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Assessing Social Support: The Social Support Questionnaire

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Abstract continued

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Abstract

A measure of social support, the Social Support Questionnaire (SSQ), is described and four empirical studies employing it are described. The SSQ yields scores for (a) number of social supports, and (b) satisfaction with social support that is available. Three of the studies deal with the SSQ's psychometric properties, its correlations with measures of personality and adjustment, and the relationships of the SSQ to positive and negative life changes. The fourth study was an experimental investigation of the relationship between social support and persistence in working on a complex, frustrating task. The research reported suggests that the SSQ is a reliable instrument and that social support is (1) more strongly related to positive than negative life changes, (2) more related in a negative direction to psychological discomfort among women than men, and (3) an asset in enabling a person to persist at a task under frustrating conditions. Research and clinical implications are discussed.

Observations in a variety of settings have highlighted the positive roles played by social attachments in psychological adjustment and health. Psychotherapists try to provide their clients with the acceptance needed to pursue self-examination. Soldiers develop strong mutually reinforcing ties with each other that contribute to their success and survival. Physicians daily note the salutary effects of their attention and expressed concern on their patients' well-being and recovery from illness. These types of observations have led to the conclusions that social support (1) contributes to positive adjustment and personal development, and (2) provides a buffer against the effects of stress.

Bowlby (1969, 1973, 1980) has developed one of the most influential and provocative theories of social support. He refers to available, trusted, and responsive others as attachment figures, and hypothesizes that attachment behaviors are accompanied by some of the strongest emotions humans experience. Attachment figures provide social support in the areas of expressive behavior (affect, love) and instrumental aid (help, money). Bowlby sees attachment figures as providing the individual with a secure base for personal development, including the ability to explore the environment. When they are available, he believes that children develop the ability to accept help from others, become self-reliant, and function as dependable supports for others. When they are not available, the likelihood of psychopathological tendencies increases. According to Bowlby, the availability of social support bolsters the capacity to withstand and overcome frustrations and problem solving challenges.

A variety of types of evidence seem to support several aspects of Bowlby's theory. For example, Miller and Lefcourt have recently obtained results consistent with this interpretation (Miller & Lefcourt, Note 1; Miller & Lefcourt, Note 2), as did Hirsch, 1980. Bronfenbrenner (1961) found

that the rated leadership and responsibility of 16-year-old boys and girls was related to family interaction patterns. Those adolescents showing the greatest leadership and responsibility described their parents as being more affectionate and supportive than did adolescents low on these characteristics. Murphy and Moriarty (1976) found that the availability of family supports increased children's resilience in the face of stress. Sandler (1980) found significant relationships between stress and social support, on the one hand, and children's maladjustments, on the other. In a 30-year longitudinal study of Harvard male undergraduates, Vaillant (1974, 1977) found that a supportive early family environment was correlated with positive adult adjustment and lack of psychiatric disorder.

In addition to evidence that the availability of childhood social support is related to personality development and adult behavior patterns, there is also evidence of the detrimental effects of lack of support in adults. De Araujo and associates (1972, 1973) reported that asthmatic patients with good social supports required lower levels of medication to produce clinical improvement than did asthmatics with poor social supports. There is much evidence that medical and surgical patients benefit from attention and expressions of friendliness by physicians and nurses (Auerbach & Kilmann, 1977). Nuckolls, Cassel, and Kaplan (1972) studied lower-middle-class pregnant women living in an overseas military community. These authors studied two factors of special interest: recent stressful life events and psychosocial assets, a major component of which was defined as the availability of social supports. Neither life changes nor psychosocial assets alone correlated significantly with complications of pregnancy. However, women high in life changes and low in psychosocial assets had many more birth complications than any other group. Sosa et al. (1980) found that the presence of a supportive person had a favorable effect on length of labor and on mother-infant interaction after delivery.

Eaton (1978) has reported that the occurrence of stressful life events is associated with more psychiatric disorder among those living alone or unmarried than those living with others or married. Andrews, Tennant, Hewson, and Schonell (1978) found that the combination of recent stressful life events, low level of social support, and adverse childhood experiences successfully predicted the occurrence of maladjustment in adults. There is evidence that depressives tend to report the lack of availability of supportive others (Winefield, 1979). Henderson (1980) has concluded that a deficiency in social bonds may, independent of other factors, be a cause of some forms of behavioral dysfunction.

Reasonable as an emphasis on the importance of social support appears to be, the task of empirically demonstrating the effects of social support has barely begun. One of the barriers to objective research has been the lack of a reliable, general, and convenient index of social support. Miller, Ingham, and Davidson (1976a) and Miller and Ingham (1976b) simply determined their subjects' confidants and acquaintances. Medalie and Goldbourt (1976) focused their attention on the availability of helpful others in coping with certain work, family, and financial problems. Brim (1974) devised a 13-item scale intended to measure certain aspects of social support, particularly value similarity. Luborsky et al. (1973) developed a self-administered Social Assets Scale intended to weigh both interpersonal assets and liabilities. Renne's (1974) Social Health Index was directed particularly toward the individual's level of functioning in the community and yields measures of employability, marital satisfaction, community involvement, and sociability. A measure devised by Barrera, Sandler, & Ramsay (in press) assessed the frequency with which people are recipients of supportive actions. A comprehensive, but complex, vehicle for measuring social support is one developed by Henderson (1980). His 50-question structured interview assesses (1) perceived

availability and adequacy of people who can be counted on for assistance in problem solving and for emotional support, and (2) social integration, its availability, and adequacy.

