigma and utilization of mental health services

by

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A dissertation submitted to the graduate faculty
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Sometimes I ain't so sho who's got ere a right to say when a man is crazy and when he ain't. Sometimes I think it ain't none of us pure crazy and ain't none of us pure sane until the balance of us talks him that-a-way. It's like it ain't so much what a fellow does, but it's the way the majority of folks is looking at him when he does it.

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This study examines what kinds of background variables predict stigma and what impact stigma has on the utilization of formal mental health services. Prior research indicates that gender, age cohort, rural versus urban residency, and socioeconomic status have differing effects on utilization. A model of health behavior was tested using data from a panel of 1,487 adults. The results indicate that stigma does impact the use of formal mental health services and that this impact is differentiated for men and women. For women, stigma has a direct effect on utilization of formal mental health services and for men stigma has an indirect or moderating effect on symptoms of mental illness and utilization of formal mental health services. Rural residency was also found predictive of stigma for men but not for women.
CHAPTER I. INTRODUCTION

Nearly 30 million Americans require professional treatment for mental illness during any six month period and direct costs for the treatment of mental illness are estimated to exceed $20 billion per year (Roybal, 1988). In fact, the problem of mental illness has now reached the point where the personal and social costs of mental illness are similar in scale to those for heart disease and cancer (Sullivan, 1987). Mechanic, McAlpine, Rosenfield and Davis (1994) reported that, given the aging population and changing disease patterns, the emphasis of health services must be on those services which enhance function and quality of life. However, public preceptions associate the mentally ill with highly stigmatized social groups, in contrast to persons with less stigmatized chronic physical conditions such as heart disease.

One focus in the area of mental illness has been, and continues to be, that of the relationship of stressful life events to mental illness, particularly depression. Coyne and Downey (1991) reported that studies of stress processes, depression and anxiety were among the most active research areas in the social sciences. Similarly, Thoits (1981) found that over the past several decades there has been a tremendous interest in the effects of stressful life events on psychological well being, and has provided an extensive review of the literature in this area.

Although most mental illnesses, including depression, are considered treatable, people with mental illnesses have historically been stigmatized. During the past thirty years, hundreds of studies have examined attitudes toward mental illness. Crocetti, Spiro
and Siassi (1974) wrote "the systematic study of the public's information about and
atitudes toward mental illness and the mentally ill is a fairly new phenomenon, yet the
reports of different investigations have sometimes seemed to be as divergent as if they
spanned 2 millennia rather than 2 decades" (p. 4). Researchers have polarized into two
groups—those who see society as rejecting persons with a mental illness and those who
see society as accepting persons with a mental illness. Contributing to this dichotomy is
whether one views mental illness from a social theory or societal reaction perspective,
where deviance from social norms is responded to with rejection and isolation or whether
one looks at it from a medical model or psychiatric approach to mental disorders, where
mental illness is viewed as an illness which is diagnosable and amenable to treatment and
positive outcomes. Crocetti, Spiro and Siassi (1974), among the strongest proponents of
the "optimistic" viewpoint regarding attitudes toward mental illness, concluded in their
studies "...the time has come to write a belated epitaph to the 'theory of rejection'" (p.
163). In contrast, other studies have shown that the majority of Americans, regardless of
age or social class, have negative attitudes toward the mentally ill (Nunnally, 1961;
Rabkin, 1974). Farina (1982) argues that while there are some studies indicating that
acceptance of mental illness is increasing "...scores of studies indicate unequivocally that
these attitudes are extremely negative" (p. 309). Sociologists are interested in stigma not
only because of the effect it has on the individual who is stigmatized and their subsequent
willingness to seek help, but also because of what the very existence of the concept
reveals about society itself.
The influence of numerous variables as predictors of stigma and subsequent utilization of formal mental health services is well documented in the literature. These variables include gender, rural versus urban place of residence, and age cohort. Socioeconomic status and educational levels have also been consistently found to predict stigma.

The purpose of this study is to better understand the role of stigma in predicting the utilization of formal mental health services. This study will also examine the role of the various background variables identified above in predicting stigma. Specifically, the study will address the questions: Does stigma affect the use of formal mental health services and is this impact differentially distributed based on gender, residency, age cohort, and socioeconomic status? The conceptual framework of this study is based on theories of illness behavior and utilization of health services. Mechanic (1978) defines the study of illness behavior as being concerned with the ways symptoms are differentially perceived, evaluated, and acted or not acted upon by individuals. A number of researchers have identified that a weakness of some illness behavior models is the failure of researchers to consider the influence of psychosocial stressors on the decision making process (Gortmaker, Eckenrode & Gore, 1982).

In an attempt to address this identified weakness, this study will use a modification of Krause's (1990) model of illness behavior in later life. This model, which does include a psychosocial component, will be applied to study the relationship of stigma to the utilization of formal mental health services. The data used in this study come from a two wave health study of adults in the state of Iowa. The interviews, conducted in 1992
and 1993 include measures of depressive symptoms, stigma towards mental illness, and utilization of mental health services.
CHAPTER II. LITERATURE REVIEW

Historically, from medieval to modern times people with mental illnesses have been stigmatized. People with a mental illness were once thought to be possessed. A 1948 research study by Ramsey and Seipp actually included in their questionnaire the question whether insanity is God's punishment for sin. They found that 26% of those surveyed either answered yes or don't know to that question. The term "stigma" was derived from the Greeks where the body was cut or burned with a sign to signify to the public that this individual was a slave, a criminal, or somehow "blemished" (Goffman 1963, Schlosberg, 1993). Farina (1982) similarly reports that "...for nearly 3,000 years the belief that devils and other supernatural creatures are responsible for mental disorders has prevailed in Western society ...exorcisms are still practiced by some religious denominations..." (p. 305). He further describes the various "therapies" which have been used to treat the mentally ill. These included physical assaults such as burning and scarring, and surgical interventions such as the removal of teeth, intestines, hysterectomies and castrations. Farina asserts that these histories are important to understanding the stigma associated with mental illness in contemporary times.

Theories of stigma include components of attribution theories which hold that certain negative traits can entirely discredit the individual to whom they are ascribed, and labeling theories which expand this idea by introducing "context". Goffman (1963) in his classic work on stigma noted that society decided the context in which stigma flourished. "The special situation of the stigmatized is that society tells him he is a member of the
wider group, which means he is a normal human being but that he is also 'different' in some degree, and that it would be foolish to deny this difference ... the difference ... derives from society, for ordinarily before a difference can matter much it must be conceptualized collectively by the society as a whole" (p. 123). Stigmatization is a process where normative is differentiated from nonnormative; good from evil. Similar to Goffman, Becker (1963) states that social groups make rules regarding what is "different" or deviant. These rules are applied to particular people who then become labeled as "outsiders". This deviance or differentness is a consequence of the application of rules and sanctions by others. Lemert (1951) describes stigmatization as a process which attaches visible signs of moral inferiority to persons (e.g., labels, marks, brands, or publicly disseminated information). Mechanic et al. (1994) found that mental health attributions impact self-esteem. He reported that stigma may be so incorporated into one's sense of self that the individual begins to define him or herself more in terms of discrediting characteristics than in terms of potential assets.

Scheff (1966), in his theory of labeling, suggests that negative stereotypes play a role in actually contributing to the etiology of mental illness in that people labeled as mentally ill internalize the concept. Scheff states "... when the deviance of an individual becomes a public issue, the traditional stereotype of insanity becomes the guiding imagery for action, both for those reacting to the deviant and at times the deviant himself. When societal agents and people around the deviant react to him uniformly in terms of traditional stereotypes of insanity his amorphous and unstructured rule breaking tends to crystallize in conformity to those expectations, thus becoming similar to the behavior of
other deviants, classified as mentally ill, and stable over time" (p. 82). He suggests that once an individual has been labeled as mentally ill, pre-existing stereotypes are activated in individuals around them.

In contrast to Scheff, Gove maintains that labels of mental illness result from deviant behavior. Labeling is a result, not a cause, of deviance. Gove (1975) reports "...deviant labels are primarily a consequence of deviant behavior and that deviant labels are not a prime cause of deviant careers" (p. 296). Lehman, Joy, Kreisman and Simmons (1976) conducted an experiment to determine whether psychiatric labeling or symptomatic behavior was more likely to generate rejection. Subjects watched three videotapes where persons acted anxious and agitated, depressed and withdrawn, and normal. Also, one of the persons was described as "having spent one three month period of hospitalization for psychiatric problems" (p. 329). Subjects were asked to complete both an adjective rating scale and a social distance scale. Their findings suggest that the mere act of labeling did not lead to rejection, however, symptomatic behaviors (e.g., anxious or depressed) were associated with rejection. Farina, Murray and Groh (1978) studied male worker interviews of female applicants. Half of the interviewers were told that the applicant was a former mental patient and half of the interviewers were told she was an ordinary applicant. Furthermore, for half of the interviewers who were told the applicant was a former mental patient and for half the interviewers who were told she was an ordinary applicant, she acted calm and relaxed and for the rest she acted tense and anxious. The findings indicated that applicants who acted tense were less well received regardless of whether or not they were labeled as a mental patient.
In contrast, Link, Struening, Cullen, Shrout and Dohrenwend (1989) concur with Scheff that societal reaction is an important component in the consequences of being labeled mentally ill. They discuss how "official labeling" gives new and personal relevance to an individual’s beliefs regarding how others will respond to persons with mental illness. They also address how individuals develop negative ideas regarding what it is to be mentally ill during the socialization process. Because of these previously acquired, negative associations with mental illness, individuals entering treatment for the first time immediately experience effects of stigma and develop expectations of rejection. They feel that even if it does not directly produce mental disorders, it can lead to negative outcomes. The modified labeling approach is conceptualized in five steps:

Step 1: Societal conceptions of what it means to be a mental patient.
Step 2: Labeled: Societal conceptions become relevant to self.
Step 3: Labeled individual’s response (e.g., secrecy, withdrawal, education)
Step 4: Negative consequences for self esteem, earning power, or social network ties.
Step 5: Vulnerability to new disorder or to repeat episodes of existing disorder (p. 402).

Link (1987) concludes "...for many the labeling experience evokes a potent expectation of rejection that, along with the actual responses of others, can disrupt social interactions, diminish self-esteem, and negatively influence performance in social and work roles" (pp. 99-100).

