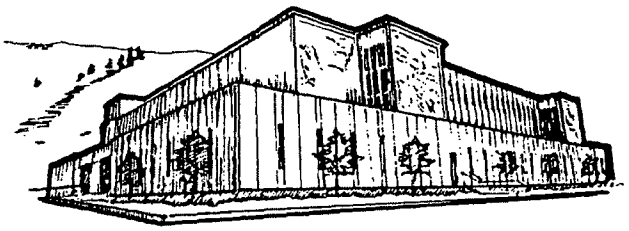
1994

Attitudes and experience of social support in post college adults

Lovinia M. Plimpton
The University of Montana

LOVINIA PLIMPTON



Maureen and Mike MANSFIELD LIBRARY

The University of Montana

Permission is granted by the author to reproduce this material in its entirety, provided that this material is used for scholarly purposes and is properly cited in published works and reports.

** *Please check "Yes" or "No" and provide signature* **

Yes, I grant permission ✓
No, I do not grant permission ____

Author's Signature Lovinia M. Plimpton M.A.

Date: Dec 9, 1993

Any copying for commercial purposes or financial gain may be undertaken only with the author's explicit consent.

Attitudes and Experience of Social Support in Post College Adults

by

Lovinia M. Plimpton

B. A., The Ohio State University, 1990

presented in partial fulfillment of the requirements

for the degree of

Master of Arts

University of Montana

1992

Approved by:

Chair, Board of Examiners 12/9/93

Dean, Graduate School

January 28, 1994

Date

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

gift 1-7-94

Plimpton, Lovinia Marguerite, M. A. December, 1993
Psychology

Attitudes Toward and Experience of Social Support in Post College Adults

Director: David A. Schuldberg

The measurement of social support has focused on either structural measures, such as number of supports, frequency of interaction, or closeness, or on functional measures, such as satisfaction with types of social support (advice, emotional support, socializing, or tangible assistance). The current study was undertaken to design a Macintosh computer social support, based on a well-validated interview, that will measure both structural and functional aspects of social support. The Macintosh Social Support Interview (MSSI) collects information about at least three or up to ten persons who are "important" to the subject. Relationship, frequency of contact, closeness, and degree of satisfaction and dissatisfaction with four functions of social support (socializing, emotional support, cognitive guidance, tangible assistance) are also collected. This new instrument was tested using groups (Perceptual Aberration/Magical Ideation, Anhedonic, Control) of young adults selected for degree of hypothetical psychosis proneness according to the Wisconsin scales of psychosis proneness.

MANOVA revealed that Controls, Per-Mags, and Anhedonics differed in number of kin, friends, and total network members. However, they did not differ in closeness to network members or frequency of contact. Means for satisfying or dissatisfying support differed only for emotional support and helpful advice. However, a summary total social support variable did differentiate among groups.

Twelve regression models testing the buffering hypothesis as it applies to physical or mental health showed that Controls, Per-Mags, and Anhedonics are affected in different ways by stress, social support, and the interaction of stress and social support.

DEDICATION

In the course of a life time many people encourage and inspire us. But there is usually one that stands out as the key figure. My late husband, Professor Rodney F. Plimpton, Jr., did so for me. He provided the example of scholarship, integrity, and persistence which I have tried to model. He would have liked to directly guide my progress. In many ways he has done so, through that inner voice that memory makes available.

Table of Contents

CHAPTER ONE

INTRODUCTION

Psychology has been defined as the study of the behaviors of living organisms. Clinical psychology limits that study to humans and concerns itself with the physical and mental health of individual humans in the context of their social groups. Early on, clinical psychologists discovered that mental health frequently involved more than one individual since people are known to be social beings. A list of human behaviors would include many activities that cannot be accomplished by a solitary human being, such as working cooperatively to accomplish tasks, protecting, rearing, and teaching juveniles, and playing games. Bowlby (1969) has demonstrated that the need for social interactions is present in humans from birth. Chroniclers of human activity have long noted that satisfactory social interactions have a positive effect on health and happiness. Psychologists have also noted a demonstrated positive relationship between social support and both physical and mental health (Cobb, 1976; Cohen, 1985; Cohen & McKay, 1984; Cohen & Wills, 1985; Hirsch, 1980; House, Landis, & Umberson, 1988; Jung, 1984; Thoits, 1982). Conversely, empirical relationships have also been well-documented between deficits involving the level and type of social support and the occurrence and course

of many mental disorders, such as mood disorders, anxiety disorders and schizophrenia, the most serious and intractable mental disorder (Anderson, Hogarty, Bayer, & Needleman, 1984; Andrews & Tennant, 1978, Angemeyer & Lammers, 1986; Billings & Moos, 1984; Crotty & Kulys, 1986; Denoff & Pilkonis, 1987; Dworkin, Green, Small, Warner, Cornblatt, & Erlenmeyer-Kimling, 1990, Karwacki, Schuldberg, & Burns, manuscript submitted for publication; Liem & Liem, 1978; Teasdale, 1982; Watt, 1978; Watt, Stolorow, Lubensky, & McClelland, 1970).

Social interactions are recognized as so central to health and happiness that human beings are described as social animals. The subset of human social relationships described by the term "social support" is currently under study as a possible causal or mitigating factor in good health and/or as protection against stress-related illnesses. For example, Seeman, Seeman, and Sayles (1985) found that integration in a support network is modestly associated with good health in a year-long study of a large community-based sample. Hirsch (1980) found that greater satisfaction with cognitive guidance (the advice one received from others) was significantly related to better mood and less psychological symptomatology in young widows and non-traditional women students. House, Landis, and Umberson (1980) reported that low quantity and quality of social interactions were

predictors of high risk of mortality from widely varying causes. Spiegel, Kraemer, Bloom and Gottheil (1989) even found that women with metastatic breast cancer who received social support in their interactions with a support group lived up to 18 months longer than matched patients who had received no such support.

Others have emphasized the difference found in the strength and even direction of the empirical relationships observed linking social support, life events and other indicators of stress, and mental and physical health (Cobb, 1976; Cohen & McKay, 1984; Cohen & Wills, 1985; Haley, Levine, Brown, & Bartolucci, 1987; Hirsch, 1985; Hirsch & David, 1983; McKay, Blake, Colwill, Brent et al, 1985; Rook, 1984; Sarason, Sarason, Potter, & Antoni, 1985). In a critique of the literature relating social support to health, Jung (1984) pointed out that the relationship between stressful life events, social support, and health outcome is not at all clear. Cohen and McKay (1984) reviewed more than 30 studies of the relationships between social support and health and found inconsistent results, depending on whether social support was defined as a global structural measure, specific functional measures, a compound functional measure, or simply as the existence of a confiding relationship. (Structural and functional measures will be described later.) Other complicating factors in

various studies have been age, social class, and gender of subjects, and whether measures have been based on self report, records of health interventions, or the subjects' perceptions as to the appropriateness of accepting support.

Levels and sources of support seem to interact with levels and direction of stress in complex ways, thwarting efforts to determine the exact nature and influence of helpful and beneficial social support. The variety of responses of individual human beings to levels of stress as well as to their own levels of past and present health interweave to further complicate the situation. Yet most researchers continue to attempt to describe and quantify this elusive relationship.

One unfortunate problem in this effort is that the term "social support" has not been defined carefully enough. Various conceptualizations and operationalizations of "social support" make comparisons of results from different studies difficult at best. Definitional problems have also delayed the process of theory building in this area. One specific definition of social support (Cobb, 1976) states that social support is <u>information</u> that:

(a) leads a person to believe that s/he is cared for and loved,

(b) leads a person to believe that s/he is esteemed

and valued, and

(c) leads a person to believe that s/he belongs to a network of communication and mutual obligation.

Kaplan, Cassel, and Gore (1977) operationalize social support as "the degree to which an individual's needs for affection, approval, belonging, and security are met by significant others". Both Cobb and Kaplan et al. describe idealized supportive situations. No one experiences purely positive feedback from those with whom s/he interacts; nor does the occurrence of non-supportive behaviors preclude the possibility that the social relationship may be supportive overall.

Social support has been described for purposes of measurement in terms of: (1) the structure of the social support network (the number of others with whom one interacts, relationship to these persons, and the frequency of social interactions); and (2) the functions of social support exchanged by individuals in the social support network (such as esteem, cognitive guidance, companionship, emotional support, and tangible assistance exchanged between person who interact regularly). These two aspects have been labeled "structural social support" and "functional social support". Some researchers have also focused on the individual's perceptions of received structural or functional support rather than on "objective" characteristics of support.

All of these approaches to defining social support are likely to be appropriate in the study of the complexity of human relations, but an unfortunate effect has been that the approach followed by the individual researcher has influenced the outcome of most studies. For example, when stress and social support are related to health outcome and a count of "life events" is used as the indicator of stress, the researcher is faced with a possible confound between the size of the social network and the likelihood of certain life events. The presence of a large family network can protect the individual against negative life events associated with isolation, but also increases the likelihood of certain positive (but still stressful) life events, such as births of children and grandchildren and negative events, such as losses through death (Barrera, 1986; Jung, 1984; Thoits, 1982). Whether the researcher asks "who", "how many", or "what do they do" seems to determine the results of research concerning social interactions. Measures of size, frequency of contact and other factors tend to reveal a main effect of social support on subsequent health, while measures of satisfaction with level of support tend to show an interaction between social support and stress level on subsequent health.

Other possible confounds in the influences of stress and social support on well-being include the individual's

ego strength (Barron, 1953), hardiness (Kobasa, 1977), and other such dispositional variables as well as attributes of the stressor, such as whether the stressor is considered to be socially inappropriate (i.e. the consequences of alcohol or drug abuse, an abusive relationship) or perhaps includes a perceived danger to a person offering support (as in the case of a person with cancer or AIDS). According to Cohen and McKay (1984), social support is most likely to be of help in mitigating stress when:

1. The stressor is socially acceptable.

2. A support provider is seen as similar to the subject.

3. Support is offered from someone who is not as alarmed at the stressor as the subject is.

4. Admitting that one is facing a stressor will not harm the relationship to a support provider.

Assessing Social Support Through Structural Measures

A frequent method for measuring and studying social support has been to quantify aspects of the extent of the social network. Measures of the number of people with whom one interacts have been gathered by asking for numbers of individuals in numerous categories, such as "Family", "Coworkers", people known through "Clubs", "Social organizations", "Religious Organizations", and "Commercial settings". Instruments that assess these

types of variables can generate reports of social networks containing up to several hundred persons, especially if the instrument is cast in the form of a diary requiring subjects to list all persons with whom they interacted day by day (Hammer, 1984). A more personal and smaller network emerges if subjects are asked to name persons who are "important" to them or to whom they feel "close". This approach allows the researcher to inquire about characteristics of each relationship, such as duration or history of the relationship, frequency of contact, age differences, closeness, and reciprocity of helping behaviors (Billings & Moos, 1981; Donald & Ware, 1984; Flaherty, Gaviria & Pathak, 1983; Griffith, 1985; Hammer, 1984; Hirsch, 1980; Hirsch & David, 1983; Hirsch & Rabkin, 1986). Some of these measures also asked whether the individuals named were supportive in various areas and whether that support was helpful or not.

One structural element that seems to correlate with other structural measures is size of the personal network. Hammer (1984) reported that subjects named at most a few dozen individuals when interviewed about social contacts, and that they tend to name individuals first whom they see frequently, feel close to, and have seen recently. Burt and his colleagues analyzed information from the General Social Survey and found that

the average respondent will list between zero and eight persons when asked to name persons important in his or her life (Burt, 1984, 1986; Burt & Guilarte, 1986). These researchers identified the third person named as critical, noting that closeness and frequency of contact decline rather steeply in a linear fashion up to the third person, but that there was little difference between the third and the fifth person. Hirsch (1980) noted that when networks were limited to the first ten persons named, no predictive power concerning the likelihood of stress related illness was lost.

Cohen and Wills (1985) noted in an extensive review article that when social support is studied as <u>structure</u> (number of persons in the social network, frequency of contacts, types of relationships), it is found to be a main effect in relationship to variations in mental or physical health. A quantified level of social contact (the simplest kind of structural measure) has been consistently associated with level of health outcome, regardless of level of stress. For example, Berkman and Syme (1979) found that nine years after an initial survey, the age-adjusted mortality rates of a stratified random community sample were two to four-and-a-half times higher for those with the lowest levels of social contact than for those with many social contacts. One possible interpretation of this sort of finding is that number of

social supports may reduce the amount of stress impacting an individual.

Assessing Social Support Through Functional Measures

Another measurement approach is to list supportive behaviors (eg. "S/he always listens") and ask subjects whether they receive such support and from whom. This type of question can be analyzed and combined into a global measure of "social support from friends" or "from family" as in the Procidano and Heller (1983) Perceived Social Support from family (PSS/Fa) and friends (PSS/Fr) instrument included in the present study. This information can also be reported less globally, as in the Cohen, Mermelstein, Kamarck and Hoberman (1985) Interpersonal Support Evaluation List (ISEL), which yields subscales assessing appraisal of other's support, feeling of belonging, extent of tangible aid, and self-esteem.

When social support is studied as function (type of supportive behavior and/or satisfaction with social support), it is more likely to emerge as a factor that interacts with stress, or "buffers" its effects, serving to reduce the consequences of whatever stressor is being studied. The existence of the latter effect has been termed the "stress buffering hypothesis" in studies where level of functional social support has been significantly related to mental or physical health in the presence of a

severe stressor, such as caring for a spouse diagnosed with Alzheimer's disease (Fiore, Becker, and Coppel, 1983; Haley, Levine, Brown, & Bartolucci, 1987; Kiecolt-Glaser, Dyer, & Shuttleworth, 1986; Pagel, Erdly, & Becker, 1987), or returning to college as a married, female, non-traditional student (Hirsch, 1980). This type of social support is also said to buffer the secondary effects of physical illnesses and mental disorders in general (heart disease, depression, suicide, fractures, accidents, childhood leukemia, and schizophrenia) on both sufferers and care givers (Cohen & McKay, 1984; Dean & Lin, 1977; Gore, 1981; Gottleib, 1985; House, 1981; Karwacki, Schuldberg, & Burns, manuscript submitted for publication).

Several researchers have further refined the study of functional support by measuring the degree of satisfaction with social support (Fiore et al., 1983; Hirsch, 1980; Hirsch & David, 1983; Hirsch & Rabkin, 1986; Kiecolt-Glaser et al. 1988; Rook, 1984; Rook, 1990). Support that is seen as over-protective, shaming, or generating resentment is upsetting to persons and is frequently strongly associated with greater psychological distress and lower well-being. But, these researchers reported that functional support that is seen as positive may not be related in any systematic way to either psychological or physical distress or well-being. These

findings complicate analysis of data in studies that have not attempted to measure satisfaction with support.

Another complication in many studies is that stress is generally present by definition as a consequence of the selection of subjects (often in a group facing high levels of stressors), insuring that a main effect for social support may not be identifiable because of the restricted range in level of stress. Nevertheless, the presence of adequate social support has been cited as the protective factor in studies of a variety of stressors (Cohen, 1987; Denoff & Pilkonis, 1987; Hirsch, 1980; Hobfoll, 1985; House, Landis, & Umberson, 1988; Kennedy, Kiecolt-Glaser & Glazer, in press).

In actuality, social support operating as a buffer and social support also occurring as a main effect are likely to operate concurrently in any one person's social network. Sorting these influences out experimentally could be difficult to do. Few people are isolated from others and also without stress, potentially allowing a demonstration that social support alone might be related to better health outcome. Conversely, few people are ideally supported and also subjected to high stress, allowing the researcher to test the extent to which social support might buffer the effects of stress. In actuality, varying levels of stress occur at times when available support is quantifiable as high or low and

satisfactory or inadequate in a complex set of interactions that is related to health outcome, somehow.

Social Support and Mental Health

Thus, the link between social support and mental health is difficult to evaluate and poorly understood at present. Some studies have shown that social support may act to reduce the severity of emotional or mental illnesses. Other researchers have noted that the presence of emotional illness seems to prevent the utilization of social support available.

For example, depressed persons may not recognize or report supportive behaviors if their depression prevents them from noticing others' efforts to be supportive (Folkman & Lazarus, 1986; Jung, 1984; Winefield, 1984). These subjects may refuse support, giving would-be supporters little choice but to withdraw (Gruen, Schuldberg, Nelson, & Quinlan, in review). Many social support measures would fail to discover the subtleties of this sort of interaction.

Turner (1981) found that social support was contingent on well-being in samples of new mothers, maladaptive parents, adult-onset hearing loss individuals, and community-based mentally ill patients. He found both important main effects and buffering effects; social support was also a more accurate predictor of outcome than was social class. In contrast,

Winefield (1984) reported that at least 25% of neurotics and personality disordered persons lacked the ability to initiate, carry out, and interpret social interactions with others. She speculated that even higher percentages of persons with more severe or chronic disorders would be unable to initiate or receive social support, independent of its presence in the environment. Klein, Hawkins, and Newman (1987) reported that chronic mental patients held more unreliable perceptions of significant others than controls. Sullivan and Poertner (1989) found that the long-term mentally ill have extremely small social networks and report loneliness. It would seem that the presence of mental illness does distort perception and utilization of potentially beneficial social support. (Note that long-term or chronic patients networks are largely composed of family and mental health professionals (Brown, Birley, & Wing, 1972).) However, Thoits (1984) was able to rule out pre-existing psychological vulnerability as a condition contributing to her results in a longitudinal study that showed that stress exposure and lack of social support predicted psychological vulnerability and distress at a later time.

The role of social support in schizophrenia presents a different picture. Schizophrenia has been described as having a genetic, predispositional component and an environmental or stress component (Neuchterlein, 1987;

Raulin, Mahler, O'Gorman, Furash, & Lowrie, 1987). Many individuals who have been identified as possibly possessing the genotype for schizophrenia (e.g. first degree relatives of schizophrenics) never become mentally ill. Higher levels of life stressors, such as low socio-economic status and family discord and dysfunction, have been identified as partial predictors of an initial psychotic breakdown as well as recurring episodes in the chronic course of the disorder (Angemeyer & Lammers, 1986; Neuchterlein, 1987; Raulin et al., 1987; Strauss & Carpenter, 1972, 1974a, 1974b, 1977; Taylor & Hinton, 1987). The importance of social interactions has been stressed by a group of researchers and clinicians who have investigated the presence of unusually intense emotional interactions or unclear communications within families as (at least) an exacerbating factor in psychotic breakdown (Brown, Birley, & Wing, 1972; Beels & McFarlane, 1982; Singer & Wynne, 1966). Increased life stress appears to interact with genetic vulnerability to produce active psychosis in some individuals, but not in all.

Adequate social support could be an additional factor, a protective one, in this interaction. Schizophrenics are thought to experience lower levels of social support and unsatisfactory social relationships in general (Crotty & Kulys, 1986; Cutler, Tatum, & Shore,

1987; Denoff & Pilkonis, 1987; Hamilton, Ponzoa, Cutler, & Weigel, 1989; Hirschberg, 1985). One conceptual problem is that "adequate social support" might be different for an individual who may be at risk for schizophrenia compared to others in the general population.

Current theories of schizophrenia embrace models combining genetic, biological, information processing vulnerability factors, and familial and other environmental "stress" factors, producing a psychotic breakdown (Meehl, 1990; Mirskey & Duncan, 1986; Zubin, Magiziner, & Steinhauer, 1983). These theories postulate that a stressful event or series of events may trigger the first psychotic episode in a majority of cases. Adequate social support (approval from significant others as well as help when facing difficulties) could influence this process both by shielding the individual from some kinds of stressful events (a main effect) and also by mitigating the effects of stress that occurs (the "buffering" interaction).

However, the literature concerning social relations among schizophrenics does not address social support as operationalized via network structure and functions. Much of our knowledge of clinical subjects is based on post hoc retrospective interviews of psychotic patients conducted by researchers and clinicians who were not

blind to the subject's diagnosis (Turner, 1981). These studies demonstrate that schizophrenic patients currently find social contact to be aversive, but they do not accurately inform us as to whether these patients have always found such contact aversive.

During the 1950's, popular theories of the course of schizophrenia were based on family processes that were hypothesized and observed to be deviant (Brown, Birley, & Wing, 1972; Doane, West, Goldstein, Rodnick, & Jones, 1981; Holden & Lewine, 1982; McCreadie & Phillips, 1988; Singer & Wynne, 1966). Learning theorists described a process by which a child learned deviant behaviors, such as bizarre emotional reactions, from parents who were deficient in social and communication skills and methods or who were interpersonally aversive (Kaplan & Sadock, 1991. Bateson put forth a theory of the "double binding" family in which a child must routinely make choices between two aversive alternatives. Theodore Lidz described families with deviant parental relationships, either skewed by a power struggle with the child in the middle, or divided, with the opposite sex parent allied with the child against the same sex parent (Kaplan & Sadock, 1991). Singer and Wynne (1966) noted deviant communication styles in families of schizophrenic children.

Brown, Birley, and Wing (1972) described a "High

Expressed Emotion" (EE) family communication style in relatives of schizophrenics and other psychiatric patients who were released to their homes. This style of frequent criticism, overinvolvement with the patient, and an attitude of hostility was strongly related to relapse in patients who spent more than 35 hours per week with the "high EE" relatives. Beels and McFarlane (1982) report that family members spontaneously explained their "high EE" as responses to the stress of living with a decompensating psychotic. But once again, the history of the structure and functions of these social interactions was not dissected.

Unfortunately, most of these styles of family interaction (or family support) have also been investigated in research done after the onset of mental disorder in the child, which allows the possibility that a retrospective bias affecting the memories of patient and family has contaminated the data, or that the family environment is a reaction to the psychotic member, not etiological. There is no way to discover after the child's breakdown whether the family caused the child's disorder, or the child's oddities produced the family's deviant communications.

In an attempt to investigate the directionality of the causal role of family interactions in schizophrenics, some researchers have attempted to discover clues to

premorbid differences in the school records of persons who were later hospitalized for schizophrenia (Parnas, Schulsinger, Sarnoff, Mednick, & Teasdale, 1982; Watt, 1978; Watt, Stolorow, Lubensky, & McClelland, 1970). These attempts to research the premorbid social interactions of schizophrenics are accepted as prospective because the teachers and others who recorded their assessments of childrens' behaviors had no idea that the child would become mentally ill or that the records they were producing would be used as data. Preschizophrenic boys were described by teacher's comments to be undersocialized and aggressive, even in the primary grades. Preschizophrenic girls were not distinguishable from normal girls until adolescence, when they were described as excessively socialized and over-inhibited (Watt, Stolorow, Lubensky, & McClelland, 1970). Thus, there is evidence that individuals who are vulnerable to psychosis may show signs of their vulnerability from a very early age, signs manifested in their social interactions. However, this research does little to outline the premorbid structural and functional aspects of preschizophrenic subjects' social networks from their own point of view.

The optimal level of social support for a former mental patient is difficult to discover. Schizophrenics are thought to experience lower levels of social support

and unsatisfactory social relationships in general (Crotty & Kulys, 1986; Cutler et al. 1987; Denoff & Pilkonis, 1987; Hamilton et al. 1989; Hirschberg, 1985). Many studies have confirmed that schizophrenics and potential schizophrenics tend to have smaller social networks (Cutler et al. 1987; Denoff & Pilkonis, 1987; Hirschberg, 1985), especially patients exhibiting negative symptoms.

Perhaps an analysis of the structure and functions of social support in hypothetically psychosis prone persons might provide clues as to the directionality of family and other social interactions. Knowing these details could help public health workers in designing interventions to prevent breakdown in potentially psychosis prone individuals.

Returning to research with patients, attempts have been made to investigate structural aspects of social support and to correlate the level of social support as estimated from the size and composition of the patient's social network with outcome measures of mental health and relapse rates. Schizophrenics tend to have networks composed primarily of relatives (Beels, 1981). Several characteristics of structural social support such as size, density (the percentage of network members who know each other as well as the subject), and enmeshment (the percentage of network members who interact with each

other regularly) have been found to be associated with poorer outcome and relapse. In a very unexpected finding, Hirschberg (1985) found a positive relationship between number of social contacts and duration of in-patient treatment. Denoff and Pilkonis (1987) compared former patients living in somewhat sheltered residences in Pennsylvania and found that higher functioning residents had less dense, more intimate, and more extensive social networks outside of the residence; lower functioning residents had smaller, denser, less intimate networks of non-kin within the residence. However, lower functioning residents were also satisfied with their level of social support. (Note that satisfaction with social support is a global functional measure and appears to be unrelated to level of functioning in this sample.) The authors speculate that an intervention pushing these lower functioning residents toward interactions outside the residence might have a decompensating effect. Knowing and interacting with a small group of non-kin individuals in a nonemotional way may have been more satisfying for these people. Knowing whether this social network pattern is a continuation of pre-morbid social interactions would be valuable for knowledge regarding etiology of onset of severe mental disorders.

The Measurement of Social Support in Young Adults

Several measures of social support have been used by

other researchers and administered to a sufficiently large sample of young adults to assure that requirements for validity and reliability for these measures have been met. These instruments will also be employed in the current study. Procidano and Heller (1983) developed a measure yielding two scores, perceived social support from friends (PSS/Fr) and perceived social support from family (PSS/Fa). These are global functional measures. Unfortunately, these authors did not examine structural or functional social support in greater detail.

The Yale Family and Friends measure (Glazer, personal communication) records in some detail the number of people an individual interacts with and frequencies of contact, but does not address functional social support. This measure was developed for use with a large sample of long-term Community Mental Health Center patients. The version used here is a pencil and paper form adopted from an interview.

It would also be desirable to have a measure of social support that assesses both structural and functional aspects of the construct, so as to address possible main effects of social support as well as interactive "stress buffering" effects This could provide a useful tool to increase knowledge as to direction and magnitude of the relationship between social support and health. Such an instrument has been developed

sequentially by several researchers over the last ten years (Hirsch, 1980; Hirsch & David 1983; Hirsch & Rabkin, 1986; Kiecolt-Glaser et al. 1986; Pagel et al. 1987). One purpose of this proposed study is to further the development of this instrument.

Hirsch (1980) described a method of measuring elements pertaining to both structure and function as aspects of social support combining several methods that had been used for assessing social support in several other studies. He asked subjects to list up to 20 significant others and had them keep a daily log of contacts with these persons, listing the length of any contact and satisfaction with the contact on a one to seven scale for each of five functions of social support (cognitive guidance, social reinforcement, tangible assistance, socializing, and emotional support). Hirsch and David (1983) later reported a modified method, in which they asked subjects to rate interactions as positive or negative on a one to five scale for each of the five categories.

Fiore et al. (1983) based a similar measure on Hirsch (1980). They had subjects create a list of up to 15 contacts at home and then come to a two to three hour interview that assessed contacts with 10 of those on the list, starting with the person rated as closest to them, on a 0 ("not at all") to 100 scale ("closest possible")

scale and including as person 10 the least-close person named. Subjects were asked to rate persons named on two six-point scales as to their degree of being "helpful" and "upsetting". Four categories (or functions) of social support were rated: cognitive guidance, tangible assistance, emotional support, and socializing, as well as frequency of contact ("daily" to "less than once a year"), and relationship to the subject. Pagel et al. (1987) added a daily log kept for two weeks to this interview, verifying that 91% of persons in contact during the two week period were listed in the social network list.

Kiecolt-Glaser, Dyer, and Shuttleworth (1987) reported a further refinement, asking subjects to name up to ten persons, the relationship to each, their closeness, and frequency of contact. Subjects then rated each person named on "helpful" and Upsetting" scales of one to six for Hirsch's (1980) five categories of social support. Since subjects in this research were caregivers for senile dementia patients, categories were later reduced to tangible assistance and emotional support, the most salient social support elements to these caregivers. Interviews with caregivers usually took 45 minutes to and hour-and-a-half.

Purpose of this Study

Since social support, operationalized as both

structure and function, has been shown to be related to physical and mental health in the presence of stress, research into the social interactions of persons who are hypothesized to be at risk for the future development of schizophrenia should measure social support in ways that would make a comparison with the bulk of the literature on social support possible. A possible premorbid pattern of social network structure and function has been hinted at in studies of college students who have been identified as at risk for psychosis and have been shown to exhibit more social fear, Social Anhedonia, Physical Anhedonia, or Perceptual Aberration-Magical Ideation than peers judged not at risk for psychosis (Blum & Schuldberg, 1993; Chapman, Chapman, & Raulin, 1976; Karwicki et al. in review; Raulin & Wee, 1984).

The low rate of psychotic breakdown among the population in general and even among those who have significant risk factors has presented a problem for researchers who would like to predict psychosis accurately enough to begin to design interventions to prevent breakdown. Among those young adults identified as hypothetically psychosis-prone by the Wisconsin scales of Perceptual Aberration and Magical Ideation (Per-Mag subjects; Chapman, Chapman, & Miller, 1982; Chapman, Edell, & Chapman, 1980) or Physical Anhedonia (Anhedonic subjects; Chapman et al. 1976), less than one additional

active psychosis per hundred has been recorded within two years of the original assessment (Chapman & Chapman, 1985, 1987). Although this incidence was above the expected rate of psychotic breakdown in this age window, this may represent a chance variation in small numbers, and the low number of psychotic breakdowns has made researching factors which might be amenable to intervention, thereby preventing hospitalization for psychosis, difficult at best, as well as limiting empirically-based conclusions regarding contribution to risk. No single factor, whether connected to genetic loading, stress, or to various environmental or personality variables has been identified as an accurate or "high-yield" predictor of active mental illness.

Thus, the assertion that inadequate social support is present in all schizophrenics before breakdown has not been verified. Ideally, measuring structural and functional social support in persons, both before and after they might potentially experience a psychotic break, could furnish valuable information as to a possible relationship between social support and psychosis. Alternatively, measuring social support in conjunction with measuring psychosis proneness and in the presence of various stressors might help narrow the definition as to who is at risk for psychotic breakdown.

Young Adult Attitude and Experience Study (YAAES)

This research was conducted in the context of a larger study. As a group, college students have been thoroughly studied for numerous traits, including psychosis proneness. This broad base of knowledge of the college population serves as a valuable background concerning the behavior of persons 18 to 22. However, little is known about people who have left college to establish themselves in their communities. This period in a lifetime is one of flux. The individual is likely to complete the process of emancipating him/herself from family, embarking upon a career, and, frequently, establishing a new family. Since schizophrenia usually first emerges between the ages of 15 and 25 in males and 25 and 35 in females, an ideal time to measure social support in conjunction with psychosis proneness would be tween the ages of 22 and 38, or during the post-college period, as individuals encounter the stressors which accompany the process of assuming full adulthood and enter the period of peak actuarial risk, yet before they have become mentally ill.

Professor David Schuldberg of The University of Montana is investigating persons who have been in college, some of whom may be at risk for psychotic breakdown. The YAAES is designed to collect a massive amount of data from former (and some current) University

of Montana students who have been selected because their responses to the Wisconsin scales of hypothetical psychosis proneness have placed them in groups exhibiting (1) high levels of Perceptual Aberrations and/or Magical Ideation, (2) high levels of Physical Anhedonia, or (3) low levels of all three of these traits. These students responded to the Wisconsin Scales between two and eight years ago. It is expected that subjects will fall into several categories: (a) High risk subjects who break down, (b) High risk subjects who do not break down, (c) Controls who do not break down, and (d) Controls who do break down (false negatives).