Rabkin and Struening (1976) report that stigma and the labeling of mental illness have been widely studied and documented since the early 1950s. Hundreds of studies have examined attitudes toward mental illness. Researchers have divided into two
factions—those who argue that society no longer rejects individuals with a mental illness and those who contend the opposite is true. Crocetti, Spiro and Siassi (1974) and Lemkau and Crocetti (1962) are proponents of the optimistic viewpoint regarding attitudes toward mental illness. Based on their community studies from a 1960 general survey of a portion of the population in Baltimore, Maryland, and their 1968 and 1970 surveys of members of the United Auto Workers of American in Baltimore, they concluded that "the mentally ill enjoy nearly total acceptance in all but the most intimate relationships" (Crocetti, Spiro & Siassi, 1974: p. 88). Specifically their data suggested that the public is aware of different types of mental illness and did not support that the public has a stereotyped conception of the mentally ill as dangerous criminals to be put away in prison-like mental hospitals. In contrast they found the public desired mental hospitals to be facilities for treatment, and that the public was willing to regard hospital care for the mentally ill much the same as they would for any type of illness. They predicted that acceptance of individuals with a mental illness will increase rather than decrease as time passes.

Gove (1980) suggested that stigma appeared to be transitory and did not pose a severe problem for the majority of patients with mental illnesses. He believes that mental hospitalization does not lead to a prolonged occupancy of the mentally ill role. Halpert (1970) in his review of community surveys reported public attitudes towards the persons with mental illness are no longer wholly negative and that acceptance is increasing. He further found that the higher the education and occupation level, the more "enlightened" were the opinions about mental illness. Bentz and Edgerton (1971) conducted a study of
1400 individuals in rural North Carolina and Virginia which measured the respondents' acceptance or rejection of the mentally ill. They compared the mean social distance scores of those who identified the case abstracts as mentally ill and those who did not. They found no evidence to support that labeling a person as mentally ill resulted in a greater degree of rejection and isolation. They reported no difference with respect to the social distance they wished to maintain. Huffine and Clausen (1979), in a study which looked at the impact of mental illness on occupational careers, found that being labeled mentally ill did not markedly affect a man's career. The label "mental patient" did not serve as a master status. Rarely did the former patients report any evidence of stigmatization. Similarly, Clausen (1981) concluded in his longitudinal study of interviews with mental patients and families of patients hospitalized more than 20 years ago, and with both spouses and patients coming under study more recently, that there were few experiences of rejection or discrimination" (p. 293). Weinstein (1983) in his review of 35 studies dealing with attitudes of mental patients found that attitudes toward the label of mental illness and the stigma of hospitalization were favorable versus unfavorable and that they increased in favorability during the hospital stay and following discharge. Specifically, he examined the following five propositions derived from labeling theory and found that none met the criteria for acceptance:

1) Hospitalized patients tend to espouse unfavorable attitudes toward mental illness.
2) Patients' attitudes towards mental illness become more unfavorable during the course of hospitalization.
3) Patients are less favorable in attitude toward mental illness than nonpatients.
4) Ex-patients tend to express unfavorable attitudes toward the stigma of mental hospitalization.

5) Ex-patients’ attitudes toward the stigma of mental hospitalization, compared to their pre-discharge attitudes, will be more unfavorable (p. 72-73).

In contrast to these findings are studies from patients, their families and the general population identifying evidence of stigma and rejection. These documented public conceptions associate persons with a mental illness with highly stigmatized social groups. One of the most influential early studies was conducted by Star (1955). She studied public attitudes toward mental illness utilizing six fictitious case descriptions of mentally ill people. These case descriptions called the "Star vignettes" depicted persons exhibiting behaviors which would correspond to the following diagnoses: neurotic depressive, a paranoid schizophrenic, a simple schizophrenic, an alcoholic, a juvenile conduct disorder, and a phobic-compulsive neurotic. In her national survey of 3,500 people, she found that only the most extremely disturbed behavior, the paranoid schizophrenic, was recognized as mentally ill by the majority of her respondents and that they were reluctant to call anyone "mentally ill."

Another influential study was conducted by Elaine and John Cumming. Cumming and Cumming (1957) conducted a field experiment in 1951 whereby they subjected the population of one town, Blackfoot, to an intensive education campaign on mental health and the other town, Deerville, received no education and was held as a control. They concluded that the six month educational program provided virtually no change. They concluded that the public’s attitude was one of "denial, isolation, and insulation of mental
illness" (p. 119). They further reported "...the social responses to mental illness appears to be: first denial of mental illness; second, isolation of the affected person in a hospital when mental illness can no longer be denied, with concomitant rationalization of this isolation with beliefs that the hospital is a wonderful place, capable of curing mental illness, if it can be cured at all, which is doubtful; and finally, insulation of the whole vexing problem by a secondary denial that a problem exists in so far as it needs solving by ordinary citizens" (pp. 122-123).

Nunnally (1961) conducted an extensive study from 1954 to 1959 sponsored by the Institute of Communications Research at the University of Illinois. His conclusions were similar to Star and the Cummings regarding negative public attitudes towards mental illness. He argued that "...the average man generalizes to the point of considering the mentally ill as dirty, unintelligent, insincere, and worthless. Such unselectively negative attitudes are probably due in part to a lack of information about mental illness and a failure to observe and learn about mental illness phenomena in daily life" (p. 233). He further reports "... there is a strong negative halo associated with the mentally ill; they are regarded as all things bad" (p. 232). Lamy (1961) asked college students to compare "the man who has been in a mental hospital" to "the man who has served a prison sentence." He reported that the role of the ex-mental patient was viewed as less desirable than the role of the ex-convict. Students felt that a very solicitous mother would be more likely to trust the care of her children to an ex-convict rather than to the care of a former mental patient. The ex-convict was also judged to be more reliable in an emergency. Phillips (1964) studied the effects of seeking various types of help for problems. He
examined the extent to which attitudes toward an individual exhibiting disturbed behavior were related to knowledge of the type of help source that individual was using. Categories of help source included: no help, clergyman, physician, psychiatrist, and mental hospital. Findings indicated that individuals were increasingly rejected in the following order: no help source, seeing a clergyman, seeing a physician, seeing a psychiatrist, or using a mental hospital. Individuals were disproportionately rejected when they were described as utilizing a psychiatrist or mental hospital. Farina, Gliha, Bouldreau, Allen and Sherman (1971) reported that insane people are less acceptable as friends and neighbors than dope addicts or ex-convicts and are described as more worthless than individuals who are blind or who have leprosy. Sibicky and Dovidio (1986) found that even when people do seek professional treatment they often forego mental health benefits provided by their employees and pay for treatment themselves rather than risk having individuals at their work place find out that they have used mental health resources. Segal (1978), in his review of attitudes toward mental illness, concluded "...although ...the concept of mental illness is broader today ... the public still views a subgroup of the mentally ill as objectionable, dangerous, and largely unpredictable... The basic concept of mental illness prevailing in the mind of the public is that of a serious, unpredictable, dangerous disorder" (pp. 215-216). Link et al. (1989), in their study conducted in the Washington Heights section of New York City, found that when patients were asked whether they thought people would exclude a mental patient from a job, a close friendship or an intimate relationship, the majority of respondents felt that this would happen. Nieradzik and Cochrane (1985), in a study
assessing various elements of public attitudes toward the mentally ill, tested the following
five hypotheses:

1. Public attitudes towards mental illness are more rejecting than accepting.
2. Social rejection increases with increasing severity of disturbance in behavior.
3. Public attitudes towards the mentally ill are related to social class as measured
   by occupational status and to age of the respondent.
4. Rejection of the mentally ill is decreased by availability of a nondeviant
   alternative label.
5. Attitudes of the general population towards the mentally ill will be influenced by
   the label of mental illness as well as by behavior indicative of mental illness.

All hypotheses with the exception of #3 where supported. Trute, Tefft and Segall
(1989) replicated a survey of public attitudes towards the mentally ill after a decade had
elapsed. Specifically, a community wide survey in the same city, using similar measures
was conducted ten years following the initial study. The survey questionnaire included
items on social rejection and experience with and knowledge about the mentally ill. The
general demographic characteristics of the 1976 and 1986 samples were comparable. The
results indicated no change in public rejection of the mentally ill. The Likert items
averaged slightly on the rejecting side of the scale midpoint, inferring that the public
response tended to be rejection of the mentally ill. Mechanic et al. (1994) found that
individuals who were less likely to attribute their problems to mental illness, and more
likely to attribute their problems to physical, medical, or biological processes reported a
higher quality of life. They suggest that this study indicates that attributing one’s
problems to mental illness increases one's personal sense of social stigma and decreases self-esteem. They conclude that "the problem of stigma remains a deep and persistent one" (p. 163). Similarly, Lasoski and Thelen (1987) report "studies have shown that the majority of Americans, regardless of social class or age, harbor negative and rejecting attitudes toward the mentally ill" (p. 288).

Fink and Tasman (1992) discussed a multitude of factors that explain why stigma against the person with a mental illness has been so persistent. Two factors identified included the fact that people find it difficult to accept behavior that may be different from the norm. The other reason has to do with the myths surrounding the "American character ...the myth that there is something about the American character that says we should have strength to be able to take care of ourselves continues to take precedence over the concept that mental illness ...is treatable and not self-induced..." (p. 4) Rost, Smith and Taylor (1993), in their study on the treatment of mental illness, concluded that one of the most powerful barriers to seeking mental health treatment was the stigma associated with psychiatric disorders.

In summary, the literature on the extent and impact of stigma is inconclusive. While most authors agree that, at some earlier point in time, stigma toward mental health had important impacts, there is considerably less consensus regarding current patterns. This may reflect an increasingly complex pattern of where and in what contexts stigma is likely to be present. One insight into this potential heterogeneity may be found by examining the findings from the research on the correlates of stigma.
Variables Predicting Stigma Towards Utilization of Formal Mental Health Services

Gender

Research on utilization of health services has repeatedly shown that females have higher rates of health services utilization than men (Nathenson, 1977; Cleary, Mechanic & Greenley, 1982; Verbrugge, 1989). More specifically, researchers have examined gender differences in the utilization of mental health services and have found that women use significantly more mental health services than men (Veroff, Kulka & Douvan, 1981; Kessler, Brown & Broman, 1981; Wells, Manning, Duan, Newhouse & Ware, 1986). Veroff et al. (1981), in their comprehensive study which looked at changes from 1957 to 1976 in Americans' use of resources in dealing with mental health problems, found "...women ...are more likely than men... to explain and or structure their distress in ways that are relevant for self-referral" (p. 93). Wells et al. (1986) in their analysis of data from the Rand Health Insurance Experiment found that women were significantly more likely to have received mental health care from either a mental health specialist or general medical practitioner. Similarly Shapiro, Skinner, Kessler, Van Korff, German, Tischler, Leaf, Benham, Cottler and Regier (1984) found in their study of three epidemiologic catchment areas that women with a recent mental illness disorder seek care for their mental or emotional problems more frequently than men. A recent study by Crow, Smith, McNamee and Piland (1994), which was interested in the prediction of mental health service utilization for purposes of planning managed care plans, found that the percentage of the population studied with at least one visit was lower for males
(3.5%) than for females (5.6%). The reasons for the gender differences in utilization of mental health services is the subject of considerable debate. Kessler, Brown and Browman (1981) found that a reason why women utilize more mental health services than men is because they are more likely than men to interpret symptoms associated with depression and low general well being as signs of emotional problems, and as a result of this recognition of distress are more likely to seek professional treatment. Gove and Tudor (1973) account for the gender differences in mental health services utilization as due to women's role which has characteristics which may promote mental illness and the subsequent use of services. Still other studies examine utilization patterns from the perspective of gender differences in "acceptability" of seeking treatment. Mechanic (1964) found in a study of socialization of attitudes toward illness that sex differences in reporting illness and pain were apparent as early as fourth grade. Similarly, Verbrugge (1979) reported that women and men have different social roles that impact health actions. Early studies by Phillips (1964) and Phillips and Segal (1969) reported that women are rejected less for exhibiting specific emotional symptoms than men. These studies suggest that this particular illness behavior is less stigmatizing for women. Gove and Tudor (1973) found that due to the greater demands and visibility of men, mental illness will be related to a stronger societal reaction to men than to women who are mentally ill. Mutran and Ferraro (1988) identified in their study that women are taught to be more health conscious and are given greater freedom to express health problems. Ihsan (1982) similarly stated "...women may report more illness than men because it is culturally more acceptable... the sick role is more compatible with the female than the
male role responsibilities and therefore (she) may have more contact with psychiatric facilities ..." (p. 86).

Leaf and Bruce (1987) studied 4,184 residents in New Haven and the surrounding 12 towns. They were asked a number of questions including their receptiveness to mental health services and professionals, possible barriers to accessing mental health services, and their family's reaction to service use. They found that women were more receptive to mental health treatment than men. Furthermore, women were less concerned about the reactions of their families.

Place of Residency

Under-utilization of mental health services has been identified as a major problem in rural areas. Buckwalter, Smith, Zevenberger and Russel (1991) state that "rural residents have unique mental health needs ...many rural Americans are reluctant to accept services even when they are available" (p. 408). Nease (1993) reported that stigma for mental health may be more of a risk factor for individuals in rural as opposed to urban settings because of the small size and the increased pressure to conform. He suggested "...greater flow of information through social networks in rural areas may result in persons being fearful of being labeled by the entire community, rather than by a small subset of people" (p. 247). Numerous studies identified lack of anonymity and the probability of being labeled as major deterrents to mental health treatment in rural areas (Berry & Davis, 1978; Jeffrey & Reeve, 1978). Riggs and Kugel (1976), in their article which described experiences in developing rural community health centers, reported that
a frequently identified problem with the entry of the mental health system to the community, was the general public's attitude toward mental illness, which included superstitions, labeling and the stigma associated with being a patient. The difficulty with maintaining confidentiality in a small town setting was also listed as a factor effecting treatment seeking. One respondent reported that when his patients walked into the mental health center they felt as though everyone in town saw them. Another factor cited as influencing the seeking of mental health services is "rural values". Abraham, Buckwalter, Neese and Fox (1994) concurred that rural acceptance of mental health services is hindered by stigma, cultural beliefs and values, including subjugation to nature, individualism, emphasis on primary relationships and family, traditionalism, fatalism, Protestant work ethic, conservative beliefs, and strong religious values (p. 208).

Similarly, Hendricks and Turner (1988) identified rural values as being more "traditional" in nature. Themes included fatalism, orientation to concrete places and things, an emphasis on being as opposed to doing, and personal and kinship relations as sources of well being.

Flaskerud and Kviz (1982) found that rural area supports such as family and local church groups were likely to do the crisis intervention work done by mental health centers in urban areas. Phillips and Murrell (1994) reported that the strength of a person's social support affected help seeking. Individuals with close friends and relatives who were readily accessible were less likely to seek formal psychological treatment. Coward, DeWeaver, Schmidt and Jackson (1985) concurred with this idea of traditionalism and characterized rural people as "more politically conservative,
puritanical, independent and self-reliant, distrustful of outsiders and fundamentally religious than urban people and less committed to social welfare" (p.8). Leaf, Bruce, Tischler, Freeman, Weismann and Myers (1988) and Veroff, Kulka and Douvan (1981), in their studies, reported that actual use of professional help for psychological problems was found to increase with education and income level and was highest for people living in urban areas. Stefl and Prosperi (1985), in their examination of the gap between service need and service utilization rates in a five county, predominantly rural region, found that those individuals who were in need of services but who were not recent utilizers of the mental health services reported higher stigma barriers associated with utilizing these services. The rate of perceived stigma was almost twice as high for nonusers as for users. Rost, Smith and Taylor (1993) studied whether rural people perceived more stigma associated with seeking treatment for depressive symptoms than urban people and whether this stigma was significantly associated with the use of professional help. The sample consisted of 200 subjects. They were classified as urban residents if they resided in one of two counties within the same metropolitan statistical area, and classified as rural residents if they resided in any non-MSA county surrounding the two metropolitan counties. Subjects were asked to rate one of four randomly selected vignettes about a person with depressive symptoms. The findings indicated that rural residents with a history of depressive symptoms labeled people who sought professional help for the disorder somewhat more negatively than their urban counterparts. They found that the more negative the labeling associated with treatment seeking, the less likely rural residents with histories of depressive symptoms were to have sought professional
help. In contrast, labeling associated with treatment seeking had no relationship to the use of care among urban residents with histories of depressive symptoms. While it is generally concluded that stigma towards utilization of mental health services is greater in rural than in urban areas, the empirical studies that have documented the effect are limited.

Age Cohort

Speer, Willings, West and Dupree (1991) state "...it is now generally accepted that the elderly use mental health services at rates appreciably lower than their proportion in the general population..." (p. 69). Similarly, Knight (1986) reported that the under-service of the elderly is one of the best established and relatively constant findings in the studies on mental health of the elderly. Waxman, Carner and Klein (1984), in their report on the serious under-utilization of mental health services by the elderly stated that although 11% of the population is over 65 years of age and that between 10% and 30% of that group have mental health problems, few receive professional help. Flemming, Rickaras, Santos and West (1986) concurred, estimating that there are approximately seven million elderly Americans who may require services. They went on to describe that elderly persons, who make up almost 12% of the American population, represent only about 6% of persons served by community mental health centers and 2% of those served by private therapists. Roybal (1988) reported that elderly men over the age of 75 display the highest rate of suicide of any age group.
Lasoski (1986) analyzed various reasons for low utilization of mental health services by the elderly. He identified three types of barriers: professional attitudes, practical limitations, and elder attitudes. The argument that negative stereotypes about aging and "ageism" may prevent professionals from reaching out to elderly clients was examined by Waxman, Carner and Klein (1984). They conducted a study in which 88 elderly persons were interviewed while attending lunch programs at one of four Philadelphia senior centers. They found that the greatest obstacle to appropriate utilization of mental health services was not perceived "ageism" on the part of mental health professionals, but rather it was due to biases against mental health treatment held by the elderly individuals themselves. Gatz and Pearson (1988) suggest that global ageism among professionals may not exist but specific biases may, including an overestimation of Alzheimer's disease.

Goldstrom, Burns, Kessler, Feuerberg, Larson, Miller and Cromer (1987), in their study on mental health services use by elderly, included as variables some of the "practical limitations" (i.e., reimbursement, transportation, etc.) described by Lasoski (1986) and they found that elderly adults used fewer specialty mental health services compared to other adults even when mental health services were accessible.

The last barrier identified by Lasoski (1986) is elder attitude. Felton (1987) stated "... the idea that historical changes affect individual’s psychological development, marking each cohort in special ways has been a persistent theme in life span developmental psychology" (p. 27). Differences in experiences result in differences in
attitude among the age strata towards a number of things, including mental health and utilization of mental health services.

Elder cohorts appear to have different perceptions of mental health based on their social cultural and educational experiences. Idler (1993) reported that cohorts born after 1900 experienced much less hardship than their parents. "The consequences of the physical hardship of repeated childbearing or long hours of strenuous dangerous jobs and the socioeconomic hardship of little education and poor pay produce lower levels of happiness in these cohorts ...fierce independence and reluctance to seek even badly needed services ...greater ties to the Protestant work ethic, social Darwinism and survival values..." (p. S-298). She concluded that the combination of all these hardships experienced by the elderly cohort provide a distinct and unique backdrop for evaluating present problems or discomforts. Lasoski (1986) reported that elder attitudes about mental health are somewhat characteristic of attitudes of Americans fifty years ago. These attitudes include mental illness as something to be ashamed of; mental illness is incurable; and mental illness requires life long institutionalization (p. 2). Lee (1985) found that the current cohort of elderly adhere to the norm of reciprocity. This is based on the value attached to independence and autonomy by the elderly. They do not wish to receive support from others unless they can reciprocate. Birren, Sloane and Cohen (1992) reported that the stigma of mental illness is especially strong in the current cohort of elderly persons who associate mental disorders with "...personal failure, spiritual deficiency or some other stereotypic view" (p. 17). Hasin and Link (1988) found in their study that older subjects were less likely to recognize a psychological or emotional
problem when shown a vignette displaying clinical depression. Waxman et al. stated that while it is more and more accepted that psychiatric problems are nothing to be ashamed of, these liberal attitudes were not prevalent when today's elderly cohort were young and forming attitudes.