A thorough investigation and description of structural and functional social support of these groups of persons at risk for psychosis and similarly-aged persons not at risk might yield clues as to how social support is related to psychotic breakdown or later adjustment in such individuals, as well as degree of psychological and physical distress.

Computer-assisted Psychological Assessment

The American Psychological Association (APA, 1985) has included guidelines for computer-assisted psychological assessment in its testing standards. Assessment measures should insure the security of data and protect clients and research subjects from uncomfortable or dangerous testing situations.

Instruments should be administered by persons with sufficient knowledge to administer tests accurately and to fully inform clients and research subjects about such instruments (King, 1987). These requirements can be met by computerized versions of many measures, although special precautions must be taken regarding data security. Computer tests can also reduce sources of measurement error that are inherent in pencil/paper measures through automated, accurate scoring, maintaining extreme accuracy in presentation of stimulus materials, and, accurate recording of reaction times. Butcher (1987) lists several researchers who have found that persons responding to computer versions of established measures were more "candid" and given to greater self-disclosure, although this issue is controversial. For example, Schuldberg (1988, 1990) tested a computer version of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1987) and found that effects due to computer use were small compared to the effects of repeated testing (included as a part of the design). Those format effects he did find were not in the direction of more candor in the computerized conditions.

HyperCard Macintosh Computer Assessment

Computerized assessment instruments utilizing the Apple Macintosh and HyperCard® environment give the user

all the advantages of computer-assisted testing plus the ability to present graphic images easily (Geisler-Bernstein & Bernstein, 1989; Schuldberg & Nichols, 1990). Schuldberg and Nichols (1990) reported on a Macintosh HyperCard version of the Barron-Welsh Revised Art Scale which has properties of ease of administration as well as presenting the Art Scale accurately.

The Social Support Network Index of Hirsch, Pagel et al., and Kiecolt-Glaser et al. has been modified for this study so as to be self-administered using a Macintosh computer. This instrument was used to assess social support in a sample of post-college adults who have been identified as at possible risk for psychosis, as well as to control subjects. HyperCard^{R} program scripts allowed the collecting and recording of data about significant others. One advantage of this presentation of the interview is that the HyperCard screens present the name of each person on screen as the subject is responding, ensuring that no confusion about identity of supporting persons can occur (See Figure 1.). Another advantage we have observed is that assessments can be completed in 10 to 15 minutes, as against an hour or more for face to face interviews.

One primary purpose of this study was to determine the psychometric properties of this new instrument, the Macintosh Social Support Index (MSSI) or, more precisely,

a new way of administering the social support interview used by Hirsch, Page et al., and Kiecolt-Glaser et al., an instrument that measures both structural and functional social support.

A first step in this research was to validate the Macintosh version of the MSSI of the by correlating it with the Procidano and Heller PSS/Fa-Fr, the Yale Family and Friends, and the Interpersonal Relationships subscale of the Quality of Life Scale (QOLREL; to be described later) using YAAES subjects. The MSSI as expected, gave more detailed information as to the structure of social networks of post college adults and perceptions of their functional social support than the Yale Family and Friends or the Pss/Fa-Fr, since the MSSI collected both structural and functional information in detail.

The proposed study examined structural and functional social support in the selected risk groups and a control group as these measures of support varied with mental and physical health. One interesting question is what contributes to psychological hardiness or resourcefulness in hypothetically at-risk persons. Social support may be an environmental component of such resourcefulness. Comparisons of Per-mags and Anhedonics with Controls were expected to reveal differences in social support structure and functions that could potentially help in the planning of interventions

designed to utilize the protection which social support seems to provide in maintaining mental health.

Therefore, in this study I expected to find that:

1) The MSSI correlates well with the PSS/Fa, PSS/Fr, and the Yale Family and Friends, as well as with portions of the YAAES reflecting structural and functional social support.

2) Hypothetically psychosis prone YAAES subjects are hypothesized to have smaller social support networks.

3) Hypothetically psychosis prone subjects are predicted to interact more with family than with friends.

4) Hypothetically psychosis prone subjects are expected to report functional social support as less "helpful" and more "upsetting" than will controls.

5) Within groups (Per-mags, Anhedonics, and Controls), positive social support was predicted to be negatively correlated with stress-related aspects of poorer physical and mental health while negative social support was predicted to be positively correlated with stress-related aspects of poorer physical and mental health as measured by the Health Problems Checklist (HPC, total number of symptoms) and the Symptom Checklist-90 Global Severity Index (SCL-90-R).

CHAPTER TWO

Method

Subjects.

Subjects for this study were participants in the Young Adult Attitude and Experience Study (YAAES), funded by the ADAMHA Small Grant Program. YAAES subjects were selected from groups of students at the University of Montana who were given the Wisconsin scales of hypothetical Psychosis Proneness while taking an undergraduate psychology class two to eight years ago, between Fall 1984 and Fall 1991. Subjects were between the ages of 17 and 30 at the time of the original assessment and are caucasians whose native language is English. All YAAES subjects were between the ages of 18 and 40 at the time of a followup interview, which included measures of social support used for this study. The YAAES groups were selected as follows:

1) Members of the Per-Mag group scored 2 or more standard deviations above the mean on the Perceptual Aberration and Magical Ideation scales (or received a score of less than 3 on a scale composed of the sum of the standardized Perceptual Aberration scores and Magical Ideation scores), but not above 1.75 standard deviations above the mean on the Physical Anhedonia scale (Montana means were used throughout to reflect the differences

between subjects assessed in various parts of the country.)

2) Members of the Physical Anhedonia group scored 1.75 standard deviations or more above the mean on the Physical Anhedonia scale but less than 3 standard deviations above the mean on the combined Per-Mag scale. (This is a slightly relaxed criterion employed to increase n in this group.)

3) Members of the Control group scored less than or equal to 0.5 standard deviations above the mean on all scales, and on an Impulsive Nonconformity scale (Blum & Schuldberg, in review). Subjects in all three groups also recorded fewer than 12 "cannot say" responses and scored less than or equal to 2 on an Infrequency scale.

Group One, Controls, numbered 92; Group two, Per-Mags, numbered 83; and Group three, Anhedonics, numbered 64. Mean age for Controls was 20.33 years (SD = 3.08). Mean age for Per-Mags was 20.26 years (SD = 2.42). Mean age for Anhedonics was 19.89 years (SD = 2.30). Mean age of Controls, Per-Mags, and Anhedonics did not differ significantly (F [2,234] = 3.519, p = .67), although there was an age difference for gender.

The gender composition of the three groups was: Controls, 47 women and 45 men; Per-Mags, 36 men and 47 women, and Anhedonics, 18 men and 46 women. The Control

and Per-Mag groups did not differ from each other in gender composition, but there were significant differences in number of males and females in the Anhedonic group (Chi square [2] = 6.922, $p < .03$), with females over-represented. All subjects gave permission to be contacted for continued research at the time of the initial assessment. Those who agreed to participate in the YAAES were paid a small honorarium for their participation and were informed that the purpose of the research is to describe a sample of young adults as they make a transition from college student to adult member of the community. Data for the present study were garnered from the YAAES data.

Procedures

240 subjects were interviewed at The University of Montana Psychology Clinic by two trained psychology graduate students who were blind to the group from which the subject was selected. Of these, 217 had completed the MSSI at the time of this data analysis. All subjects gave informed consent and were paid $15.00 for their participation. No deception was used in the interview and subjects were thoroughly debriefed and given the opportunity to request information about the study after the interview or when returning a packet of pencil and paper measures. Interviewers were prepared to refer

subjects who gave evidence of distress at the time of the interview. All data were coded to maintain confidentiality of subjects.

In addition to the study interview, subjects completed the PSS-Fr, PSS-Fa (Procidano & Heller, 1983), the Yale Family and Friends scale, (YALE, Glazer, personal communication), the Life Experience Scale (LES, Sarason, Johnson, & Siegel, 1978), the Health Problems Checklist (HPC, Psychological Assessment Resources Inc., 1984), the Symptom Checklist-90 (SCL-90, DeRogatis and Spencer, 1975), were rated on the Quality of Life scale (QOL, Heinrichs, Hanlon, & Carpenter, 1984), and completed the Macintosh Social Support Interview (MSSI) designed for this study.

Instruments

Demographic data including information about health, current and former occupation, and family structure were obtained at the time of the interview.

Wisconsin Scales of Hypothetical Psychosis Proneness Perceptual Aberration, Magical Ideation, Impulsive Nonconformity, and Physical Anhedonia (Chapman & Chapman, 1985, 1987) These scales identify individuals who may be hypothetically at risk for the development of psychosis based on their endorsing statements referring to schizotypal-like symptoms. The following scales were

used in this study:

Physical Anhedonia (Chapman, Chapman, & Raulin, 1976) This scales measure an inability to experience physical pleasure. It consists of 61 items. Coefficient alpha values were .74 (males) and .85 (females) for a normal male college sample. Sample items are: "The beauty of sunsets is greatly overrated" (marked true) and "On seeing a soft, thick carpet, I have sometimes had the impulse to take off my shoes and walk barefoot on it" (marked false).

Perceptual Aberration (Chapman, Edel & Chapman, 1980) This 35 item scale measures perceptual distortions, particularly of body image. Coefficient alpha values of .89 (males) and .91 (females) were obtained for a college age sample. Sample items are: "I have never felt that my arms or legs have momentarily grown in size." (marked false) and "Occasionally, it has seemed as if my body had taken on the appearance of another persons body." (marked true).

Magical Ideation (Chapman, Chapman, & Miller, 1982) This 30 item scale measures general belief in causal connections between behaviors and events which are objectively unrelated. Coefficient alpha values of.82 (males) and .85 (females) were determined for a college age sample. Sample items are "I have been sometimes

fearful of stepping on sidewalk cracks." (marked true) and "Numbers like 13 and 7 have no special powers." (marked false).

Impulsive Nonconformity (Chapman, Chapman, & Miller, 1982) This 51 item scale measures lack of concern for prevailing social and ethical standards as well as a lack of self control and/or impulsiveness. Coefficient alpha values of .84 (males) and .83 (females) were obtained for a college age sample. Sample items are: "When I start out in the evening, I seldom know what I'll end up doing." (marked true) and "I never get so angry that I can't speak coherently." (marked false).

This method of selecting hypothetically psychosis prone research subjects is advantageous in that it may identify individuals who would not be selected from their histories and it is applicable to very large samples.

Stress Measure:

Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) This instrument records which of 50 events have occurred in the past year and asks the subject to indicate the degree to which the event was experienced as positive or negative. An additional ten events are provided which impact on students only. Subjects report which of the listed events have happened to them in the past year and rate these events from -3 (severely

negative) to +3 (extremely positive). Separate positive change, negative change, and total change scores are obtained. Test-retest reliability coefficients for negative (.56 and .88), positive (.19 and .53) and total change (.63 and .64) scores are sufficiently high (all $p < .001$). The LES compares well with the Holmes and Rahe (1967) Schedule of Recent Experiences. A total of number of negative events was used for this study.

Physical and Psychological Health Outcome Measures:

Health Problems Checklist (HPC; Psychological Assessment Resources, inc, 1989). This instrument records over 200 potential health problems and practices that the subject may "check" if it refers to him or her. Space is provided for the subject to add any condition not listed, current medications, and professional health care workers consulted. A score for total health problems checked was used as a rough indicator of physical stress in this study.

Symptom Checklist-90, Revised (SCL-90; Derogatis, 1977. This is a well-respected, 90-item measure of psychological distress providing subscores on nine dimensions of psychopathology: Depression, Anxiety, Interpersonal Sensitivity, Hostility, Phobic Anxiety, Paranoid Ideation, Somatization, Obsessive-Compulsive, and Psychoticism. It also provides a global measure of

total symptomology and intensity of perceived distress. The subscales of the SCL-90-R correlate well with subscales of the MMPI. Coefficient alphas range from .90 to .77 for subscales. The Global Severity Index was used for this study.

Social Support instruments:

The following measures of social support were administered to all subjects.

Yale Family and Friends: (YALE, Glazer, personal communication) This measure records the size and composition of the subject's social network. The number and frequency of contact of living relatives and friends is recorded by subjects, giving a rough estimate of the individuals global social network. Scores for the number of family, number of friends, frequency of contact with family, and frequency of contact with friends were used in this study.

Perceived Social Support from Friends and from Family: (PSS-Fr, PSS-Fa, Procidano & Heller, 1983). These 20 item scales yield two global measures tapping the subjects perceptions of functional social support from friends and from family. Procidano and Heller found that their measures were internally consistent (PSS-Fr Chronbach's alpha = .88; PSS-Fa Chronbach's alpha = .90). They reported that their results over a series of studies

with college students demonstrated adequate validity for this measure. Pss-Fa and Pss-Fr were used in this study.

Quality of Life: (QOL, Heinrichs et al. 1984). This instrument generates a series of ratings based on interview questions about widely-varying traits and behaviors which might impact an individuals success and happiness. Each rating uses a 6 point Likert-type scale of from 1 to 6. Anchors for each rating are descriptions of expected functioning within each rating and reflect levels of functioning so low as to indicate the need for hospitalization (1) to adequate level of functioning for community living (6). The Interpersonal Relationships subscale of the QOL (QOLREL), assessing the complexity and frequency of the subject's use of available social support by asking about general levels of support from immediate family, close personal friends, and acquaintances, as well as the subject's tendencies to social withdrawal and perceptions of social support availability was used in this study.

Macintosh Social Support Index: (MSSI). A new instrument attempting to measure and integrate structural and functional social support was designed to be administered as a self-report measure recorded on the Macintosh computer. The Macintosh HyperCard^{R} program was used to present the interview, which is based on Hirsch

(1980), Fiore et al. (1983), and Kiecolt-Glaser et al. (1988).

Each subject was asked to name between three and ten "persons who are important to you, who you like and interact with on a regular basis. Include all those persons who depend on you and on whom you depend." Subjects were then asked for the following information about each person named (See Figures 1 to 4):

1. Frequencies of contact Subjects respond on a Likert-type scale of 0 = "less than twice a year" to 6 = "daily".

2. Relationship to the subject, (1 = "parent"; 2 = "spouse or lover"; 3 = "child"; 4 = "sibling"; 5 = "other relative"; 6 = "friend"; 7 = "coworker"; 8 = "professional helper, clergy, etc"; 9 = "other relationship").

3. "How close do you feel" to the person named on a scale where 10 = "as close as possible" and 0 = "not at all close".

Responses in this first section of the MSSI provided a rough index of structural social support from the persons closest to the subject by computing means of the responses to frequency of contact or closeness for individuals designated as family members (parent, spouse/lover, sibling, grandparent, child, or other

relative), friends (friend, co-worker), or the total network. (Closeness and frequency of contact can also be isolated for a particular network member. such as a spouse/lover.)

Subsequent computer screens defined and described four dimensions of functional Social support: Tangible assistance, Emotional support, Cognitive guidance, and Socializing (see Figures 1 through 4 for sample screens). The subject was asked to rate each of these by using two six point scales (varying from "not at all" to "extremely") to quantify subjective evaluations of the subject's impressions of the degree to which each person named as important is "helpful" and/or "upsetting" on each of these dimensions. The computer program shows each name typed in by the subject as an identifying cue to make sure that the subject does not "get lost" when responding.