Gourash (1978) in a review of the help seeking literature reported that the key factors which differentiated those who did and those who did not seek help were age and race. Specifically in regard to age, it was found that help seeking consistently declines with age. Other documented studies indicate that being old, having lower income and education, being male, and being a member of a racial or ethnic minority are all associated with lower likelihood of receiving mental health services when there is a need for such services (Kessler, Blake & House, 1981; Veroff, Kulka & Douvan, 1981; Leaf, Livingston, Rischler, Weissman, Holzer & Myers, 1985). Increasing age is also highly correlated with health problems. Any age cohort use of health resources needs to control for the confounding variable of health.

Leaf and Bruce (1987), in their study of demographic factors and attitudes toward mental health services, found the elderly less receptive to professional mental health services and found they were particularly concerned with possible family reaction. Leaf et al. (1988) further identified that the greatest reliance on the mental health specialty sector occurred between the ages of 25 and 44. They reported that these individuals had been raised in the era of mental health promotion and decreasing stigmatization of mental illness. Lundervold and Young (1991) studied the attitudes and knowledge of mental health services in fifty older adults. An interview instrument was used which measured
items in seven areas affecting older adults use of psychological services. These items were: knowledge of aging and mental health; cost/knowledge of payment mechanism; access/availability of services; stigma; effectiveness of treatment; religiosity; and openness to discussion. They found the highest negative attitudes and knowledge deficits in the domains of stigma (74%), knowledge of psychopathology and aging (68%) and religiosity (68%).

Few studies have critically examined the role of stigma in the utilization of mental health services by the elderly. Waxman, Carner and Klein (1984) states "although the literature contains suggestions that the elderly’s attitudes toward mental health are an obstacle to service utilization, there is a paucity of empirical evidence supporting this argument" (p. 24).

Other Demographic Variables

Income and education are two other socioeconomic variables which prior research has indicated as being associated with the use of formal mental health services. Veroff, Kulka and Douvan (1981) found that it was the more educated (particularly respondents who had a college education) who were more likely to use mental health resources. They also reported family income level as clearly related to the use of mental health resources. Specifically, they found that the wealthier respondents went to psychiatrists or psychologists and the poorer respondents went to social service agencies. Similarly, Reed, Myer and Scheidemandal (1972) found that utilization of mental health benefits was higher among the highly educated and higher income respondents. Wells et al. (1986)
reported that other factors being equal, users with high socioeconomic status are significantly more likely to visit a mental health specialist compared to a general medical provider. Leaf and Bruce (1987) concluded that social class continues to have a strong influence on attitudes and utilization of mental health services. They found that individuals who had the least financial resources or education exhibited a lower propensity to seek mental health care and were more sensitive to the reactions of others.

Taken as a whole, the research on correlates and predictors of stigma suggest a complex pattern of relationships. These findings reinforce the importance of placing the research on stigma in a theoretical framework. This approach should provide a context from which the diversity of findings on the extent and effect of stigma may be interpreted in a more consistent manner. These issues are explored in the following chapter.
CHAPTER III. HYPOTHESES

The theory of illness behavior provides a conceptual framework for the development of a model to predict utilization of formal mental health services. Mechanic (1978) defined the study of illness behavior as being concerned with the ways symptoms may be differentially perceived, evaluated, and acted, or not acted upon by individuals. He further states that the study of illness behavior "...involves the study of attentiveness to pain and symptomatology, examination of processes affecting the way pain and symptoms are defined, accorded significance, and socially labeled, and consideration of the extent to which help is sought..." (p. 249). Kasl and Cobb (1965) described illness behavior as actions an individual who feels ill engages in to define his state of health and find appropriate remedies (p. 2).

The theoretical model that has dominated the study of illness behavior and medical care use has been that of Andersen and his colleagues (Andersen, 1968; Andersen & Newman, 1973; Andersen, Kravits & Anderson, 1975). Becker and Maiman (1983), in their extensive review which examined models of selected patterns of illness behavior, found that the model most notable, in terms of predictive ability and frequency of citations, was that proposed by Andersen in 1968. This model is known as the behavioral model of health services utilization, and it explains health care use as a function of three blocks of variables known as predisposing, enabling and need characteristics. The predisposing component includes subcomponents of family composition, health beliefs, and social structure. Family composition is further broken
down into age, sex, and family size. Social structure includes employment, social class, occupation, education, race and ethnicity. Health beliefs include beliefs about medical care, physicians, and disease. The enabling component includes both family and community resources. Finally, the need component looks at the amount of illness perceived and the way the family responds (Andersen, 1968, pp. 15-17). In summary, the model suggests that a person's decision to seek medical services, and the volume of services he or she receives depends on (1) the predisposition of the person to use these services (prior to the onset of illness), (2) his/her abilities to obtain services, and (3) his/her need for medical care (see Figure 1).

Although widely used, the Andersen model has been criticized in several areas. Mutran and Ferraro (1988) state that the model can be critiqued on theoretical grounds because it is not clear how the enabling measures relate to the predisposing and to the need variables. They further report that most empirical testing of Andersen's model finds need to be the key predictor of service utilization with little variance in use attributable to either the predisposing or enabling variables. They report that measures of medical care need are not "pure" measures of sickness. Krause (1990) after reviewing some of the most prominent illness behavior models, including Andersen's, maintained that one of the most serious omissions in existing studies of illness behavior is the failure to consider the influence of psychosocial stressors on the medical care decision making process. Tessler, Mechanic, and Dimund (1976) found that distress is one of the most important factors affecting the use of physician services. Specifically, their study noted that within a
Figure 1. Anderson's Model (Andersen, 1968, p. 14)
prepaid practice context, which eliminated barriers associated with cost, there was a significant positive relationship between psychological distress and utilization of primary care health services. Distress affected physician utilization. This effect was not found to be due to variables such as increased illnesses among the distressed, greater propensity to use services, or more receptive attitudes to physician services. The study results suggest distress plays a direct causal role and emphasizes social psychological needs as a trigger for physician utilization. Similarly, Gortmaker, Eckenrode and Gore (1982) studied the relationship of life stress, symptoms, and utilization of health services. Their findings indicated that for all measures of symptom-related utilization and measures of overall utilization, the presence of a stressful life event resulted in an increase in utilization which was statistically significant. The presence of a stressful life event was associated with a doubling of the probability of a health contact and strongly suggested that stress be considered an important component in theoretical models of health behaviors. The stressful life events variable was one of the best single predictors of utilization.

Krause acknowledges that symptoms of physical illness are caused by more than life stress but he feels that the amount of strain one has influences whether or not one seeks treatment. He also argues that the empirical analyses of Andersen’s model have not explicitly measured the constructs thought to link demographic factors with specific types of illness behavior. Krause’s model of illness behavior in later life examines the relationship among stress, social support, and physical illness in the elderly and suggests that help seeking in response to physical illness symptoms is a function of a complex
interplay among these variables. The model predicts that stress triggers the use of formal medical care because stress intensifies symptom sensitivity. In summary, Krause’s model suggests "...the use of formal medical care services increases as the beliefs of respondents and their significant others in the efficacy of the medical care intensifies, as tangible aid provided by significant others in obtaining formal care increases, as symptoms of physical illness becomes more severe and exposure to life stress increases" (p. 238) (see Figure 2).

Krause’s model of life stress, physical illness symptoms, and use of medical care will be modified for the purposes of this study. Although Krause’s model reflects the relationship between stress and physical symptoms, a strong, positive relationship between life stressors and psychological disorders has been well documented (Thoits, 1981; Myers, Lindenthal & Pepper, 1971; Paykel, 1969; Dohwenrend, 1969, 1973; Vinokur & Selzer, 1975). Clay (1993) reported that more than 100 studies have linked depression with stressful life events. More specifically, studies have consistently demonstrated a positive relationship between stressful life events and depression (Brown, Harris & Pete, 1973; Jacobs, Prusoff & Paykel, 1974; Lloyd, 1980). A study by Cornell, Milden and Shimp (1985) looked at a sample of 100 psychiatric inpatients which were clustered into three groups: endogenous depression, nonendogenous depression, and psychiatric controls. They found contrary to the longstanding beliefs that endogenous depression was not precipitated by life events and that biological and psychosocial factors cannot co-exist, that all three groups, including the endogenous depression group, reported significant increases in stressful life events during the 12
Figure 2. Krause’s Model (Krause, 1990, p. 234)
months preceding the onset of their psychiatric episode. Recently, research has focused on the role that stressful life events play on the etiology, course and development of depression (Nezu & Ronan, 1988; Reynolds & Gilbert, 1991).

The proposed model for this study examines the role of background variables in predicting stigma, and the direct and indirect effects of stigma on the utilization of formal mental health services. The model suggests that various background variables have predictive associations with stigma, and that stigma, stress, and symptoms of mental illness have direct effects on the utilization of formal mental health services. The model also suggests that stigma has an indirect, or moderating effect on stress and the use of formal mental health services and on symptoms of mental illness and the utilization of formal mental health services (see Figure 3).

Based upon these basic expectations derived from the proposed model, a series of specific hypotheses have been developed. These hypotheses address demographic predictors of stigma, the direct impact of stigma on use of mental health services, and some indirect effects through interactions with stress and symptoms.

**Research Hypotheses**

**Demographic correlates**

1) Men are more likely to have stigma towards mental illness than women.

2) Rural residents are more likely to have stigma towards mental illness than urban residents.
Figure 3. Proposed Model

Gender
Place of Residency
Age Cohort
Education
Income
Health Status

Stress

Stigma

Symptoms of Mental Illness

Use of Formal Mental Health Services
3) Older individuals are more likely to have stigma towards mental illness than younger individuals.

4) Individuals with a higher socioeconomic status are less likely to have stigma towards mental illness than are individuals from a lower socioeconomic status.

**Direct effects of stigma**

5) Controlling for symptoms of mental illness, stress, and demographic characteristics, higher levels of stigma will be associated with lower utilization of formal mental health services.

**Direct effects of stress**

6) Controlling for symptoms of mental illness, stigma, and demographic characteristics, higher levels of stress will be associated with increased utilization of formal mental health services.

**Direct effect of symptoms of mental illness**

7) Controlling for stress, stigma, and demographic characteristics, greater symptoms of mental illness will be associated with increased utilization of formal mental health services.