Therefore, the MSSI recorded the following data for each of three to ten persons named: relationship, frequency of contact, closeness, and level of satisfaction and dissatisfaction with Socializing, Emotional Support, Cognitive Guidance (advice) and Tangible Assistance. This gave eleven pieces of data for each person named that yielded the following variables:

1. Mean frequency of contact with family, friends,

total network, or any subset of these (eg. first degree relatives, spouse/lover)

2. Mean closeness to family, friends, total network, or any subset of these.

3. Mean positive social support from any or all functions of social support from family, friends, total network, or any subset of these.

4. Mean negative social support from any or all functions of social support from family, friends, total network, or any subset of these.

5. A combination measure of positive social support constructed by subtracting negative social support from positive social support.

The MSSI provides global measures of structural support from important social contacts by allowing the researcher to sum: the total number of persons named, separate categories of important contacts named, such as family members, friends, coworkers, same generation family, or parents, and frequencies of contact with important others. Mean frequencies of contact and closeness can also be constructed for the global network reported as well as for a variety of subsets of contacts (parents, friends, etc). Separate indexes of mean social support from family and friends were constructed for this study to compare with values reported from the PSS/Fa-Fr,

Yale Family and Friends, and appropriate QOL ratings.

This instrument also provided measures of mean functional support overall and for each of four functions of social support: Socializing, Cognitive Guidance, Emotional Support, and Tangible Assistance through computations of the mean "helpful" or mean "upsetting" response for the entire network reported or for any subset of persons named. A total measure of mean perceived social support was also constructed by subtracting the mean "upsetting" response from the mean "helpful" response for the global network and for each subset. (The usefulness of such a combined measure is limited however, since perceptions of positive and negative social support seem to be separate constructs, (Rook, 1984, 1990).)

The ability to separate out levels of structural social support and/or satisfaction with levels functional social support from the total network or subsets thereof for the same person at the same moment in time makes this instrument unique, useful, and convenient to use. Two revisions of the "nuts and bolts" of the MSSI have made instructions easier to follow and data recording more accurate, although from the subject's point of view no changes were apparent.

Descriptive Statistics

Means and standard deviations provided descriptions of the size and structure of social support networks and the differences in functional social support obtained from family, friends, coworkers, and other subsets of interest. Descriptive statistics, including means, measures of variance, and correlations were determined for physical and mental health outcome measures as a step preliminary to Multiple Regression as a test of the stress buffering hypothesis.

Validity

Construct validity of the MSSI was addressed by computing Pearson Product Moment Correlations of the MSSI with the YALE, the QOLREL, and the PSS-Fa/Pss-Fr for each group (Per-Mags, Anhedonics and Controls); these coefficients indicated the degree to which these measures tap similar aspects of social support.

Group Comparisons

As the MSSI does prove to be related to other social support measures, MANOVAs and ANOVAs were used to determine if Per-Mags, Anhedonics, and Controls differed in structural and functional Social support, as follows. (Gender differences were tested separately.)

1. Hypothesis 2, regarding group differences in size of the personal network, was tested using MANOVA with

group as the independent variable and number of family, kin, and total network as the dependent variable.

2. Hypothesis 3, regarding group comparisons of kin/nonkin in the personal network, was tested using MANOVA with group as the independent variable and variables reflecting means for kin and friends as dependent variables. Two comparisons were made, one including the spouse/lover as family, and a second including the spouse/lover as a separate category, highlighting any tendencies of Anhedonics or Per-Mags to avoid intimate relationships.

3. Hypothesis 4, regarding differences in perceptions of positive ("helpful") social support and negative ("upsetting") social support by group were tested using ANOVA and MANOVA. Separate two by three (gender by group) ANOVAs and MANOVas using group as the independent measure and variables reflecting mean positive social support or negative social support as the dependent measure were computed for the total personal network, family (including the spouse/lover), kin (not including the spouse/lover), spouse/lover, and friends (including co-workers, etc).

4. Hypothesis 5, the stress buffering hypothesis, was tested using a series of regression models. Correlations were employed to test the relationships

between social support and stress, as well as stress-related mental and physical health as measured by the HPC and SCL-90 GSI. Multiple Regression was used to test the stress buffering hypothesis as it may apply to college age persons' perceptions of social support as positive or negative. Positive social support (HELPFUL), stress (LES negative event score) and the product of stress and positive social support were used as independent variables in six equations and negative social support (upsetting), stress, and the product of stress and negative social support were used as independent variables in six equations. Twelve models were constructed; six using physical health (HPC) as the dependent variable and six using SCL-90-R GSI as the dependent variable.

CHAPTER THREE

RESULTS

Hypothesis one, Validity: Structural Variables in the Social Network

The MSSI variables were compared with similar variables to demonstrate that the MSSI measures the same or similar construct that other social support measures tap using the Procidano and Heller (1983) Perceived Social Support from Family and Friends, a popular research tool. It gives two summary variables: Perceived Social Support from Family (PSS-Fa) and Perceived Social Support from Friends (PSS-Fr). The Yale Family and Friends (YALE), and the interview-based Quality of Life Interpersonal Relationships Subscale (QOLREL) were also used as comparison measures.

These comparison measures were correlated with each other, as shown in Table 1, which shows correlations between structural variables of the MSSI and the PSS-Fa, PSS-Fr, QOLREL, and several YALE structural variables, as well as relationships among the comparison measures themselves. Number of family members as measured by the YALE was not related to any other variable, structural or functional. This may be because the YALE counts number of living family members, whether the subject counts them as important social supports or not.

The most basic structural variable is number of family and friends named as important network members. Note that the number of family named by MSSI subjects was related to the PSS-Fa and QOLREL, but the number of friends named was not significantly related to either PSS-Fr or QOLREL. Total number in the network reported in the MSSI was related to QOLREL.

The situation with the YALE variables is more complex. Both MSSI number of family and MSSI number of friends were related to the YALE measure of frequency of contact with family. However, MSSI number of family was not related to YALE number of family, while the MSSI number of friends was correlated with number of friends reported in the YALE.

As can be seen in Table 1, mean closeness to kin was correlated significantly at moderate to low levels with PSS-Fa and PSS-Fr, as expected, with only a few exceptions. PSS-Fa appears to be more closely related to the MSSI than PSS-Fr, as indicated by the magnitudes of the correlation coefficients. Closeness to kin was significantly correlated with PSS-Fr as well. None of these MSSI variables is related to the QOLREL or YALE. Apparently, the MSSI and PSS-Fa/Fr both tap similar structural constructs of number of network members and closeness to those persons, but the QOLREL and YALE do

not.

Frequency of contact with kin and with friends, a third structural component of the social network measured by the MSSI, was correlated with frequency of contact with family and with friends as measured by the YALE. Since the YALE asks directly how often the respondent is in contact with family and friends and PSS-Fa/Fr does not, we can be fairly sure that this structural component is well measured by the MSSI and YALE, but not by the PSS-Fa/Fr. Neither frequency nor closeness to the spouse/lover as measured by the MSSI were correlated with PSS-Fa/Fr, QOLREL nor YALE.

The weakness of these correlations and the spottiness of the pattern of structural variable correlations serve to demonstrate that a clearly defined structural construct has <u>not</u> been defined for number, closeness, or frequency of contact using these measures. This is not surprising, considering the variety of results obtained by numerous other social support studies.

<u>Validity: Functional Variables of the Social Network</u>

A stronger argument supporting the validity of the MSSI as a measure of functional elements of the social network emerges from this set of results. Correlations for the functional variables are presented in Table 2.

MSSI mean helpful support from social network members was significantly related to PSS-Fa, PSS-Fr, and the QOLREL. Mean upsetting support from network members was negatively correlated with PSS-Fa, but not related to PSS-Fr or QOLREL. The MSSI and PSS-Fa tap negative as well as positive aspects of social support, but the PSS-Fr and QOLREL do not.

Mean total social support, specifically from kin, spouse/lover, and friends, computed from means for socializing, tangible assistance, emotional support, and cognitive guidance can be isolated from MSSI data, but only estimated from PSS-Fa, PSS-Fr, or QOLREL. Table 2 shows that these comparison measures and the MSSI are reasonably closely related, although the weakness of the correlations suggest that these instruments do not measure exactly the same constructs. PSS-Fa and the MSSI appear to be more closely related than the MSSI and PSS-Fr and QOLREL.

Of particular interest is the relationship between upsetting social support from kin, lover, and friends that can be isolated from MSSI data, but not from the PSS-Fa or PSS-Fr directly. Mean total upset with support from kin, or spouse/lover computed from means for socializing, tangible assistance, emotional support, and cognitive guidance, is significantly negatively related

to PSS-Fa, but not to the PSS-Fr. None of the MSSI upsetting support means is related to PSS-Fr. This lack of sensitivity to negative perceptions of support limits the usefulness of both the PSS-Fa/Fr and the QOLREL and lends support to the notion that helpful support and upsetting support represent two separate constructs that operate differently. This is a serious flaw, given research findings that upsetting social support has been associated with mental distress.

Findings for mean total social support, computed as mean helpful support minus mean upsetting support from family, kin, spouse/lover, and friends echo the findings for the means from which they were created, as one might expect. This combination measure loses a lot of information that could be useful in describing the social network. These data tend to demonstrate that separating helpful support from upsetting support appears to be useful, whether looking at parts of the total network or all of it.

Hypothesis two: Group Differences in size of the social network

Structural features: number of family, kin, friends, and total network, rated closeness, and rated frequency of contact were examined by group (Control vs. Per-Mag vs. Anhedonic) using ANOVA and MANOVA. Values for mean

variables pertaining to "family" were found to be similar to values for mean variables pertaining to "kin", albeit influenced in unpredictable ways by the inclusion of the spouse/lover in "family". In addition only 102 persons listed a spouse or lover in their responses. This small number restricted analysis to 76 of 240 cases because of missing data, too few to conduct a reliable analysis when subdividing groups by psychosis proneness group and gender (for, example, only three anhedonic males could be included in the analysis.) Therefore, mean variables reflecting family including spouse/lover and the spouse/lover variable were eliminated from the multivariate analysis of means.

Hypothesis two predicted that psychosis prone individuals (Per-Mags and Anhedonics) would have smaller social support networks. Table 3 shows means for kin, friends, and the total social network for males and females in each of the three groups. Multivariate analysis of variance by MANOVA revealed that Controls, Per-Mags, and Anhedonics differed significantly in both the number of kin, number of friends, and total number of people named when all these variables are considered together (multivariate $\underline{F}$ [6,418] = 2.576, $\underline{p}$ = .018). Groups differed in both number of friends (univariate $\underline{F}$ [2,211] = 5.291, $\underline{p}$ = .006) and total network (univariate

F [2,211] = 5.227, p = .006). Group differences for number of kin approached significance (F [2,211] = 2.899, p = .057). Control males named more than twice the number of kin as Anhedonics. Anhedonic males listed fewer friends than Controls or Per-Mags, although the difference was not as great as in number of kin. Anhedonic males also reported a smaller total network. Group differences were slight for females. There was also a group by gender interaction (multivariate F [6, 418] = 2.584, p = .018). Control males named more kin, friends, and total network members than females; Per-Mag and Anhedonic females reported slightly more in each of these categories than males. None of these differences reached significance, although number of kin approached significance (F [2,211] = 2.615, p = .076) and a trend was noted for total number in the network (F [2,211] = 2.231, p = .110). No main effect was found for gender (F [3,209] = 1.691, p = .170)

Hypothesis Three: Interactions with family and friends

Hypothesis three predicted that Anhedonics and Per-mags would interact more with blood relatives than Control subjects. Table 3 shows means for frequency of contact and closeness to kin and friends reported by males and females. The MANOVA showed that groups did not differ significantly in reported closeness or in

frequency of contact with kin and friends, although a trend was noted for Anhedonic males to interact less frequently with friends. Apparently, having fewer friends and social network contacts does not lead Anhedonics to interact much less or to feel less intimate with network members.

Hypothesis Four: Level of satisfaction with social support by group

Hypothesis four predicted that hypothetically psychosis prone individuals would perceive functional social support as less helpful and more upsetting than Control subjects. As Table 4 shows, these predictions were not confirmed. Means reflecting helpful support, upsetting support, and the total ([helpful] - [upsetting]) support from kin and friends were not significantly different when tested using MANOVA.

Trends for gender differences are also noted in Table 4. An ANOVA revealed a peculiar pattern of higher levels of helpful support from friends for Per-Mag and Anhedonic males when compared with Control males and lower levels of helpful support from with friends for Per-Mag and Anhedonic females when compared with Controls (gender F [1,197] = 2.650, p = .105). No such pattern appeared for upsetting support from friends. An ANOVA testing group and gender differences also revealed a

trend for Anhedonic males and females to report higher levels of upsetting support from kin (gender F [1,177] = 3.114, p = .079).

The trend for gender differences in perceptions of level of total social support from friends appeared in an ANOVA***** (gender: F [1,197] = 2.609, p = .109)*****. No significant differences existed between groups for total helpful support (the mean of the summed means for helpful socializing, tangible assistance, emotional support, and cognitive guidance), or for total upsetting support (the mean of the summed means for upsetting socializing, tangible assistance, emotional support, and cognitive guidance).

Tables 5 and 6 show means for helpful support and upsetting support for each of four functions of social support (socializing, tangible assistance, emotional support and cognitive guidance) received from kin and friends. Few group or gender differences were found. Generally, these post college young people perceived their social support in very similar ways.

A group by gender interaction was found in the MANOVA testing helpful tangible assistance (multivariate group by gender F [4,324] = 2.596, p = .036). Per-Mag and Anhedonic males reported higher levels of helpful support from both kin and family than Per-Mag and

Anhedonic females; this pattern was reversed with Control subjects for support from friends (interaction, group by gender, F [2,162] = 4.260, p = .016).

MANOVA revealed than males' and females' perceived satisfaction with emotional support was different (multivariate gender F [2,161] = 3.688, p = .027. Control males reported the lowest level of helpful emotional support from friends, while Control females reported the highest level of helpful support (main effect, gender F [1,162] = 7.282, p = .008). The groups did not report different levels of upsetting emotional support from friends, but a gender difference was found in upsetting emotional support from kin with Per-Mag females reporting the highest level of dissatisfaction (gender F [1,174] = 4.295, p = .04).

A similar situation was noted for helpful advice from friends. While the overall MANOVA was non-significant, a univariate ANOVA revealed a gender effect with Control males reporting the lowest level of helpful advice from friends and Control females reporting the highest level of helpful advice from friends (Main effect, gender: F [1,196] = 3.638, p = .058). A gender difference was found for upsetting advice from friends. Females reported vary similar levels of upsetting advice, as did Control and Per-Mag males. Anhedonic males

reported lower levels of upsetting advice from friends (F [1,160] = 3.928, p = .049). This finding must be taken only as a suggestion for further investigation due to a non-significant MANOVA.

Testing the Stress-Buffering Hypothesis

Regression models were constructed for each group, Controls, Per-Mags, and Anhedonics, using the SCL-90-R and HPC, respectively, as dependent measures of mental and physical health, and LES number of negative events as a stress measure. Twelve models were tested (three Group and mental health measure analyses, and three group and physical health measure analyses); six models measured the effect of total helpful support and six models measured the effect of total upsetting support. Social support (either helpful support or upsetting support) was entered first in all models, then an interaction term (the product of stress and support) was entered, and stress (LES number) entered last, since social support was the variable of interest. This effectively attributed most of the variance shared by several of the variables onto the social support variable, "loading" the analysis toward finding social support effects first.