**Indirect effects of stigma**

8) Stigma will moderate the relationship between prior symptoms of mental illness and the utilization of formal mental health services. The symptom to utilization will be significantly smaller for persons with high stigma (compared to those with low stigma).
9) Stigma will moderate the relationship between stress experienced and the utilization of formal mental health services. The stress to utilization relationship will be significantly smaller for persons with high stigma (compared to those with low stigma).

Each of these hypotheses will be evaluated using data from a study conducted in the state of Iowa. The details of the study and test procedures are provided in the following chapter.
CHAPTER IV. DATA AND METHODS

Sample

The Iowa Health Poll is a two wave statewide survey conducted as part of the research program in the Center for Family Research in Rural Mental Health at Iowa State University. The survey was designed to provide information on health and mental health needs and services in rural and urban Iowa. The first survey was completed in the spring of 1992. The interview took an average of twenty-two minutes to complete and included questions on a variety of topics including self-assessed health, health limitations, health services, mental health and mental health attitudes, stressful life events, social support, and basic household demographics. Respondents were selected randomly from eligible adults (age 18 and older) in a screened household. The sample had a response rate of 76.3%.

In the fall of 1993, the respondents of the first survey were contacted and requested to participate in the second interview. Of the base sample still living in Iowa and available to be contacted, 81.7% were re-interviewed. The data summarized are based on the responses of 1,487 persons who successfully completed both interviews.

Measures

Data regarding age, residency, education, income, health, symptoms of mental illness, and stigma come from the first wave and data regarding stress and the use of formal mental health services comes from the second wave.
The dependent variable, use of formal mental health services, was measured by a single indicator. All respondents were asked if in the past twelve months they had gone to a mental health professional for assistance. This indicator was coded as a yes-no dichotomous variable.

Place of residence was operationalized using five categories. These categories were: farm/country; rural town; towns (population 2,500-9,999); cities (population 10,000-49,999); and SMSA (population 50,000 or larger).

Age was operationalized into the following seven ordinal variable categories: 18-24; 25-34; 35-44; 45-54; 55-64; 65-74; and 75 and older.

Socioeconomic status was measured by education and income indicators. Education was categorized as follows: less than high school; high school or GED; some college vocational or technical training; two year college degree; graduate of vocational or technical school; college graduate; some graduate work; or advanced degree.

The income measurement was obtained by asking all respondents "Which of the following groups is closest to your household income in 1992?" Ten categories of ordinal variables were used to operationalize this category: below $5,000; $5,000-$10,000; $10,000-$15,000; $15,000-$20,000; $20,000-$25,000; $25,000-$35,000; $35,000-$45,000; $45,000-$55,000; $55,000-$75,000; and $75,000 or more.

Health was measured by a single indicator which asked the respondent to rate their health as excellent, very good, good, fair, or poor. This item is scored from 1 to 5 with 1 being excellent.
Stigma was operationalized by using two indicators. All respondents were asked the following two questions: "How embarrassed would you feel if your friends knew you were getting professional help for an emotional problem?" and "How embarrassed would you feel if other persons in your community, other than your friends, knew you were getting professional help for an emotional problem?" There was a potential range from 1-4 with 1 being not at all embarrassed and 4 being very embarrassed. These two indicators were summed to create a score. The alpha reliability estimate was .81.

Previous research studies have utilized similar strategies to operationalize stigma. Rost, Smith and Taylor (1993) asked respondents to rate vignettes on a 1 to 7 semantic differential scale on how other people would feel about the person if they found out he/she was having emotional problems and how other people would feel about the person if they found out he/she had professional help for his/her emotional problem. In their study on barriers to mental health services utilization Stefl and Prosperi (1985) measured "acceptability (stigma)" with the following two items: "fear of being looked down on" and "fear of what relatives, friends might think". Flaskerud and Kviz (1982), in a study on attitudes towards mental illness, asked respondents to agree or disagree with the statement "anyone who goes to a mental hospital for treatment should be ashamed."

Although one might argue that "embarrassment" measures and reveals more about beliefs concerning stigma than actual evidence of stigma, Townsend and Rakfeldt (1985) suggest that a patient's belief in stigma and decreased opportunities do affect both self-concept and efficacy beliefs negatively.
Stress was measured by a series of indicators incorporating both personal stress items and financial stress items. All respondents were asked to indicate whether or not any of the following events had happened to them in the past year. For personal stress the following four questions were asked: In the past year have you had someone in your household get very ill or injured?; had a close relative or friend die?; had something stolen from you or your house? broken up with your husband/wife?

For financial stress the following four questions were asked: In the past year have you had a substantial decline in your income?; had problems paying your bills on time? had to use savings to get by financially?; been laid off from your job? The number of "yes" answers to the personal and financial stress items were summed to arrive at a score. The potential range was zero to eight with eight indicating the greatest stress. The alpha reliability estimate was .48.

Symptoms of mental illness were measured using a twelve item form of the Center for Epidemiological Studies Depression Scale (CES-D) developed by Ross and Huber (1985). The CES-D is designed to identify the presence of depressive symptoms in general population surveys. Both the somatic and the negative affect factors identified by Radloff (1977) in the original version of the scale are included in the modified scale. Each respondent was asked how many days in the prior week they had experienced each of the depressive symptoms. The twelve items were summed to obtain a score. The potential range was 0 to 48. The alpha reliability estimate for this measure was .87.

Table 1 provides descriptive statistics for the study. The reported mean for age was 4.1. This mean is representative of the age category 45-54. The range was from
18-24 to 75 and older. The education mean was 3.41 which is higher than category 3 which was "some college, vocational or technical training" and less than category 4 which was "two year college degree." The range was less than high school education to advanced degree. The mean for income was 6.04 which is approximately $25,000-$35,000. The range was below $5,000 to $75,000 or more. The reported mean for rural versus urban residency was 3.36. Category 3 was "towns with a population of 2,500-9,999," and category 4 was "cities with a population of 10,000-49,999." The range was farm/country to SMSA (population 50,000 or larger). Health was reported with a mean of 2.39, which indicates responses slightly above "very good" and below "excellent." The range was from "excellent" to "don't know." Stigma was reported with a mean of 4.25. Category 4 was the "very embarrassed." The range was from "not very embarrassed" to "don't know." The mean for symptoms of mental illness was 6.25. Individual scores ranged from 0-41, with 48 being the maximum possible score. As typical of scores on depression scales, this was a skewed distribution with most of the cases with low scores. Stress was reported at a 1.45 mean with the scores ranging from 0 to 7 where 8 is the maximum score.
Table 1. Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1.65</td>
<td>1.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Education</td>
<td>3.41</td>
<td>2.01</td>
<td>1.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Income</td>
<td>6.04</td>
<td>2.20</td>
<td>1.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Rural versus urban</td>
<td>3.36</td>
<td>1.55</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Health</td>
<td>2.39</td>
<td>1.01</td>
<td>1.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Stigma</td>
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<td>1.77</td>
<td>2.00</td>
<td>8.00</td>
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<tr>
<td>Symptoms of mental illness</td>
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<td>0.00</td>
<td>41.00</td>
</tr>
<tr>
<td>Stress</td>
<td>1.45</td>
<td>1.36</td>
<td>0.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

Methods

The dependent variable in the initial hypotheses is stigma. This is an ordinal level measure that may be used in linear regression models with both discrete and continuous predictor variables. The remaining hypotheses have utilization of formal mental health services, a dichotomous measure. This requires the use of logistic regression models. Thus, the analyses will be based on a combination of ordinary least squares regression and logistic regression models. Although the models were estimated separately by gender, they do not directly test for interaction by gender.
CHAPTER V. RESULTS

Data analysis for this study were done in two stages. Multiple regression models were run for the first stage which looked at what kinds of background variables predict stigma. Given the existing research on differences in stress, stigma, and mental illness between men and women, the models were estimated separately by gender. Tables 2 and 3 present findings from the regression analyses for men and women which include the independent variables of age, education, income, rural versus urban residency and health, and their effects on the dependent variable stigma.

Table 2 shows the adjusted $R^2$ for males was .041. This indicates that 4.1% of the variability in the dependent variable stigma is explained by the independent variables. The background variables significant for predicting stigma in males were age and rural versus urban residency. Age was significant at the .05 level, however, in the opposite direction predicted by the hypothesis. The older respondents were less likely to report stigma. Place of residency was also significant at the .05 level. As expected the more urban the setting, the less stigma reported.

Table 3 shows the adjusted $R^2$ for females was .049. This indicates that 4.9% of the variability in stigma, the dependent variable, was explained by the independent variables. For females, the only background variable significant at the .05 level for predicting stigma was age. Again, the significance was in the opposite direction predicted, with older respondents less likely to report stigma.
Table 2. Multiple regression models - males

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>Beta</th>
<th>Sig T</th>
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<tbody>
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<tr>
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<td>Health</td>
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<td>Constant</td>
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</tr>
</tbody>
</table>

Adjusted R square .041.

Table 3. Multiple regression models (female)

<table>
<thead>
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<th>Variable</th>
<th>β</th>
<th>Beta</th>
<th>Sig T</th>
</tr>
</thead>
<tbody>
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<td>-.196</td>
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<td>Education</td>
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<td>Income</td>
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<td>Rural/urban</td>
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<td>.121</td>
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<tr>
<td>Health</td>
<td>.011</td>
<td>.006</td>
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<tr>
<td>Constant</td>
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<td>.000</td>
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</table>

Adjusted R square .049.

Implications for Hypotheses

The multiple regression analyses found different support for men and women for the hypotheses examining the kinds of background variables which predict stigma. For men, hypotheses # 2, which predicted that rural residents were more likely to have stigma towards mental illness than urban residents was supported. The independent
variable age was significant for men, however, in the opposite direction predicted by hypothesis # 3, which predicted that older individuals were more likely to have stigma towards mental illness than younger individuals.

For women, none of the hypotheses regarding background variables as predictors of stigma were supported. Consistent with the findings for men, the independent variable age was found significant, but in the opposite direction predicted. A possibility for this finding not tested in their dissertation could be the indirect effects of other variables on age. The correlation matrix shows that both stress and symptoms of mental illness are negatively correlated with age. These findings may help account for the negative association between age and stigma.