Summary statistics for Control subjects are shown in Table 7. The level of helpful support of Controls was not significantly related to SCL-90-R score and accounted

for less than 3% (F [1,53] = 1.47, p = .23) of the variance in the dependent variable. Stress (LES) accounted for 5.5% of the variance (F [3,51] = 2.21, p = .12) and an interaction term added another 5% (F [2,52] = 2.61, p = .06), accounting for less than 14% of variance overall. However, in a second model testing upsetting social support, upsetting social support alone accounted for 15.6% of the variance in SCL-90-R score (F [1,53] = 9.798, p = .003). The interaction term added 7.2% to the predictive value of the model (F [2,52] = 7.684, p = .001). These results agree nicely with the bulk of studies that measured satisfaction or dissatisfaction with social support. Upsetting social support has been found to be predictive of greater mental distress, but Helpful social support has been unrelated to level of physical or mental health, or related in odd ways (Rook, 1990).

The effects of helpful or upsetting social support were found to be more complex in Per-Mags and Anhedonics. Helpful social support accounted for 17.3% of variance in SCL-90-R score in Per-Mags (F [1,49] = 10.26, p = .002), as shown in Table 8. An interaction term added 8.3% (F [2,47] = 8.26, p = .001). Level of stress was responsible for only 1.2% (ns).

The model testing upsetting social support in Per-

Mags was similar to that testing helpful social support; upsetting support predicted 13.8% of the variance (F [1,49] = 7.87, p = .007) and the interaction adding 11.7% (F [2,48] = 8.24, p = .001). Level of both helpful and upsetting social support appeared to be much more important in predicting level of mental distress than did stress as measured by the LES for Per-Mags.

The greater importance of upsetting social support in allowing stress to affect health is demonstrated in those models constructed using Anhedonic subjects as shown in Table 9. In Anhedonics, the interaction terms accounted for most of the variance in SCL-90-R score, providing evidence for the stress buffering hypothesis. The interaction term was the only significant independent variable accounting for 10.7% of variance (F [3,40] = 4.29, p = .02) in the equation testing the effects of helpful social support. In a separate analysis upsetting support accounted for 9.8% of variance (F [1,42] = 4.57, p = .038), with the interaction term adding 15.4% (F [2,41] = 6.92, p = .003).

Physical health was not consistently related to helpful or upsetting social support in this sample of post college adults. This finding has been common in social support research using a variety of populations. Neither helpful social support nor LES was significantly

related to the total physical health score (HPC) in Controls. However, in Controls, the LES score alone accounted for 21% of the variance in HPC (F [3,51] = 8.29, p = .0005) with upsetting support adding 8.9% (F [1,53] = 5.17, p = .027).

In Per-Mags, helpful support accounted for 7.4% of variance in HPC score in a model including no other significant elements (F [1,49] = 3.92, p = .05). Neither upsetting support, stress, nor the interaction contributed significant variance in HPC to the negative social support model for Per-Mags.

In Anhedonics, both models (testing helpful and upsetting support) yielded results indicating that only the interaction terms added significantly to the variance in HPC (helpful support: 11.9%, F [2,42] = 3.38, p= .044; upsetting support: 9.5%, F [2,42] = 2.70, p = .048).

As an example of the degree of sensitivity and detail that the MSSI data yields, means for upsetting support, LES, and SCL-90-R were split at the medians into high and low values for each of each of these variables. Figure 5 shows the interaction of high and low stress and high and low upsetting support. At low levels of stress (LES), Anhedonics appeared to report more psychological distress when social support was highly upsetting. However, at high levels of stress, upsetting support did

not appear to matter much.

CHAPTER FOUR

DISCUSSION

The MSSI was found to have adequate construct validity, as evidenced by correlations with several frequently used social support instruments, the PSS-Fa, PSS-Fr, QOLREL, and a less common measure, the YALE. In addition, the MSSI addressed negative perceptions about functional social support and the comparison measures did not, as is shown by the generally extremely low correlations between MSSI "upset" variables and the comparison measures. The MSSI summary variable, mean total social support, constructed by subtracting total upsetting social support from total helpful social support, was correlated with PSS-Fa and Pss-Fr at low but significant levels, indicating that MSSI total support probably captures more satisfaction with support than dissatisfaction with support. This may limit the usefulness of the "total social support" summary variable, in as much as PSS-Fa and PSS-Fr are limited in indicating level of upsetting support.

One exception to this pattern of correlation for helpful social support was the significant negative correlation between PSS-Fa and MSSI dissatisfaction with support from kin. Apparently, PSS-Fa reflects the subject's perceptions of upsetting support from family.

However, PSS-Fr does not capture this negative perception, regarding friends, although it is constructed from the same set of question items used to construct PSS-Fa. Perhaps the mind-set and life circumstances of young adults make them more attuned to their dissatisfaction with parents and other kin, but less prepared to find or report dissatisfaction with friends.

The MSSI taps specific areas of dissatisfaction with support in the functional areas of socializing, tangible assistance, emotional support, and cognitive guidance from individual kin and friends, as well as summary totals for combinations of persons in the social network. We can only guess at levels of dissatisfaction or satisfaction with these functions from the summary scores produced from PSS-Fa and Pss-Fr.

QOLREL and YALE showed similar limitations in their assessment of level of dissatisfaction with support. The YALE appeared to be useful in describing number of friends and frequency of contact with friends and family only, making it a very rough measure and limiting its usefulness for further investigation of the value of social support as an indicator of vulnerability to physical or mental illness. The QOLREL appeared to assess family structure more than support related to friends. QOLREL has an added disadvantage in that it is

formed from ratings made by an interviewer who may or may not have accurate information on which to base her or his rating. The MSSI tells the clinician or researcher more in greater detail about an individual's perceptions of support received from important others than any of the comparison measures. The lack of sensitivity to upsetting perceptions of support limits the usefulness of both the PSS-Fa/Fr, the YALE, and the QOL; this is a serious flaw given research findings that upsetting social support has been associated with mental distress (Fiore, Becker, & Coppel, 1983; Pagel, et al. 1984; Rook, 1990) .

Hypotheses two and three: Structural measures

Anhedonic males reported smaller total social support networks as well as fewer friends and kin than Control or Per-Mag males. Females in all three groups reported similar numbers of kin and friends, and hence, total network. This structural measure, number (whether of kin, friends, or total), however, provided the most noticeable group difference found in this study. Other researchers have found that negative symptom schizophrenics, who may initially come from similar populations to the Anhedonics, reported smaller networks consisting of as many family as others (Beels et al., 1988; Hamilton et al., 1989; Parnas et al., 1982; Raulin

& Wee, 1984). Karwacki, Schuldberg, and Burns (in review), using the PSS-Fa/Fr, found that Anhedonics reported lower levels of social support from friends. However, lower support is not the same as smaller numbers of friends. One might wish to know more. Had the MSSI been available to these researchers, they could have refined and defined "lower support from friends" by assessing levels of satisfaction and dissatisfaction with support from kin, friends and others in detail.

Expected group and gender differences in closeness and frequency of contact were not observed in the three groups. Apparently, differences in the size of the network of kin and friends, which do differ between groups, do not directly influence the subject's feeling of closeness, or the amount of time spent with network members. Researchers have frequently made the assumption that more is better with social support. That does not appear to be the case here. Anhedonics reporting smaller number of kin, friends, and total network also reported similar levels of satisfaction and dissatisfaction with most functional social support. The actual means show that Anhedonics felt as close to friends and kin and interacted with kin about as frequently as Controls and Per-Mags. They reported feeling (non-significantly) closer to friends, although they interacted (almost

significantly) less frequently. This result may be one of those occasions where the lack of differences is interesting.

Hypothesis four: Level of Satisfaction with social support by group

Neither total helpful social support nor total upsetting social support was significantly different for Controls, Per-Mags, or Anhedonics. A trend for Control males to report lower levels of helpful support and also lower levels of upsetting support than Anhedonic males was peculiar. Perhaps Anhedonic males, experiencing less pleasure generally were less critical of their friends, hence satisfied more easily. A lack of experienced pleasure against which to judge their level of upset might also have influenced Anhedonic males to rate friends as less upsetting. Control males, experiencing more variation in affect, could have been using a more sensitive scale to judge kin and friends degree of helpfulness or lack thereof.

Membership in the Anhedonic group does appear to go along with tendencies to "flatten" reactions to social support (Hamilton et al, 1989). The researcher or clinician might use caution in assessing social support for Anhedonic males. Levels of support that might appear inadequate could be quite satisfactory to them.

Therapeutic attempts to "increase" support through social skills training or prescriptions to increase interactions with others might increase stress on an Anhedonic male rather than protect him from the effect of stress.

Main effects for gender were found for both helpful and upsetting emotional support. In a longitudinal study of stress and social support, Power (1988) found that emotional support was the only functional social support variable that operated as a stress buffer. It is possible that these gender differences in emotional support were an important part of the social support effects in the regression models reported in this study. Further analysis will include gender in the predictions.

The functional components of socialization, tangible assistance, and advice did not reveal any group patterns for helpful or upsetting support, supporting the notion that helpful and upsetting support are different constructs. Further research with other populations would add to our understanding of these young people.

Hypothesis five: Main effect of social support or stress buffering hypothesis?

Regression models constructed for the Control group describing the relationships between stress, helpful or upsetting social support, and an interaction term of support and stress showed effects similar to those found

in the literature (Fiore et al. 1983; Hirsch, 1980; Power, 1989; Rook, 1984, 1990). The stress buffering hypothesis is usually invoked to describe a situation in which helpful social support acts to reduce the effects of stress so that anticipated mental or physical health problems do not develop or are not as severe as might be expected. In some cases both a main effect for support and an interaction can be demonstrated (Cohen & Wills, 1985). Pagel et al. (1987) applied this paradigm to upsetting social support in a study of the stress experienced by spousal caregivers of Alzheimer's patients. They described regression models where upsetting perceptions of support was predictive of greater depression in caregivers.

In the Control group, no significant relationship was found between helpful social support (satisfaction), stress (LES), or the interaction of stress and helpful support, and psychological or physical health. However, upsetting support (dissatisfaction) contributed significantly to level of psychological distress (SCL-90-R) in Controls.

Negative life events score (stress) was a more important predictor of physical distress (HPC) in Controls. Upsetting social support contributed about half as much as stress to the variance in physical

distress and the interaction term was negligible. Upsetting support did not interact with stress to increase the effect of both together on physical distress.

Regression models using data from Anhedonics illustrate both helpful and upsetting social support buffering of psychological distress. The interaction term contributed more to level of mental distress than either helpful or upsetting social support in both equations. Stress (LES) was not a significant contributor. Helpful support did not contribute significantly in the helpful support model. Thus, for Anhedonics, helpful support buffered stress, but WAS not directly protective. Upsetting support interacted with stress to predict greater mental distress at low levels of stress (See Figure 5).

Regression models using physical health (HPC) as the outcome measure built from Anhedonics data reflect the stress buffering hypothesis in its pure fashion. The interaction term was the only significant term for both helpful and upsetting support. This buffering effect is low accounting for only about ten percent of the variance in the dependent variable, but it is significant. Compared to Controls, Anhedonics reacted more to helpful support and less to the stress of upsetting life events.

Compared to Controls, Anhedonics were directly affected less by upsetting support but indirectly affected more when upsetting support interacted with negative life events. No significant effect was found for helpful support, stress, or the interaction term for helpful support in Controls. Stress contributed the only significant effect for upsetting support for Controls.

Per-Mags were the only group in which helpful support had much direct effect on level of mental distress. Helpful support accounted for 17.3% of variance in mental distress for Per-Mags. Upsetting support and the interaction term contributed more than 25% together to level of psychological distress. Stress itself did not have much impact with either helpful or upsetting support. Increasing Per-Mags' helpful support and decreasing their upsetting support might be most effective in relieving psychological distress.

Regression models addressing physical health built from Per-Mags' data were different from those constructed for either Controls or Anhedonics. Helpful support contributed a small significant amount directly to level of physical health. Stress contributed an equally small significant amount directly to level of physical health.

No individual experiences helpful support absent from upsetting support. These regression models

demonstrate that knowing an individual's interactive style (at least along these dimensions of hypothetical psychosis proneness) could guide the clinician attempting to alleviate psychological distress. Addressing support could not be expected to have much impact on physical health in persons identified as not hypothetically at risk for psychosis. The differences between Anhedonics' and Controls' reactions to stress and social support carry implications as to appropriate psychological interventions. Directly addressing upsetting social support in a Control might be effective in alleviating psychological distress, but might be ineffective in an Anhedonic unless the intervention was finely tuned to intercept upsetting support and stress together. Psychological interventions designed to increase helpful social support at its interaction with a particular stressor might be expected to alleviate mental distress for Anhedonics but might have little impact on a non-anhedonic person. In addition, appropriate interventions aimed at the point where a stressor is touched by an Anhedonics social support could increase physical health in this population

Per-Mags might benefit from increased helpful social support but not from decreased upsetting support. Interventions aimed at upsetting social support or

reducing stress in the presence of helpful support might be ineffective for Per-Mags. However, given the small effect sizes, correct interventions could not be expected to benefit Per-Mags very much.

If a young person with the Per-Mag "personality style" is distressed by interactions with family, increasing helpful perceptions of support from friends might be enough to relieve distress. However, with Anhedonics, interventions aimed at helpful or upsetting perceptions of support would have to be more precise, correcting stress-related upsetting support and/or increasing stress-related helpful support. Interventions aimed at the specific stressor without addressing support might fail altogether with both groups. On could imagine a cycle in which situational stressor followed situational stressor impacting the individual, until appropriate adjustments in perceptions of social support were accomplished.

As both a clinical and a research instrument, the MSSI could provide the precise information about both beneficial and problematic social support that is needed before such interventions can be planned. It can also help provide information about helpful and upsetting support in different cultures, ethnic groups, communities or other groups of interest to researchers. This

Macintosh version of the instrument adds the qualities of clarity, quickness, and ease of administration for both subject and investigator to an already useful instrument. As people become more accustomed to interacting with computers, the MSSI will become more useful and "normal".

Further research with the MSSI is needed to clarify such issues as the degree of candidness revealed by the subject when interacting with the computer or with an interviewer (Butcher, 1987; Schuldberg & Nichols, 1990). Studies of social support using the MSSI with different age groups, perhaps college students and their parents, would give answers to this and other questions. A study at one of the Native American colleges using students and parents could be useful. This sort of study would show the extent to which computerized assessment is affected by such issues as age, gender, and culture.

This analysis has just skimmed the surface of the MSSI data gathered from this study. The spouse/lover data discarded from this analysis because it limited the n available and reduced power remains to be examined. Much could be learned about the transition from child-within-a-family through college student to adult-forming-a-new-family by analyzing this data as age and social support patterns impact each other in conjunction with group.

These are just two ideas for future research that might add to our knowledge of social support. Such knowledge has wide implications for understanding human nature and increasing human happiness. Given the consistent research findings that social support relates - somehow - to mental and physical health (House, Landis, & Umberson, 1988; Cohen & Wills; Rook, 1984, 1990), and somewhat confusing array of findings reporting varied levels and directions of effects, much remains to be done. The MSSI could facilitate this search for "truth and beauty". It allows the researcher to collect accurate data quickly from a variety of populations in a manner that allows the subject to report on intimate topics without feeling exposed. The Macintosh computer is a faithful, consistent, friendly research or clinical assistant that stands ready to work at all times.

REFERENCES

Anderson, C. M., Hogarty, G. E., Bayer, T., & Needleman, R. (1984). Expressed emotion and social networks of parents of schizophrenic patients. British Journal of Psychiatry, 144, 247-255.

Andrews, G., & Tennant, C. (1978). Life event stress and psychiatric illness. Psychological Medicine, 8, 545-549.

Angermeyer, M. C. & Lammers, R. (1986). The social network of schizophrenic patients. Zeitschrift fur Kliniscche Psychologie, Psychopathologie und Psychotherapie, 34(2), 100-118.

American Psychological Association. (1985). Standards for Educational and Psychological Testing, Washington, D. C. author.

Barrera, M. Jr. (1986). Distinctions between social support concepts, measures and models. American Journal of Community Psychology, 14(4), 413-444.