Logistic Regression of Formal Mental Health Service Use

The second stage of analysis involved a sequence of hierarchical logistic regression models to test if stigma was an important variable impacting the use of formal mental health services. Logistic regression was chosen as the primary analytic technique given that the dependent variable, use of formal mental health services, was measured as a dichotomous variable. By doing a sequence of logistic regressions, it allowed us to test multiple hypotheses and determine the best fit model for males and females. Menard (1995) recommends using logistic regression to avoid the problems dichotomous variables have with ordinary least squares assumptions (e.g., heteroscedasticity, nonnormal error term, nonlinearity, and predicted probabilities beyond 1.0). Previous research consistently documents differences in health service utilization for men and women
(Veroff, Kulka & Douvan 1981, Kessler et al., 1981; Wells et al., 1986) and therefore separate logistic regressions were run by gender.

The series of models run were:

Model 1: Background variables
Model 2: Background variables, stigma
Model 3: Background variables, stigma, stress and symptoms of mental illness
Model 4: Background variables, stigma, * symptoms of mental illness int.
Model 5: Background variables, stigma, * stress int.

Model 1

Model 1 addresses the effect of several distinct background variables on the dependent variable, formal use of mental health services. These background variables include age, education, income, rural versus urban residency, and health.

Model 1 - males

Model 1 had a log likelihood ratio of 115.994 with 5 degrees of freedom and $p < .001$. The calculated $R^2$ compared to the base gives a value of .080. In Model 1, 8.0% of the proportion association is explained. In looking at the specific parameters, age and health are significant at the .05 level.

The odds ratio for each coefficient is presented as $\text{Exp} (\hat{\beta})$. The odds ratio is the number by which you would multiply the odds of using formal mental health services for each one-unit increase in the independent variable. An odds ratio greater than 1 indicates that the odds of using formal mental health services increase when the independent variable increases; an odds ratio of less than 1 indicates that the odds of using formal
mental health services decrease when the independent variable increases. For example, since the odds ratio of the independent variable age is .638, the odds of using formal mental services decreases by 36.25% for each unit increase in age (e.g., 1.0 - .638 x 100%). The odds ratio of the independent variable health is 2.210; so for every unit increase in perceived worsening health, the odds of using formal mental health services increases by 120% (e.g., 2.210 - 1.0 x 100%).

Model 1 - females

Model 1 had a log likelihood ratio of 381.221 with 5 degrees of freedom and p < .001. The calculated $R^2$ compared to the base gives a value of .059. In Model 1, 5.9% of the proportion association is explained. In looking at the specific parameters, age and health are significant at the .05 level. Every unit increase in age decreases the odds of using formal mental health services by 24.7%. For every unit increase in perceived worsening health status, the odds of using formal mental health services increases by 73.3%.
Table 5. Model 1 for females

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>sig</th>
<th>Exp ($\beta$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.284</td>
<td>.005</td>
<td>.753</td>
</tr>
<tr>
<td>Education</td>
<td>.114</td>
<td>.134</td>
<td>1.120</td>
</tr>
<tr>
<td>Income</td>
<td>.096</td>
<td>.220</td>
<td>1.101</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.074</td>
<td>.438</td>
<td>1.077</td>
</tr>
<tr>
<td>Health</td>
<td>.550</td>
<td>.000</td>
<td>1.733</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.261</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

Model 2

Model 2 examines the direct effect of stigma on the use of formal mental health service, while controlling for symptoms of mental illness, stress, and demographic characteristics. This model tests the hypothesis that individuals with higher levels of stigma are associated with lower use of formal mental health services.

Model 2 - males

Model 2 had a log likelihood ratio of 114.847 with 6 degrees of freedom and $p < .001$). The calculated $R^2$ compared to the base, gives a value of .090. In Model 2, 9.0% of the proportion association is explained compared to 8.3% in Model 1. The interpretation of this small increase is confirmed by comparing chi square values for Models 1 and 2. The chi square for Model 1 versus Model 2 is 1.147 with 1 degree of freedom (significance .284). Thus, the addition of the independent variable stigma to Model 2 does not significantly increase the explanatory power of the model. In looking at the specific parameters, stigma is not significant at the .05 level.
Table 6. Model 2 for males

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>sig</th>
<th>Exp ( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.507</td>
<td>.025</td>
<td>.602</td>
</tr>
<tr>
<td>Education</td>
<td>.076</td>
<td>.589</td>
<td>1.079</td>
</tr>
<tr>
<td>Income</td>
<td>.006</td>
<td>.966</td>
<td>1.006</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.031</td>
<td>.876</td>
<td>1.031</td>
</tr>
<tr>
<td>Health</td>
<td>.812</td>
<td>.005</td>
<td>2.251</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.178</td>
<td>.292</td>
<td>.837</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.421</td>
<td>.029</td>
<td></td>
</tr>
</tbody>
</table>

Consistent with the first model, age and health remain significant once stigma is added to the model.

Model 2 - females

Model 2 had a log likelihood ratio of 375.307, with 6 degrees of freedom and \( p < .001 \). The calculated \( R^2 \) compared to the base gives a value of .073. In Model 2, 7.3 % of the proportion association is explained compared to 5.9% in Model 1. The significance of this increase is confirmed in the comparison of the chi square values for Models 1 and 2. The chi square value for Model 1 versus Model 2 is 5.914 with 1 degree of freedom (significance .015). Thus, the addition of the independent variable stigma to the model produces a significant increase in its explanatory power. In looking at the specific parameters, stigma is significant at the .05 level. For each unit increase in stigma, the odds of using formal mental health services decrease by 18.9%. Consistent with the first model, both age and health remain significant once stigma is added to the model.
Table 7. Model 2 for females

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>sig</th>
<th>Exp β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.344</td>
<td>.001</td>
<td>.709</td>
</tr>
<tr>
<td>Education</td>
<td>.126</td>
<td>.010</td>
<td>1.134</td>
</tr>
<tr>
<td>Income</td>
<td>.100</td>
<td>.201</td>
<td>1.105</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.063</td>
<td>.510</td>
<td>1.065</td>
</tr>
<tr>
<td>Health</td>
<td>.566</td>
<td>.000</td>
<td>1.762</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.209</td>
<td>.017</td>
<td>.811</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.270</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

Model 3

Model 3 examines the direct effects of symptoms of mental illness and stress while controlling for stigma and demographic characteristics. The hypotheses tested are that greater symptoms of mental illness and stress will be associated with increased utilization of formal mental health services.

Model 3 - males

Model 3 had a log likelihood ratio of 92.398 with 8 degrees of freedom and \( p < .001 \). The calculated \( R^2 \) compared to the base gives a value of .268. In Model 3, 26.8% of the proportion association is explained compared to 9.0% in Model 2. The significance of this increase is confirmed in the chi square comparisons of Models 2 and 3. The chi square value for Model 2 versus Model 3 is 22.449 with 2 degrees of freedom (significance .000). Thus, the addition of the independent variables symptoms of mental illness and stress does significantly increase the explanatory power of the model. In looking at the specific parameters, both symptoms of mental illness and stress
are significant at the .05 level. Each unit increase in symptoms of mental illness increases the odds of using formal mental health services by 15.3%. For every unit increase in stress, the odds of using formal mental health services increases by 96%. Age and health are no longer significant once symptoms of mental illness and stress are added to the model.

Table 8. Model 3 for males

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>sig</th>
<th>Exp β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.143</td>
<td>.568</td>
<td>.866</td>
</tr>
<tr>
<td>Education</td>
<td>.102</td>
<td>.491</td>
<td>1.107</td>
</tr>
<tr>
<td>Income</td>
<td>.137</td>
<td>.380</td>
<td>1.147</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.053</td>
<td>.805</td>
<td>1.054</td>
</tr>
<tr>
<td>Health</td>
<td>.459</td>
<td>.149</td>
<td>1.583</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.232</td>
<td>.179</td>
<td>.793</td>
</tr>
<tr>
<td>Stress</td>
<td>.673</td>
<td>.002</td>
<td>1.960</td>
</tr>
<tr>
<td>Symp. M. Ill.</td>
<td>.143</td>
<td>.000</td>
<td>1.154</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.281</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

Model 3 - females

Model 3 had a log likelihood ratio of 348.483 with 8 degrees of freedom and p < .001. The calculated $R^2$ compared to the base is .140. In Model 3, 14.0% of the proportion association is explained compared to 7.3% in Model 2. The significance of this increase is confirmed in the chi square comparisons of Models 2 and 3. The chi square value for Model 2 versus Model 3 is 26.823 with 2 degrees of freedom (significance .000). Thus, the addition of the independent variables symptoms of mental
Table 9. Model 3 for females

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>sig</th>
<th>Exp $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.205</td>
<td>.066</td>
<td>.815</td>
</tr>
<tr>
<td>Education</td>
<td>.161</td>
<td>.041</td>
<td>1.174</td>
</tr>
<tr>
<td>Income</td>
<td>.186</td>
<td>.026</td>
<td>1.205</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.016</td>
<td>.876</td>
<td>1.016</td>
</tr>
<tr>
<td>Health</td>
<td>.347</td>
<td>.023</td>
<td>1.415</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.257</td>
<td>.004</td>
<td>.773</td>
</tr>
<tr>
<td>Stress</td>
<td>.176</td>
<td>.088</td>
<td>1.192</td>
</tr>
<tr>
<td>Symp. M. Ill.</td>
<td>.080</td>
<td>.000</td>
<td>1.083</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.590</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

illness and stress does significantly increase the explanatory power of the model. In looking at the specific parameters, symptoms of mental illness is significant at the .05 level and stress is not significant at the .05 level. Each unit increase in symptoms of mental illness increases the odds of using formal mental health services by 8.3%. Age is no longer significant when you add symptoms of mental illness and stress to the model. Education and income become significant.

Model 4

Model 4 examines the indirect effects of stigma on the use of formal mental health services. In Model 4, it is predicted that stigma will moderate the relationship between prior symptoms of mental illness and the use of formal mental health services. It is hypothesized that the symptom to utilization will be significantly smaller for persons with high stigma (compared to those with low stigma).
Model 4 - males

Model 4 had a log likelihood ratio of 89.367 with 9 degrees of freedom and p < .001. The calculated $R^2$ compared to the base is .292. In Model 4, 29.2% of the proportion association is explained compared to 26.8% in Model 3. The cautious significance of this increase is confirmed in the chi square comparisons of Models 3 and 4. The chi square value for model 3 versus Model 4 is 3.031 with 1 degree of freedom (significance .082). Thus, the addition of the stigma and symptoms of mental illness interaction moderately increases the explanatory power of the model. In looking at the specific parameters, the interaction of stigma and symptoms of mental illness is significant at the .10 level. For each unit increase in symptoms of mental illness and stigma interaction, the odds of using formal mental health services decreases by 4%. Consistent with the previous model, symptoms of mental illness and stress remain significant once the interaction of stigma and symptoms of mental illness are added to the model.