Barron, F. (1953). An ego-strength scale which predicts response to psychotherapy. Journal of counseling Psychology, 17(5) 327-333.

Beels, C. C. (1981). Social support and schizophrenia. schizophrenia Bulletin, 7, 58-72.

Beels, C. C. & Mc Farlane, W. R. (1982). Family treatments of schizophrenia: Background and state of the art. Hospital

and Community Psychiatry, 33(7), 541-550.

Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance and mortality: A nine year follow-up study of Alameda County residents. American Journal of Epidemiology, 109, 186-204.

Billings, A. G. & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. Journal of Behavioral Medicine, 4(2), 139-155.

Billings, A. G. & Moos, R. H. (1984). Coping, stress, and social resources among adults with unipolar depression. Journal of Personality and Social Psychology, 46(4), 877-891.

Bowlby, J. 1969. Attachment and Loss, Vol. 1: Attachment, New York, Basic Books .

Brown, G. W., Birley, J. L., & Wing, J. K. (1972). Influence of family life on the course of schizophrenic disorders: A replication. British Journal of Psychiatry, 121, 142-258.

Burt, R. S. (1984). Network items and the general social survey. Social Networks 6, 293-339.

Burt, R. S. (1986). A note on sociometric order in the general social survey network data. Social Networks 8, 149-174

Burt, R. S. & Guilarte, M. G. (1986). A note on scaling the general social survey network item response categories. Social Networks 8, 387-396.

Butcher, J. M. (ed) (1987). Appendix B. Computerized Psychological Assessment, (pp. 413-431): New York, Basic Books

Chapman, L. J., & Chapman, J. P. (1985) Psychosis proneness. (pp. 157-174) in M. Alpert (ed.), Controversies in Schizophrenia: Changes and Constancies, New York, Guilford.

Chapman, L. J. & Chapman, J. P. (1987). The search for symptoms predictive of schizophrenia. Schizophrenia Bulletin, 13(3), 497-503.

Chapman, L. J., Chapman, J. P., & Raulin, M. L. (1976). Scales for physical and social anhedonia. Journal of Abnormal Psychology, 85(4), 374-382.

Chapman, L. J., Chapman, J. P., Numbers, J. S., Edell, W. S., Carpenter, B. N., Beckfield, D. (1984). Impulsive nonconformity as a trait contributing to the prediction of psychotic-like and schizotypal symptoms. Journal of Nervous and Mental Disease, 172, 681-691.

Chapman, L. J., Edell, W. S., & Chapman, J. P. (1980). Physical anhedonia, perceptual aberration, and psychosis proneness. Schizophrenia Bulletin, 6(4), 639-653.

Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38(5). 300-314.

Cohen, S. (1985). Measuring the functional components of social support. in Sarasan, I. G. & Sarasan, B. R. (eds) Social

Support: Theory, Research and Applications (pp. 73-94). Boston, Martinus Nijhoff.

Cohen, S. (1987). Social supports and physical health: Symptoms, health behaviors and infectious disease. to appear in A. L. Greene, M. Cummings, & K. H. Karraker (eds). Lifespan Developmental Psychology: Perspectives on Stress and Coping. Hillsdale, N. J., Erlbaum.

Cohen, S. & McKay, G. (1984). Social support, stress and the buffering hypothesis: A theoretical analysis (pp. 253-277). in Baum, A., Taylor, S. E., & Singer, J. E. (eds) Handbook of Psychology and Health, Volume IV.

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. M. (1985). Measuring the functional components of social support (pp. 73-94). in Sarason,I. G. & Sarason, B. R. (eds). Social Support: Theory, Research and Applications, Boston, Martinus Nijhoff.

Cohen, S. & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin,98(2), 310-357.

Crotty, P. & Kulys, R. (1985). Social support networks: The views of schizophrenic clients and their significant others. Social Work, 30(4), 301-309.

Crotty, P. & Kulys, R. (1986). Are schizophrenics a burden to their families? Significant others views. Health and Social Work, Summer, 173-188.

Cutler, D. L., Tatum, E., & Shore, J. H. (1987). A comparison of schizophrenic patients in different community support treatment approaches. Community Mental Health Journal, 23(2), 103-113.

Dean, A., & Lin, N. (1977). The stress-buffering role of social support: Problems and prospects for systematic investigation. Journal of Nervous and Mental Disease, 165, 403-417.

Denoff, M. S., & Pilkonis, P. A. (1987). The social network of the schizophrenic patient and residential determinants. Journal of Community Psychology, 15(2), 228-224.

Derogatis, L. R. (1977). SCL-90-R Administration, Scoring & Procedures Manual, Towson, MD, Clinical Psychometric Research.

Doane, J. A., West, K. L., Goldstein, M. J., Rodnick, M. J., & Jones, J. E. (1981). Parental communication deviance and affective style. Archives of General Psychiatry, 38, 679-685.

Donald, C. A. & Ware, J. E. Jr. (1984). The measurement of social support. Research in Community and Mental Health, 4, 325-370.

Dworkin, R. H., Green, S. R, Small, N. E., Warner, M. L., Cornblatt, B. A, & Erlenmeyer-Kimling, 1. (1990). Positive and negative symptoms and social

competence in adolescents at risk for schizophrenia and affective disorder. American Journal of Psychiatry, 147(9), 1234-1236.

Fiore, J., Becker, J., & Coppel, D. B. (1983). Social network interactions: A buffer or a stress. American Journal of Community Psychology, 11, 423-439.

Flaherty, J. A., Gaviria, F. M., & Pathak, D. S. (1983). The measurement of social support: The social support inventory. Comprehensive Psychiatry, 24(6), 521-529.

Folkman, S. & Lazarus. R. S. (1986). Stress processes and depressive symptomatology. Journal of Abnormal Psychology, 95(2), 107-113.

Gore, S. (1981). Stress-buffering functions of social supports: An appraisal and clarification of research models (pp. 202-222). in Dohrenwend, B. S. & Dohrenwend, B. P. (eds) Stressful Life Events and their Contexts, New York, Prodist.

Gottleib, B. H. (1985). Social networks and social support: An overview of research, practice, and policy implications. Health Education Quarterly, Spring, 5-22.

Griffith, J. (1985). Social support providers: Who are they? Where are they met? And the relationship of

network characteristics to psychological distress. Basic and Applied Social Psychology, 6(1), 41-60.

Gruen, R. J., Schuldberg, D., Nelson, E. A., & Quinlan, D. M. (in review). Social support processes and depressive symptomatology.

Haley, W. E., Levine, E. G., Brown, S. L., & Bartolucci, A. A. (1987). Stress, appraisal coping, and social support as predictors of adaptational outcome among dementia caregivers. Psychology and Aging, 2(4), 323-330.

Hammer, M. (1981). Social support, social networks, and schizophrenia. Schizophrenia Bulletin, 7(1), 45-57.

Hamilton, N. G., Ponzoha, C. A., Cutler, D. I., & Weigel, R. M. (1989). Social networks and negative versus positive symptoms of schizophrenia. Schizophrenia Bulletin, 15(4), 625-633.

Heinrichs, D. W., Hanlon, T. E., & Carpenter, W. T. (1984). The quality of life scale: An instrument for rating the schizophrenic deficit syndrome. Schizophrenia Bulletin, 10, 388-398.

Hirsch, B. (1980). Natural support systems and coping with major life changes. American Journal of Community Psychology, 8(2), 159-172.

Hirsch, B. J. (1985). Social networks (pp. 118-135). In

Sarason, I. G. & Sarason, B. R. (eds) Social Support: Theory, Research, and Application, Boston, Martinus Nijhoff.

Hirsch, B. J. & David, T. G. (1983). Social networks and work/nonwork life: Action-research with nurse managers. American Journal of Community Psychology, 11(5), 493-507.

Hirsch, B. J. & Rabkin, B. D. (1986). Social networks and adult social identities: Profiles and correlates of support and rejection. American Journal of Community Psychology, 14(4), 395-410.

Hirschberg, W. (1985). Social isolation among schizophrenic out-patients. Social Psychiatry, 20(4), 171-178.

Hobfoll, S. E. (1985). Limitations of social support in the stress process. in Sarason, I. G. & Sarasan, B. R. (eds) Social Support: Theory, Research and Applications, Boston, Martinus Nijhoff.

Holden, D. F. & Lewine, R. R. J. (1982). How families evaluate mental health professional, resources, and effects of illness.Schizophrenia Bulletin, 8(4), 626-633.

House, J. S. (1981). Work Stress and Social Support, Reading, Addison-Wesley.

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. Science, 241, 540-545.

Jung, J. (1984). Social support and its relation to health: A critical evaluation. Basic and Applied Psychology, 5(2), 143-169.

Karwacki, S. B., Schuldberg, D., & Burns, G. L. (manuscript submitted for publication) Stress, coping, and social support in hypothetically psychosis-prone subjects.

Kaplan, B. H., Cassel, J. C., & Gore, S. (1977). Social support and health. Medical Care 15(5) (Supplement), 47-58.

Kaplan, H. I. & Sadock, B. J. (1991). Schizophrenia, Chapter 13, (pp. 320-342). Synopsis of Psychiatry, Baltimore, Williams & Wilkins.

Kennedy, S., Kiecolt-Glaser, J. K., & Glaser, R. in press. Social Support, stress and the immune system. to appear in Sarasan, I. G., Sarasan, B., & Price, G. (eds) Social Support: An Interactional View, New York, John Wiley & sons.

Kiecolt-Glaser, J. K., Dyer, C. S., & Shuttleworth, E. C. (1988). Upsetting social interactions and distress among Alzheimer's disease family caregivers: A replication and extension. American Journal of Community Psychology, 16, 825-837.

Klein, R. J., Hawkins, E. M., & newman, I. (1987). The measurement of social support: The use of the social support questionnaire as a means of examining differences between acute and chronic hospitalized psychiatric patients. JGPPS,

spring, 19-32.

Kobasa, S. C., Maddi, S. R., & Courington, S. (1981). Personality and constitution as mediators in the stress-illness relationship. Journal of Health and Social Behavior, 22, 368-378.

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

McCreadie, R. G. & Phillips, K. (1988). The Nithdale schizophrenia survey: VII. Does relatives high expressed emotion predict relapse? British Journal of Psychiatry, 152, 477-481.

Mckay, D. A., Blake, R. L. Jr., Colwill, J. M., Brent, E. E., McCauley, J., Umlauf, R., Stearman, G. W., & Kivlahan, D. (1985). Social supports and stress as predictors of illness. The Journal of Family Practice, 20(6), 575-581.

Meehl, P. E. (1990) Toward an integrated theory of schizotaxia, schizotypy, and schizophrenia. Jopurnal of Personality Disorders, 4(1), 1-100.

Mirskky, A. & Duncan, C. (1986). Etiology and expression of schizophrenia: Neurobiological factors and psychosocial factors. Annual Review of Psychology, 37, 291-319.

Neuchterlein, K. H. (1987). Vulnerability models for schizophrenia, (pp. 296-316) in Hafner, H., Gattaz, W. F., &

Janzarik, W. (eds). Search for the Causes of Schizophrenia, Berlin, Springer-Verlag.

Pagel, M. D., Erdly, W. W. & Becker, J. (1987). Social networks: We get by with (and in spite of) a little help from our friends. Journal of Personality and Social Psychology, 53(4), 793-804.

Parnas, J., Schulsinger, F., Sarnoff, H., Mednick, S., & Teasdale, T. (1982). Behavioral precursors of schizophrenia spectrum: A prospective study. Archives of General Psychiatry, 139, 658-664.

Power, M. J. (1988). Stress-buffering effects of social support: A longitudinal study. Motivation and Emotion, 12(2), 197-204.

Proccidano, M. E. & Heller, K. (1983). Measures of perceived social support from friends and from family: three validation studies. American Journal of Community Psychology, 11(1), 1-24.

Psychological Assessment Resources, Inc. (1984). Health Problems Checklist, Odessa, Fl, author.

Raulin, M. L., Mahler, C. R., O'Gorman, J. C, Furash, L. D. & Lowrie, G. S. (1987). Predicting stress in chronic schizophrenics using schizotypic signs. Stress and Schizotypy, APA, 1-8.

Raulin, M. L. & Wee, J. L. (1984). The development and initial validation of a scale to measure social

fear. J of Clinical Psychology, 40(3), 780-784.

Rook, K. S. (1984). The negative side of social interaction: Impact on well-being. Journal of Personality and Social Psychology, 46(5), 1097-1108.

Rook, K. S. (1990). Detrimental aspects of social relationships: Taking stock of an emerging literature, (pp. 157-169), in Veiel, O. F.,Baumann, U. (eds) The Meaning and Measurement of Social Support, New York, Hemisphere.

Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the life experiences survey. Journal of Consulting and Clinical Psychology, 46, 932-946.

Sarason, I. G., Levine, H. M., Basham, R. B,, & Sarason, B. R. (1983). Assessing the impact of life changes: Development of the Life Experience Survey. Journal of Consulting and Clinical Psychology, 46, 932-946.

Sarason, I. G., Sarason, B. R., Potter, E. H. III, & Antoni, M. H. (1985). Life events, social support, and illness. Psychosomatic Medicine, 47(2), 156-162.

Schuldberg, D. (1988). The MMPI is less sensitive to the automated testing format that it is to repeated testing: Item and scale effects. Computers in Human Behavior, 4, 285

-298.

Schuldberg, D. (1990) Varieties of Inconsistency across test occasions: Effects of computerized test administration and repeated testing. Journal of Personality Assessment, 55(1&2), 168-182

Schuldberg, D. & Nichols, W. G. (1990). Using HyperCard to administer a figural test on the Apple Macintosh. Behavior Research Methods, Instruments, & Computers, 22(4), 417-420.

Seeman, M., Seeman, T., & Sayles, M. (1985). Social networks and health status: A longitudinal analysis. Social Psychology Quarterly, 48(3), 237-248.

Singer, M. T. & Wynne, L. C. (1966). Principles for scoring communication defects and deviances in parents of schizophrenics: Rorschach and TAT scoring Manuals. Psychiatry, 29, 260-288.

Spiegel, D., Kraemer, H. C., Bloom, J. R., & Gottheil, E. (1989). Effect of psychosocial treatment on survival of patients with metastatic breast cancer. The Lancet, Oct.14, 888-891.

Strauss, J. S.& Carpenter, W. T. (1972). The prediction of outcome in schizophrenia I. .characteristics of outcome. Archives of General Psychiatry, 27, 739-746.

Strauss, J. S. & Carpenter, W. T. (1974a). Characteristic symptoms and outcome in

schizophrenia. Archives of General Psychiatry, 30, 429-434.

Strauss, J. S. & Carpenter, W. T. (1974b). The prediction of outcome in schizophrenia II. Relationships between predictor and outcome variables. Archives of General Psychiatry, 31, 37-42.

Strauss, J. S. & Carpenter, W. T. (1977). Prediction of outcome in schizophrenia III. Five-year outcome and its predictors. Archives of General Psychiatry, 34, 159-163.

Sullivan, W. P. & Poertner, J. (1989). Social support and life stress: A mental health consumers perspective. Community Mental Health Journal, 25(1), 21-32.

Taylor, S. & Hinton, E. (1987). Social support systems: Contributors to the incidence of schizophrenia. Psychological Reports, 6(3), 875-878.

Thoits, P. A. (1982). Conceptual, methodological, and theoretical problems in studying social support as a buffer against life stress. Journal of Health and Social Behavior, 23, 145-159.

Thoits, P. A. (1984). Explaining distributions of psychological vulnerability: Lack of social support in the face of life stress. Social Forces, 63(2), 453-481.

Turner R. J. (1981). Social support as a contingency in

psychological well-being. Journal of Health and Social Behavior, 22, 357-367.

Watt, N. F. (1978). Patterns of childhood social development in adult schizophrenics. Archives of General Psychiatry, 35, 160-165.

Watt, N. F., Stolorow, R. D.,Lubensky, A. W., & McClelland, D. C. (1970). School adjustment and behavior of children hospitalized for schizophrenia as adults. American Journal of Orthopsychiatry, 40, 637-657.

Winefield, H. R. (1984). The nature and elicitation of social support: Some implications for the helping. Behavioral Psychotherapy, 12, 318-330.

Zubin, J., Magiziner, J., and Steinhauer, S. R. (1983). The metamorphosis of schizophrenia: from chronicity to vulnerability. Psychological Medicine, 13, 551-571.

Table 1. Structural Variable correlations demonstrating construct and discriminent validity between the MSSI and PSS-FA, PSS-FR, QOLREL, and YALE number and Frequency of contact with family and friends.

				YALE			
				Number of:		Frequency:	
Variable	PSS-Fa	PSS-Fr	QOLREL	Family	Friends	Family	Friends
PSS-FA		.35**	.43**	.06	.04	.29**	.04
PSS-FR			.46**	.06	.33**	.04	.26**
QOLREL				.13	.29**	.16*	.14
AGE	-.03	-.03	-.08	-.12	-.14	-.13	.25**
Number of:							
Family	.23**	.01	.21**	.05	-.06	.18*	.01
Friends	-.14	.02	.00	-.04	.20**	.16*	.11
Mean Closeness:							
Kin	.46**	.19*	.07	-.13	-.06	.00	.22
Friends	.15	.26**	.06	-.11	.00	-.04	.02
Spouse/Lover	.22	-.00	.06	-.15	-.18	-.02	-.16
Mean Frequency:							
Kin	.21*	.07	-.04	.03	-.08	.46**	-.00
Friends	.07	.15	.18**	.09	.06	.10	.56**
Spouse/Lover	.12	.09	.07	.02	-.09	.15	-.05

* p. < .05
** p. < .01
Overall n varied for different measures: PSS-Fa/FR = 176, QOLREL = 229, YALE = 210, MSSI = 240

Table 2. Functional Variable Correlations demonstrating construct and discriminent validity between the MSSI and PSS-FA, PSS-FR, QOLREL, and YALE number and Frequency of contact with family and friends.

				YALE			
				Number of:		Frequency of:	
Variable	PSS-FA	PSS-FR	QOLREL	Family	Friends	Family	Friends
Mean Total Network:							
Satisfaction	.36**	.33**	.25**	.02	.06	.04	.18*
D'satisfaction	-.25**	-.10	-.05	-.03	-.11	.00	.03
Social Support	.30**	.17*	.25**	.04	.18*	.01	.05
Mean Satisfaction:							
Kin	.52**	.28**	.19*	.10	.10	.11	.11
Friends	.17*	.30**	.19**	-.06	.03	-.06	.18*
Spouse/Lover	.23*	.20	.27**	-.04	-.09	.21	.01
Mean Dissatisfaction:							
Kin	-.28**	-.05	-.05	-.07	-.05	-.03	.02
Friends	-.16	-.05	.03	.04	-.06	.09	.12
Spouse/Lover	-.27*	-.15	-.25**	-.04	-.12	-.25*	-.12
Mean Social Support:							
Kin	.47**	.18*	.13	.10	.08	.09	.06
Friends	.18*	.31**	.17*	-.07	.05	-.07	.15*
Spouse/Lover	.33**	.19	.32**	.03	.06	.29**	.07

* $p. < .05$
** $p. < .01$
Overall n varied for different measures: PSS-Fa/FR = 176, QOLREL = 229, YALE = 210, MSSI = 240

TABLE 3. Means and standard deviations for number of kin and friends for three groups, controls, Per-mags, and Anhedonics.

	Controls	Per-mags	Anhedonics
Number of:			
Kin			
Males	4.69(4.6)	3.63(4.6)	1.53(1.5)
Females	3.44(3.4)	3.72(3.2)	3.38(3.1)
Friends			
Males	2.47(1.8)	1.72(1.4)	1.44(1.3)
Females	2.77(1.9)	2.51(1.8)	2.24(1.6)
Network			
Males	5.49(2.3)	4.30(1.9)	3.88(1.1)
Females	5.09(2.3)	5.23(1.9)	4.40(1.8)
Closeness to:			
Kin			
Males	7.97(1.4)	8.53(.99)	7.81(1.2)
Females	7.74(1.5)	8.05(1.4)	7.97(1.7)
Friends			
Males	7.21(1.4)	7.82(1.3)	7.44(1.2)
Females	7.44(1.5)	7.51(1.2)	7.54(1.6)
Frequency of Contact:			
Kin			
Males	5.06(1.3)	4.84(1.4)	5.15(0.6)
Females	5.23(1.4)	5.26(1.2)	5.25(1.3)
Friends			
Males	5.14(1.1)	5.21(1.4)	4.93(1.4)
Females	5.48(1.0)	5.29(1.2)	5.58(1.2)

Notes:
df F's for number of kin, and total network) = (2,211)
df F's for frequency of contact with friends) = (2,161)

Table 4. Summary Means and standard deviations for helpful and upsetting social support for male and female Controls, Per-mags, and Anhedonics.

Variable	Controls	Per-mags	Anhedonics
Mean Helpful Support:			
Kin			
Males	4.33(0.9)	4.42(0.7)	4.53(0.5)
Females	4.46(0.7)	4.57(0.9)	4.41(0.9)
Friends			
Males	4.40(0.5)	4.41(0.6)	4.48(0.7)
Females	4.68(0.6)	4.48(0.7)	4.55(0.8)
Total Network			
Males	4.44(0.5)	4.46(0.5)	4.60(0.5)
Females	4.65(0.5)	4.58(0.6)	4.58(0.7)
Mean Upsetting Support:			
Kin			
Males	2.13(0.8)	2.14(0.8)	2.26(0.5)
Females	2.33(0.7)	2.46(1.0)	2.38(0.8)
Friends			
Males	1.93(0.5)	2.18(0.8)	2.05(0.7)
Females	1.98(0.6)	2.14(0.6)	2.00(0.7)
Total Network			
Males	1.98(0.5)	2.19(0.7)	2.18(0.6)
Females	2.14(0.5)	2.27(0.6)	2.20(0.7)
Mean Total Social Support ([helpful] - [upsetting])			
Kin			
Males	2.14(1.2)	2.29(1.0)	2.36(0.7)
Females	2.12(1.1)	2.04(1.6)	2.06(1.3)
Friends			
Males	2.48(0.9)	2.31(1.1)	2.41(1.2)
Females	2.72(1.0)	3.34(1.1)	2.62(1.0)
Total Network			
Males	2.47(0.9)	2.34(1.0)	2.37(0.9)
Females	2.52(0.9)	2.31(1.0)	2.38(1.0)

Table 5. Means and standard deviations for helpful social support from kin and friends for four functions of Social Support.

	Controls	Per-mags	Anhedonics
Helpful Support:			
Socializing			
Kin			
Males	3.58(1.1)	3.84(1.1)	3.54(1.3)
Females	3.69(1.2)	3.98(1.2)	3.72(1.2)
Friends[1]			
Males	4.51(0.7)	4.70(0.8)	4.46(0.8)
Females	4.58(0.8)	4.59(0.9)	4.64(1.0)
Tang. Assistance			
Kin			
Males	4.85(1.2)	4.83(0.9)	5.15(0.9)
Females	4.96(0.8)	4.92(1.2)	4.73(1.3)
Friends			
Males	4.29(0.9)	4.31(0.9)	4.67(0.8)
Females	4.51(0.9)	4.05(1.2)	4.30(1.1)
Emotional Sup. (MANOVA omnibus F [2,161] = 3.687, p = .027)			
Kin			
Males	4.49(1.1)	4.76(1.0)	4.65(0.8)
Females	4.78(0.9)	4.89(1.0)	4.74(1.1)
Friends			
Males	4.58(0.7)	4.55(0.9)	4.58(0.8)
Females	5.06(0.7)	4.95(0.8)	4.97(0.8)
Advice			
Kin			
Males	4.46(1.1)	4.25(1.2)	4.77(0.8)
Females	4.43(0.9)	4.51(1.0)	4.46(1.1)
Friends			
Males	4.23(0.8)	4.08(0.9)	4.22(1.0)
Females	4.59(0.8)	4.33(1.1)	4.30(0.9)

[1] Main effect for gender F (1,162) = 14.496, p < .0005

Table 6. Means and standard deviations for upsetting social support from kin and friends
for four functions of Social Support.

	Controls	Per-mags	Anhedonics
Upsetting support:			
Socializing			
Kin			
Males	1.89(0.8)	2.13(1.0)	2.38(0.9)
Females	2.23(1.0)	2.32(1.1)	2.19(0.9)
Friends[1]			
Males	1.72(0.6)	2.14(1.0)	2.22(0.8)
Females	1.89(0.7)	2.17(0.8)	1.89(0.8)
Tang. Assistance			
Kin			
Males	2.01(1.0)	2.15(1.1)	2.44(1.0)
Females	2.29(0.8)	2.36(1.2)	2.31(1.2)
Friends			
Males	1.89(0.7)	2.07(0.8)	2.33(0.9)
Females	1.96(0.9)	2.07(0.7)	2.06(0.7)
Emotional Sup			
Kin			
Males	2.14(1.0)	2.02(1.1)	2.08(0.6)
Females	2.33(0.9)	2.54(1.1)	2.35(1.1)
Friends			
Males	2.05(0.7)	2.24(1.0)	1.92(1.0)
Females	1.89(0.7)	2.18(0.9)	1.93(0.9)
Advice			
Kin			
Males	2.531.2)	2.26(0.9)	2.23(0.6)
Females	2.53(0.7)	2.69(1.2)	2.58(1.1)
Friends			
Males	2.06(0.7)	2.22(1.0)	1.79(0.7)
Females	2.18(0.9)	2.15(0.7)	2.15(1.0)

[1] ANOVA Main effect for Group F (2,197) = 3.759 p = .025

Table 7. Summary of findings from multiple regression models describing effects of positive or negative social support, stress,and their interaction on physical or mental distress in the Control Group.

Models for Control Group	Multiple R	Pearson r	Significance, Change in F
Mental Distress			
(1) Positive support	.164	-.164	.23
Support x Stress	.280	.215	.095
Stress	.365	.261	.079
(2) Negative support	.395	.395	.003
Support x Stress	.448	.351	.032
Stress	.491	.261	.361
Physical Distress			
(1) Positive support	.092	-.092	.505
Support x Stress	.113	.057	.634
Stress	.170	.083	.362
(2) Negative support	.298	.298	.027
Support x Stress	.344	.237	.193
Stress	.573	.083	.0002

Table 8. Summary of findings from multiple regression models describing effects of positive or negative social support, stress,and their interaction on physical or mental distress in the Per-Mag Group.

Models for Per-Mag Group	Multiple R	Pearson r	Significance, Change in F
Mental Distress			
(1) Positive support	.416	-.416	.002
Support x Stress	.506	.337	.025
Stress	.518	.395	.381
(2) Negative support	.372	.372	.007
Support x Stress	.506	.471	.008
Stress	.507	.395	.778
Physical Distress			
(1) Positive support	.272	-.272	.053
Support x Stress	.272	.035	.984
Stress	.292	.088	.450
(2) Negative support	.171	.171	.231
Support x Stress	.174	.089	.818
Stress	.330	.088	.048

Table 9. Summary of findings from multiple regression models describing effects of positive or negative social support, stress,and their interaction on physical or mental distress in the Anhedonic Group.

Models for Anhedonic Group	Multiple R	Pearson r	Significance Change in F
Mental Distress			
(1) Positive support	.258	-.258	.091
Support x Stress	.416	.383	.027
Stress	.470	.432	.124
(2) Negative support	.313	.313	.038
Support x Stress	.503	.481	.006
Stress	.515	.432	.401
Physical Distress			
(1) Positive support	.140	.140	.361
Support x Stress	.372	.349	.021
Stress	.378	.306	.656
(2) Negative support	.137	.137	.369
Support x Stress	.338	.329	.040
Stress	.369	.306	.316

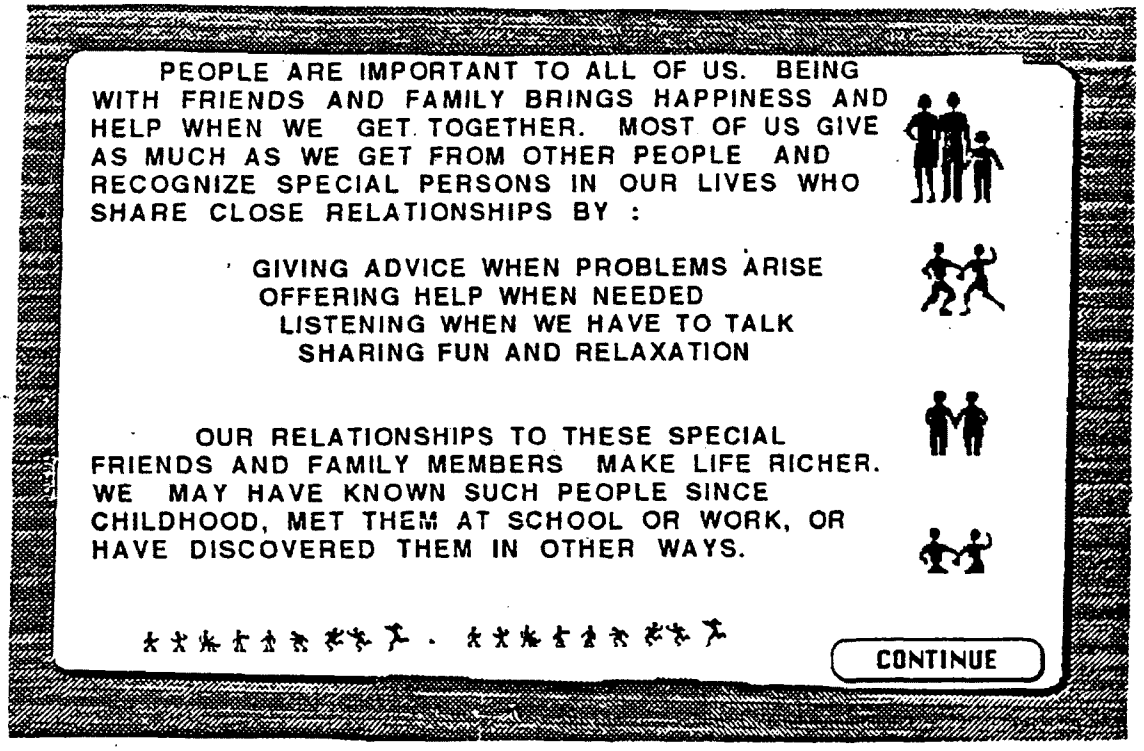


Figure 1. The name generator used in the MSSI. This sort of response generator tends to access the personal social support network, that smaller group of persons closest to the subject.