Table 10. Model 4 for males

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>sig</th>
<th>Exp $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.136</td>
<td>.582</td>
<td>.873</td>
</tr>
<tr>
<td>Education</td>
<td>.111</td>
<td>.463</td>
<td>1.117</td>
</tr>
<tr>
<td>Income</td>
<td>.163</td>
<td>.310</td>
<td>1.176</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.002</td>
<td>.994</td>
<td>1.002</td>
</tr>
<tr>
<td>Health</td>
<td>.423</td>
<td>.192</td>
<td>1.526</td>
</tr>
<tr>
<td>Stigma</td>
<td>.238</td>
<td>.448</td>
<td>1.269</td>
</tr>
<tr>
<td>Symp. M. Ill.</td>
<td>.313</td>
<td>.005</td>
<td>1.368</td>
</tr>
<tr>
<td>Stress</td>
<td>.753</td>
<td>.001</td>
<td>2.122</td>
</tr>
<tr>
<td>Stigma * Symp M. Ill.</td>
<td>-.041</td>
<td>.093</td>
<td>.960</td>
</tr>
<tr>
<td>Constant</td>
<td>-9.416</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>
Model 4 - females

Model 4 had a log likelihood ratio of 346.754 with 9 degrees of freedom and p < .001. The calculated $R^2$ compared to the base is .144. In Model 4, 14.4% of the proportional association is explained compared to 14.0% of the proportion association is explained compared to 14.0% in Model 3. The interpretation of this small increase is confirmed in the chi square comparisons of Models 3 and 4. The chi square value for Model 3 versus Model 4 is 1.729 with 1 degree of freedom (significance .189). Thus, the addition of the stigma and symptoms of mental illness interaction does not significantly increase the explanatory power of the model. In looking at the specific parameters, there is no significant moderating effect for stigma and symptoms of mental illness and utilization of formal mental health services. Symptoms of mental illness is no longer significant once the stigma and symptoms of mental illness interaction is added to the model. Age does become significant in this model.

Table 11. Model 4 for females

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>sig</th>
<th>Exp $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.225</td>
<td>.046</td>
<td>.798</td>
</tr>
<tr>
<td>Education</td>
<td>.160</td>
<td>.042</td>
<td>1.174</td>
</tr>
<tr>
<td>Income</td>
<td>.177</td>
<td>.034</td>
<td>1.194</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.003</td>
<td>.978</td>
<td>1.003</td>
</tr>
<tr>
<td>Health</td>
<td>.344</td>
<td>.025</td>
<td>1.411</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.392</td>
<td>.005</td>
<td>.676</td>
</tr>
<tr>
<td>Symp. M. Ill.</td>
<td>.033</td>
<td>.414</td>
<td>1.033</td>
</tr>
<tr>
<td>Stress</td>
<td>.176</td>
<td>.088</td>
<td>1.192</td>
</tr>
<tr>
<td>Stigma * Symp M. int.</td>
<td>.011</td>
<td>.188</td>
<td>1.011</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.874</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>
Model 5

Model 5 also examines the indirect effects of stigma on the use of formal mental health services. In Model 5 it is predicted that stigma will moderate the relationship between stress experienced and the use of formal mental health services. The hypothesis is that the stress to utilization relationship will be significantly smaller for persons with high stigma (compared to those with low stigma).

Model 5 - males

Model 5 had a log likelihood ratio of 92.15 with 9 degrees of freedom and \( p < .001 \). The calculated \( R^2 \) compared to the base is .270. In Model 5, 27.0% of the proportion association is explained compared to 26.8% in Model 3. The interpretation of this small increase is confirmed in the chi square comparisons of Models 3 and 5. The chi square value for Model 3 versus Model 5 is .245 with 1 degree of freedom (significance .621). Thus, the addition of the stigma and stress interaction does not significantly increase the explanatory power of the model. In looking at the specific parameters, the stigma and stress interaction is not statistically significant. Stress and the interaction of stigma and symptoms of mental illness are no longer significant once the stigma and stress interaction is added to the model.
Table 12. Model 5 for males

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>sig</th>
<th>Exp $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.153</td>
<td>.541</td>
<td>.859</td>
</tr>
<tr>
<td>Education</td>
<td>.107</td>
<td>.471</td>
<td>1.113</td>
</tr>
<tr>
<td>Income</td>
<td>.129</td>
<td>.409</td>
<td>1.138</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.046</td>
<td>.831</td>
<td>1.047</td>
</tr>
<tr>
<td>Health</td>
<td>.450</td>
<td>.158</td>
<td>1.568</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.392</td>
<td>.293</td>
<td>.676</td>
</tr>
<tr>
<td>Symp. M. Ill.</td>
<td>.140</td>
<td>.001</td>
<td>1.150</td>
</tr>
<tr>
<td>Stress</td>
<td>.455</td>
<td>.352</td>
<td>1.576</td>
</tr>
<tr>
<td>Stigma * stress</td>
<td>.053</td>
<td>.621</td>
<td>1.055</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.508</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model 5 - females

Model 5 had a log likelihood ratio of 347.024 with 9 degrees of freedom and $p < .001$. The calculated $R^2$ compared to the base is .143. In model 5, 14.3% of the proportion association is explained compared to 14.0% in Model 3. The interpretation of this small increase is confirmed in the chi square comparison of Models 3 and 5. The chi square value for Model 3 versus Model 5 is 1.459 with 1 degree of freedom (significance .227). Thus, the addition of the stigma and stress interaction does not significantly increase the explanatory power of the model. In looking at the specific parameters, the stigma and stress interaction is not statistically significant once the stigma and stress interaction is added to the model. Symptoms of mental illness do become significant in this model.
Table 13. Model 5 for females

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>sig</th>
<th>Exp $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.205</td>
<td>.067</td>
<td>.815</td>
</tr>
<tr>
<td>Education</td>
<td>.162</td>
<td>.041</td>
<td>1.176</td>
</tr>
<tr>
<td>Income</td>
<td>.193</td>
<td>.023</td>
<td>1.213</td>
</tr>
<tr>
<td>Rural/urban</td>
<td>.020</td>
<td>.840</td>
<td>1.020</td>
</tr>
<tr>
<td>Health</td>
<td>.357</td>
<td>.020</td>
<td>1.430</td>
</tr>
<tr>
<td>Stigma</td>
<td>-.129</td>
<td>.347</td>
<td>.879</td>
</tr>
<tr>
<td>Symp. M. Ill.</td>
<td>.081</td>
<td>.000</td>
<td>1.084</td>
</tr>
<tr>
<td>Stress</td>
<td>.444</td>
<td>.071</td>
<td>1.558</td>
</tr>
<tr>
<td>Stigma * stress</td>
<td>-.068</td>
<td>.234</td>
<td>.934</td>
</tr>
<tr>
<td>Constant</td>
<td>-5.198</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

Best Fitting Models

Examining the models for males, the best fitting model appears to be Model 4 summarized in Table 14.

In logistic regression, a repetitive process called iteration is used whereby repeated estimation, testing and re-estimation is used until the change in the likelihood function from one step to another is negligible, and the solution converges (Menard 1995). Model 4 does provide a moderate increase fit over Model 3. Model 5 provides no significant improvement over Model 3.

Examining the models for females, the best fitting model appears to be Model 3, as summarized in Table 15. Model 3 improves on Model 2, whereas Model 4 and Model 5 do not improve significantly on Model 3.
Implications for Hypotheses

The logistic regression analyses found different support for men and women for the hypotheses which examined which independent variables directly and indirectly impacted the use of formal mental health services. For men, hypotheses # 6, # 7, and # 8 were supported. Hypothesis # 6, which predicted that higher levels of stress would be associated with increased utilization of formal mental health services, was supported. Hypothesis # 7, which predicted that greater symptoms of mental illness would be associated with increased utilization of formal mental health services was also supported. For men, there was also moderate support for hypotheses # 8 that stigma would moderate

Table 14. Model 4 best fit model for males

<table>
<thead>
<tr>
<th>Model summary</th>
<th>Log likelihood</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1. Background variables</td>
<td>115.994</td>
<td>5</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 2. Background variables, stigma</td>
<td>114.847</td>
<td>6</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 3. Background variables stigma, stress, symp M. III.</td>
<td>92.398</td>
<td>8</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 4. Background variables stigma * symp MI int.</td>
<td>89.367</td>
<td>9</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 5. Background variables stigma * stress int.</td>
<td>92.153</td>
<td>9</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model comparisons</th>
<th>chi sq</th>
<th>df</th>
<th>sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1 vs 2</td>
<td>1.147</td>
<td>1</td>
<td>.284</td>
</tr>
<tr>
<td>Model 2 vs 3</td>
<td>22.449</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Model 3 vs 4</td>
<td>3.031</td>
<td>1</td>
<td>.082</td>
</tr>
<tr>
<td>Model 3 vs 5</td>
<td>.245</td>
<td>1</td>
<td>.621</td>
</tr>
</tbody>
</table>
the relationship between prior symptoms of mental illness and the utilization of formal mental health services.

For women, hypotheses # 5 and # 7 were supported. Hypothesis # 5, which predicted that higher levels of stigma would be associated with lower utilization of formal mental health services was supported. Also, hypothesis # 7, which predicted that greater symptoms of mental illness would be associated with increased utilization of formal mental health services, was supported.

Table 15. Model 3 best fit model for females

<table>
<thead>
<tr>
<th>Model summary</th>
<th>Log likelihood</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1. Background variables</td>
<td>381.221</td>
<td>5</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 2. Background variables, stigma</td>
<td>375.307</td>
<td>6</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 3. Background variables, stigma, stress, symp M. Ill.</td>
<td>348.483</td>
<td>8</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 4. Background variables, stigma * symp MI int.</td>
<td>346.754</td>
<td>9</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Model 5. Background variables, stigma * stress int.</td>
<td>347.024</td>
<td>9</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model comparisons</th>
<th>chi sq</th>
<th>df</th>
<th>sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1 vs 2</td>
<td>5.914</td>
<td>1</td>
<td>.015</td>
</tr>
<tr>
<td>Model 2 vs 3</td>
<td>26.823</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Model 3 vs 4</td>
<td>1.729</td>
<td>1</td>
<td>.189</td>
</tr>
<tr>
<td>Model 3 vs 5</td>
<td>1.459</td>
<td>1</td>
<td>.227</td>
</tr>
</tbody>
</table>
CHAPTER VI. DISCUSSION AND CONCLUSIONS

This study was designed to discover what, if any, kinds of background variables predicted stigma, and what variables directly and indirectly impacted the utilization of formal mental health services. Prior research had demonstrated significant differences between men and women in their use of health services, so analyses were performed separately for males and females. A two-stage analysis was done. The first stage consisted of multiple regression analysis to see what background variables predicted stigma and the second stage used logistic regression analysis to test multiple hypotheses with the dependent dichotomous variable, use of formal mental health services. Support for the background variables predicting stigma was varied. Hypothesis #1 that men were more likely than women to have stigma towards mental illness was not supported. Perhaps with the increase in women in the work place, differences in perceived cultural acceptability and accessibility and gender-specific sick role behavior regarding mental illness have lessened. These findings could also have been due to some of the sample characteristics. The indirect effects of other demographic variables with gender may account for some of these findings. The association between gender and stigma toward mental illness deserves further analysis. Hypothesis #2 that rural residents were more likely to have stigma towards mental illness was supported for men but not for women. The roles of traditionalism, fatalism, and self reliance previously identified in the literature (Abraham, Buckwalter, Neese & Fox, 1994; Coward, DeWeaver, Schmidt & Jackson, 1985) may operate more strongly in men than in women when predicting stigma. Also, concerns regarding anonymity and embarrassment that others may find out
that you are receiving professional mental health treatment may be less of a deterrent for women than men. This finding is consistent with Leaf and Bruce (1987) who reported women were less concerned about reactions of their families to seeking mental health treatment.

Hypothesis #3 that older individuals are more likely to have stigma towards mental illness than younger individuals was not supported for either men or women. The findings suggest the opposite. Further studies need to be conducted to determine if this is an age as opposed to a cohort effect. The stigma measurement also includes an "embarrassment that others may find out" component. This concern for what others think may be a stronger influence for younger individuals. Perhaps if the stigma measure had included other components such as measures of social deviance, unpredictability, avoidance, or confidentiality, the results would have been different. In other models run in the study it was found that age does impact utilization of formal mental health services, with utilization decreasing with increased age. While increasing age does not increase stigma, it does decrease utilization of formal mental health services. This finding suggests that there may be barriers other than perceived stigma (e.g., accessibility, affordability, etc.) which impact the use of formal mental health services by the elderly in this study.

Hypothesis #4 that individuals with a higher socioeconomic status are likely to have less stigma was not supported for either men or women. Maybe if we had only sampled people from the highest and the lowest education and income levels, we would have seen a difference. The model testing Hypotheses #6 and #7 which examined the
direct effects of symptoms of mental illness and stress on utilization of formal mental health services was statistically significant. These findings on stress and utilization are consistent with the literature. Tessler, Mechanic and Dimund (1976) and Gortmaker, Eckenrode and Gore (1982) reported stress as being highly associated with utilization of health services. Their studies found stressful life events to be one of the most significant production of utilization. The findings on symptoms of mental illness and utilization are also consistent with the literature. Studies utilizing Andersen's use of medical services models have found most of the explained variance due to physical health status measures. The 'need' variable is significant in predicting utilization.

The hypotheses, which looked at the direct and indirect effects of stigma on utilization of formal mental health services were most interesting. Hypothesis # 5 that stigma would have a direct negative effect on utilization of formal mental health services was supported for women, but not for men. Hypothesis # 8 that stigma would moderate the relationship between prior symptoms of mental illness and the utilization of formal mental health services was moderately supported for men but not for women. Finally, Hypothesis # 9 that stigma would moderate the relationship between stress experienced and the utilization of formal mental health services was not supported for either men or women. These findings suggest several things. First and foremost it would appear that stigma operates differently for men and women when it comes to impacting use of formal mental health services. Some of these differences may be explained by gender socialization and gender roles. Traditionally, women have been expected to be nurturing, supportive and passive. They have often been depicted as emotionally unstable and
unable to take control over their own lives. Men have traditionally been expected to be independent, aggressive, self-controlled, and not expressive with their feelings or emotions. In this study, stigma towards mental illness was found to have a direct effect on utilization of formal mental health services for women. The association between perceived negative societal reaction and the use of services may reinforce in women a perceived subordinate or less valued position in society. For women, stigma may be part of an ever present sociocultural belief affecting the use of formal mental health services, regardless of need (e.g., whether or not symptoms of mental illness are experienced). For men, societal expectations of being independent and self-controlled may be so powerful that it is only when the need is great (e.g., when symptoms of mental illness are present) that stigma or negative societal reaction to use of services becomes operant as realized. Stigma then modifies the relationship between need and utilization of formal mental health services. Individuals with high need and high levels of stigma are associated with a less frequent use of formal mental health services. This finding is not dissimilar to findings reported by Rost, Smith and Taylor (1993) where rural residents with a history of depressive symptoms perceived more stigma than their urban counterparts. The lack of support for Hypothesis # 9 might suggest that association between stress and utilization of formal mental health services is so strong as to negate any buffering or moderating effects of stigma.

Limitations

This research study had several limitations. First, the sample population was from a midwestern state. The midwest is a fairly conservative area and therefore the
results may not be generalizable to the east and west coasts. Another limitation was the lack of specificity in the measurement of the dependent variable, use of formal mental health services. The measurement was simply a yes/no categorical response (e.g., in the past 12 months have you seen a mental health professional for assistance?). This question did not address frequency, type or intensity of services (e.g., counseling versus medication, versus a combination of the two). The measurement also does not take into account whether or not there was active involvement by family or significant others, nor does it measure the quality of the mental health professional and client relationship. This study does not consider previous experiences, positive or negative, with mental health professionals which could influence current behavior.

An additional limitation is that there are no measures of compliance to prescribed treatment or longitudinal outcome measurements. The study also relies on self report for measuring use of formal mental health services. Another measurement limitation is with stress. The alpha of the stress scale measure was .48. This relatively low alpha leads to guarded findings of the stress measure.

The measurement of stigma also has some limitations. The measurement may be affected by a social desirability response set bias. Individuals may feel that it is "not acceptable" to be embarrassed by treatment for mental illness in the 1990s. In addition, the embarrassment measures of stigma are not perfect. An expansion of this variable to include measures such as social distance, confidentiality, unpredictability, avoidance, and perceived dangerousness would strengthen the study. Measurements of stigma were also
only available at time one of the panel study and not available at time two, which limited
the ability to look at changes in stigma over time.

Recommendations

One implication of this study is the need to conduct longitudinal research studies
on treatment outcomes. While this study examined predictors of stigma and how stigma
impacts the use of formal mental health services, it did not study whether or not the
utilization of formal mental health services improved individual health status. Link and
Cullen (1990) suggest that the "official labeling" which occurs with first time treatment
could have negative outcomes which in turn impact health. Are all symptoms of mental
illness worse following treatment and "official labeling?" Research needs to be
conducted which looks at specific types and forms of mental illness, specific types of
interventions and services received, specific practitioners who provide these services, and
then at long term functional outcomes. Mechanic et al. (1994) stated "...mental illness is
not a scientific term and contributes no useful information to the management or
rehabilitation of persons with serious symptoms and disabilities...by being more specific
and less inclusive, we may be able to better protect individuals from stereotyped
conceptions that discredit them for more than any behavior associated with their disorder"
(p. 163).

With the ever increasing rise in managed health care, more and more individuals
will be triaged by primary care physicians acting as gatekeepers. This variable may have
a direct effect on the use of formal mental health service if these physicians do not refer
clients to mental health specialists. There is also an important implication here for
research regarding the education needs of primary care physicians who will be diagnosing and treating more and more individuals with complex mental health needs. Physicians also need to provide patient education to dispel the stigma of mental disorders. Another factor to consider with the increase in managed care is that more individuals are becoming involved in reviewing the patient's medical record for appropriateness of treatment. The association between the patient's concern that others in the community may find out that he/she is receiving professional help for emotional problems and the utilization of formal mental health services needs to be studied in the context of rising managed care.

Another recommendation for further study is in the area of the elderly and their use of formal mental health services. If as this study indicates, increased age is not associated with increased stigma, yet increased age is associated with decreased use of formal mental health services, what other kinds of factors are operant in this association, and what interventions will be effective?

This study does suggest that stigma has an impact on the use of formal mental health services. Interventions need to be directed at changing the sociocultural beliefs regarding mental illness, beliefs about how one responds to mental patients. Social efforts, such as anti-stigma movements by mental patients and their families may be more successful than mass education efforts. This study indicates that not only does stigma impact use of formal mental health services, but it operates differently for men and women. Future research needs to examine more closely why these differences in
utilization exist, develop targeted interventions for men and women, and then monitor the outcomes.

Several recommendations in the area of social policies are also suggested by this study. First and foremost, there needs to be a concerted effort on the part of sociologists to be involved in health care reform. By conducting research based, comprehensive studies, information regarding access and utilization patterns of mental health treatment could be used to guide and direct improvements needed in existing inequalities in mental health benefits. Community based programs which focus on placing former mental health patients in more "normal roles" need to be developed and strengthened. Efforts need to continue to be directed at decreasing the subtle and not so subtle discrimination against individuals who are mentally challenged. Improvements need to be made in the areas of language used to describe these individuals, employment opportunities, and housing. Social movements which seek to alter societal conceptions of these individuals must be pursued.

Social science researchers and the medical community need to collaborate in their research efforts to develop the best interventions and care delivery models to meet the complex social, psychological and medical problems associated with individuals who are mentally challenged. Each distinct discipline with its unique perspective working collectively could add much to the knowledge base in this area.
APPENDIX
Correlation matrix

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(Coefficient/(Cases)/2-tailed Significance)
"." is printed if a coefficient cannot be computed.
REFERENCES CITED


Roghmann, K. J., & Haggerty, R. J. The diary as a research instrument in the study of health and illness behavior: Experience with a random sample of young families. *Medical Care, 10(2)*, 143-163.