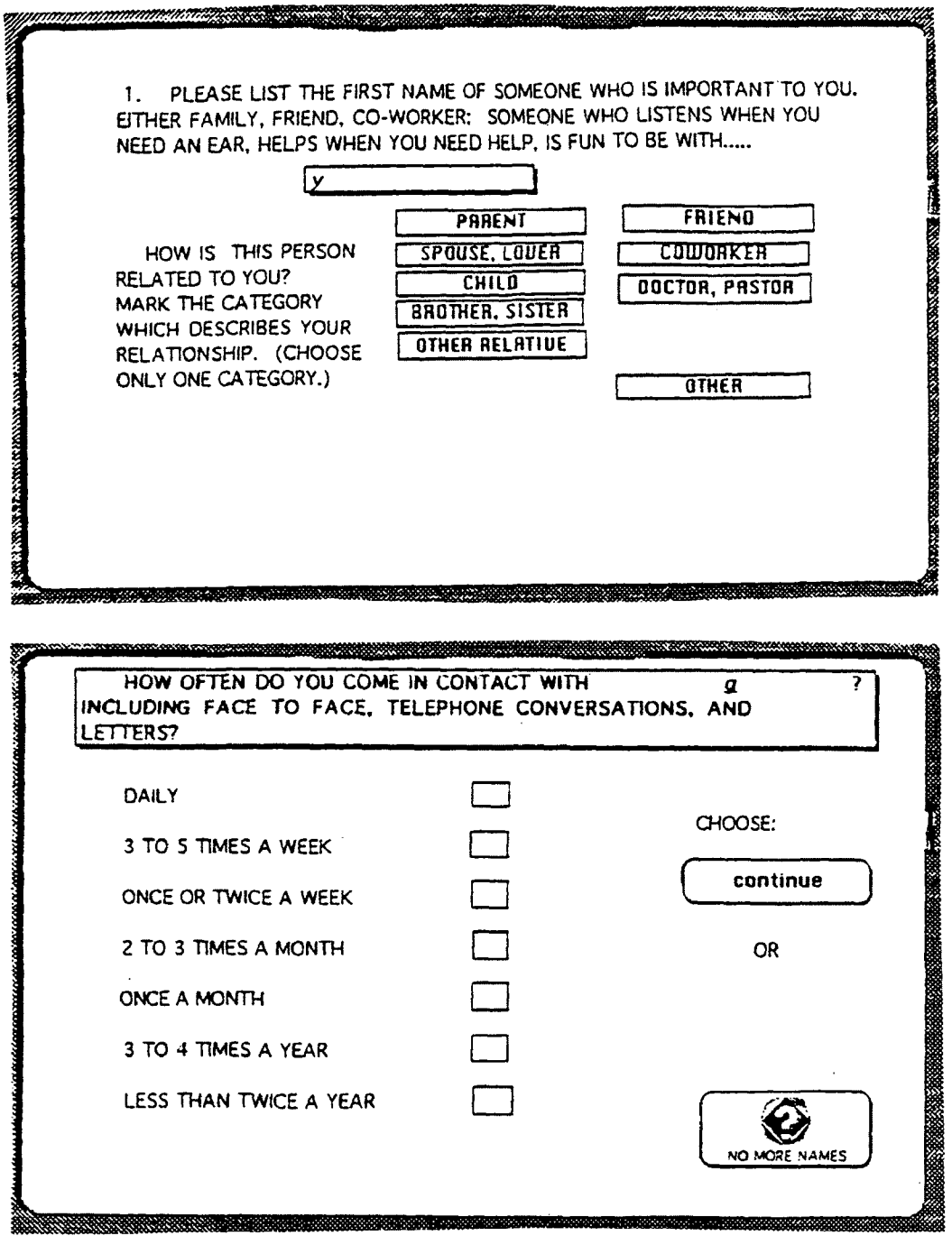
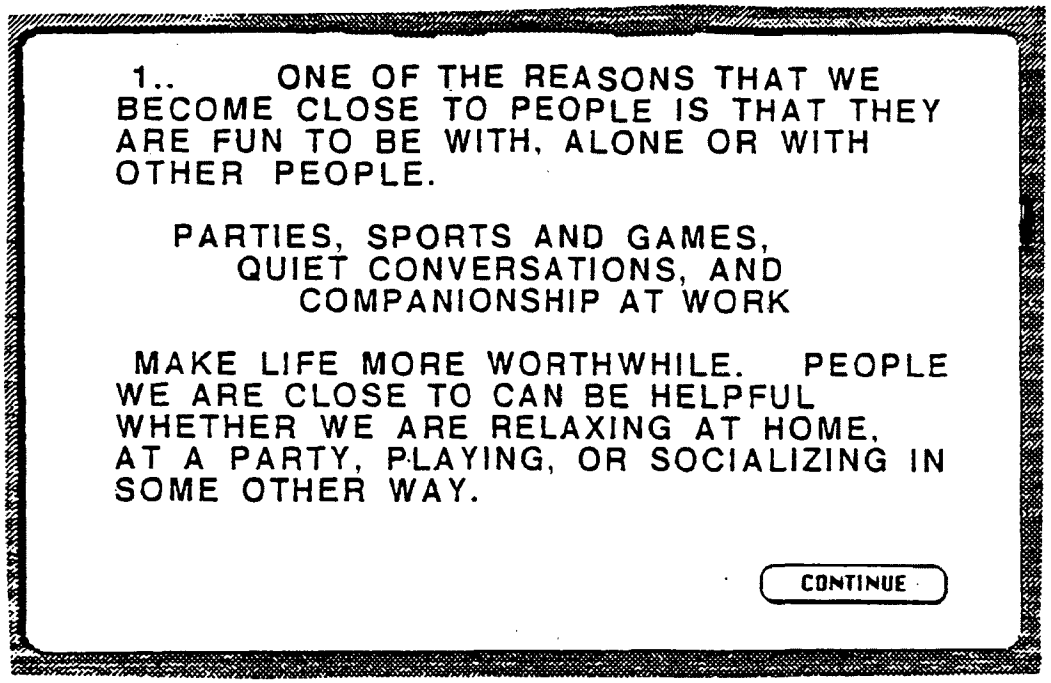


Figure 2. Screens collecting structural information about the pivotal third person named. At this point (lower screen), the subject may choose to name more persons (up to ten) or to stop listing persons by name, cycling into questions about functional social support.

(A)



(B)

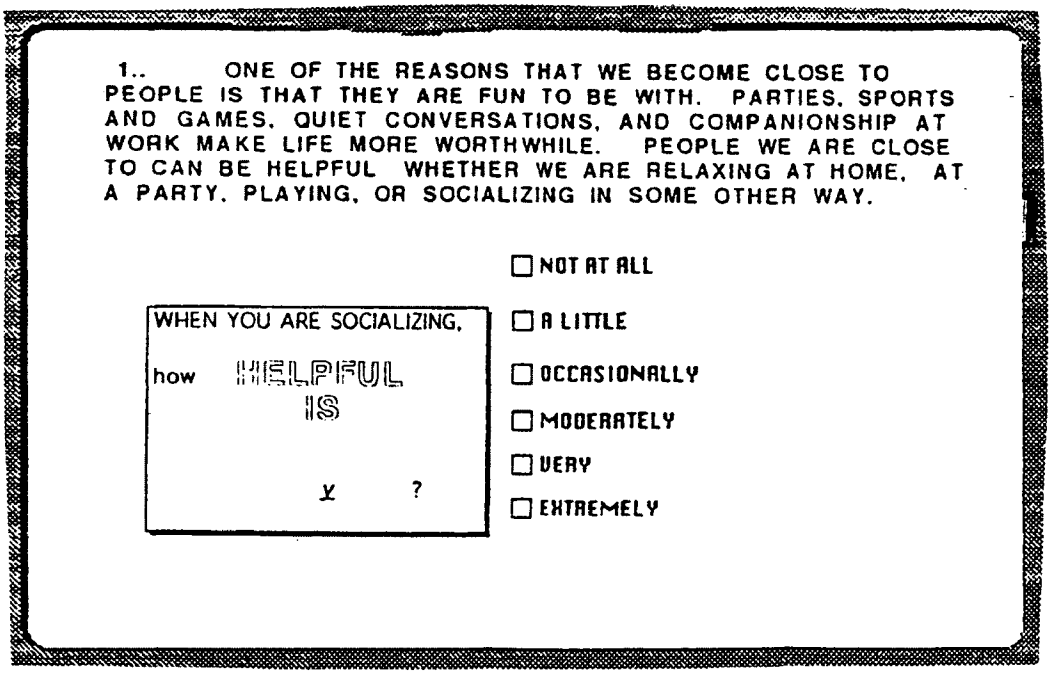
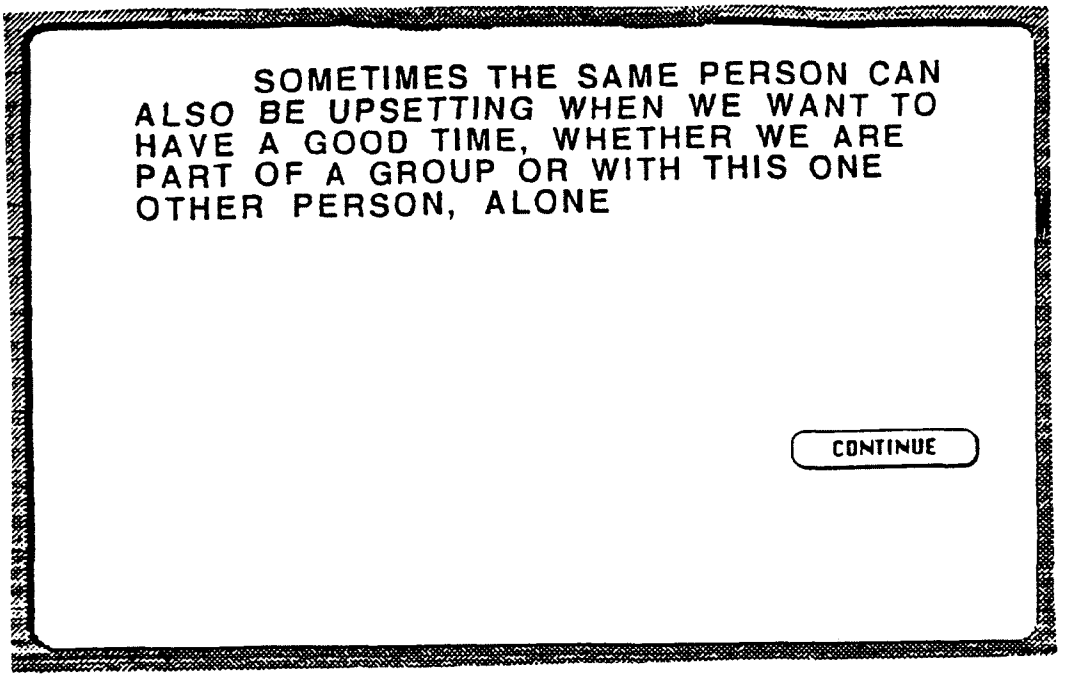


Figure 3. A screen (A) introducing "socializing" as a function of social support is followed by screens (B) containing the question about helpful social support. Similar screens collect data about helpful social support functions of tangible assistance, cognitive guidance, and emotional support.

(A)



(B)

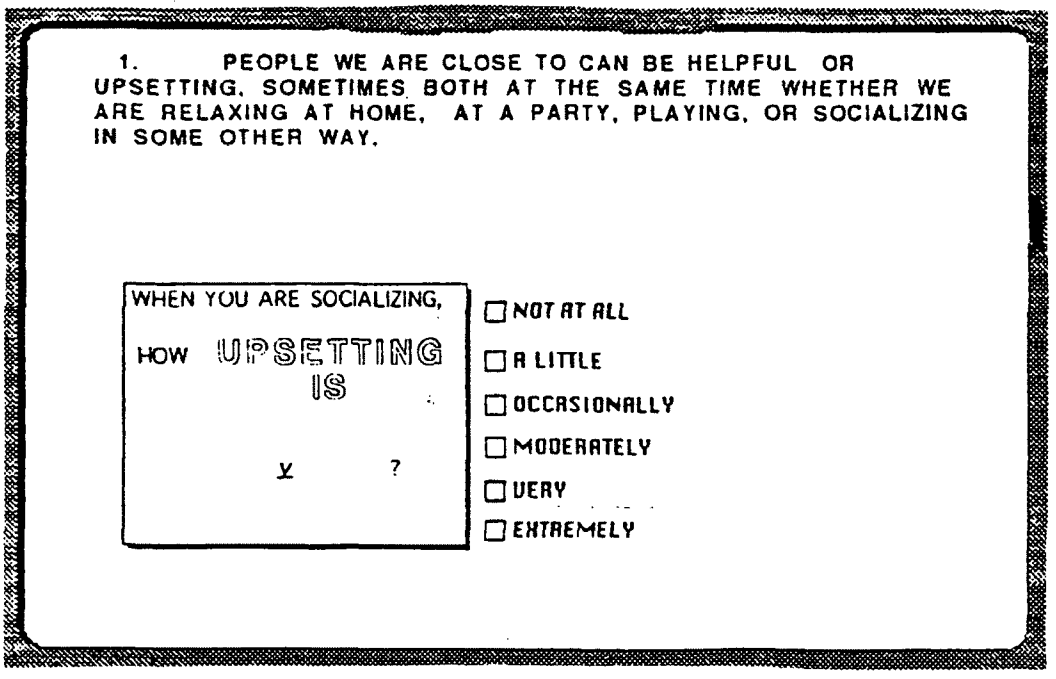


Figure 4. Upsetting social support (socializing) is introduced by a screen (A), followed by the question rating the degree of dissatisfaction with "socializing" as that applies to the person named (B). Similar screens collect data about upsetting social support functions of tangible assistance, emotional support, and cognitive guidance.

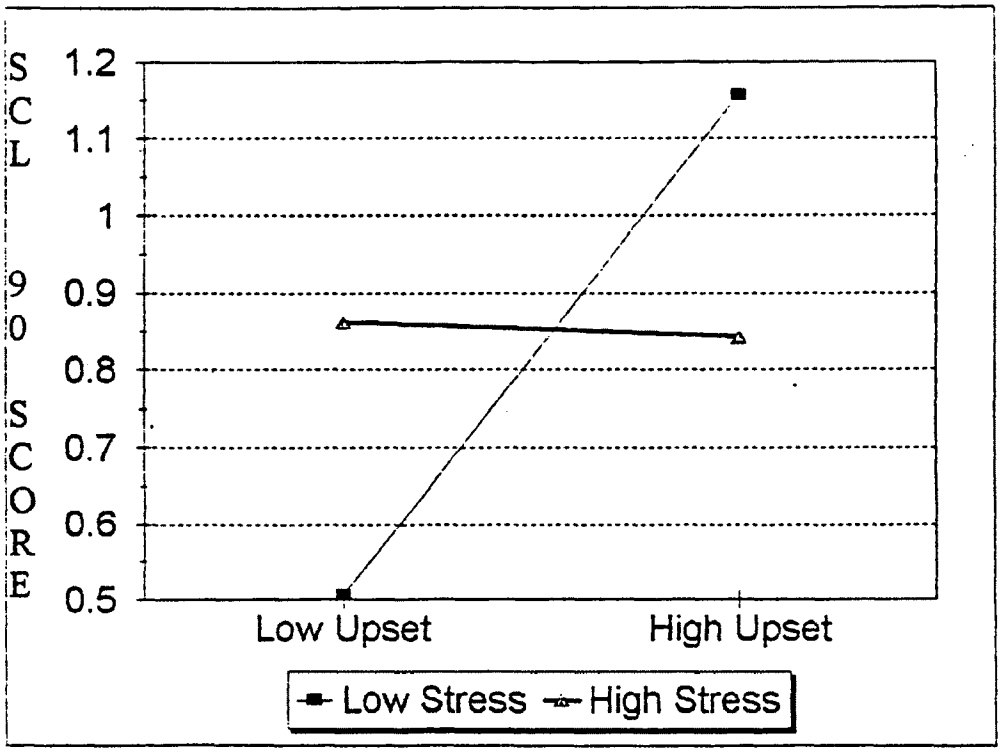


Figure 5. A line graph showing the interaction of stress (LES) and upsetting social support as they appear to influence level of mental distress as measured by SCL-90-R global severity index score for Anhedonics.