The diversity of measures of social support is matched by the diversity of conceptualizations concerning its ingredients. Weiss (1974) has discussed six dimensions of social support: intimacy, social integration, nurturance, worth, alliance, and guidance. Convenient operationalization of these dimensions has not yet occurred. Kelly, Muñoz, & Snowden (1979) have delineated three types of social support: personal, intraorganizational, and extra-organizational. According to Caplan's (1974) theory, social support implies an enduring pattern of continuous or intermittent ties that play a significant part in maintaining the psychological and physical integrity of the individual over time. For Caplan, a social network provides a person with "psychosocial supplies" for the maintenance of mental and emotional health.

Regardless of how conceptualized, social support would seem to have two basic elements, (1) available others to whom one can turn in times of need, and (2) a degree of satisfaction with the available support. In this article, we describe a new instrument intended to quantify these dimensions. We report the results of a series of studies that provide information about their relationships and correlates with other measures, including desirable and undesirable recent life events, depression, personality characteristics (such as depression, anxiety, and hostility), and sex. We also present reliability and other psychometric data. In addition, results of an experimental study are presented. The study dealt with the relationship between social support and locus of control, on the one hand, and persistence and cognitive interference under frustrating conditions, on the other.

Study 1

The instrument presented in this article is the product of a series of studies, involving several hundred subjects, that were concerned with the assessment of social support. These pilot investigations dealt with such issues as item development, reliability, and psychometric characteristics. Items were written to sample the great variety of situations in which social support might be important to people. These items were initially evaluated by administering them to college students who responded to and commented on them.

The Social Support Questionnaire which grew out of this work consists of 27 items, each one of which asks a question to which a two-part answer is requested. The items ask the subject to (1) list the people to whom they can turn and on whom they can rely in given sets of circumstances, and (2) indicate how satisfied they are with these social supports.

Table 1 lists 6 items from the Social Support Questionnaire (SSQ). These are the instructions that introduce the SSQ:

The following questions ask about people in your environment who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. You may either give the person's initials or their relationship to you (see example). Do not list more than one person next to each of the letters beneath the question.

For the second part, circle how satisfied you are with the overall support you have.

If you have no support for a question, check the word "No one," but still rate your level of satisfaction. Do not list more than nine

Table 1

Sample Social Support Questionnaire Items

1. Whom can you really count on to listen to you when you need to talk?
2. Whom could you really count on to help you out in a crisis situation, even though they would have to go out of their way to do so?
3. Whom can you really count on to be dependable when you need help?
4. With whom can you totally be yourself?
5. Whom do you feel really appreciates you as a person?
6. Whom can you count on to console you when you are very upset?

persons per question.

Please answer all questions as best you can. All your responses will be kept confidential.

The Number (N) score for each item of the SSQ is the number of support persons listed. The social support available to deal with a given problem is rated on a scale ranging from "very satisfied" to "very dissatisfied." This yields a Satisfaction (S) score for each item that ranges between 1 and 6.

Method

Subjects

A sample of 602 University of Washington undergraduates was administered the Social Support Questionnaire.

Procedure

Mean Number (N) and Satisfaction (S) scores were computed for each of the SSQ's 27 items and for the entire scale. Inter-item correlations and reliability indices were also computed.

Results

The Number scores for the 27 items ranged from 2.92 to 5.46 with a mean of 4.25. The mean number of persons listed as supports for the entire SSQ was 114.75. The inter-item correlations ranged from .35 to .71 with a mean inter-item correlation of .54. The correlations of items with the total score (minus the item being correlated) ranged from .51 to .79. The alpha coefficient of internal reliability was .97.

The S scores for the 27 items ranged from 5.12 to 5.57 with a mean of 5.38. The mean S score for the entire SSQ was 145.26. The inter-item

correlations ranged from .21 to .74 with a mean inter-item correlation of .37. The correlations of items with the total score (minus the item being correlated) ranged from .48 to .72. The alpha coefficient for S scores was .94.

The correlation between the SSQ N and S scores was .34. It was possible to readminister the SSQ to 105 subjects. The test-retest correlations for N and S were .90 and .83, respectively (4-week interval).

Discussion

The SSQ seems to have a number of desirable psychometric properties. It was found to have (1) stability over a four-week period of time, and (2) high internal consistency among items.

Study II

Having shown that the SSQ had acceptable psychometric properties, the next step was to inquire into relationships between the SSQ and personality measures to which it might be related. It was felt that the relationships uncovered might be helpful in charting the construct of social support.

Method

Subjects

The subjects were 100 male and 127 female Introductory Psychology students at the University of Washington.

Procedure

In addition to the SSQ, the subjects in a single session were administered the Multiple Affect Adjective Checklist (MAACL) (Zuckerman & Lubin, 1965) and the Lack of Protection (LP) Scale (Sarason, 1958). Four weeks after this

assessment, it was possible to administer additional personality scales to a small group of subjects (28 males and 38 females). These measures were the Extraversion and Neuroticism scales of the Eysenck Personality Inventory (Eysenck & Eysenck, 1968) and the Marlowe-Crowne measure of social desirability (Crowne & Marlowe, 1964; Marlowe & Crowne, 1961). In addition, a specially constructed Ladder Rating questionnaire was administered. This instrument, based on Cantrill's (Cantrill & Roll, 1971) public opinion survey research, asked subjects to respond to a series of questions using a 10-step "Ladder of Life." The steps ranged from "worst possible" to "best possible" life for the subject. Several items dealing with emotions and attitudes were also administered.

Results

The correlations between the number of social supports (SSQN) and satisfaction with social supports (SSQS) was +.31 for males and +.21 for females ($p < .001$ in both cases). Table 2 presents the correlations between the SSQ, the MAACL, LP, the Eysenck Personality Inventory (EPI) Extraversion and Neuroticism scales, and the Marlowe-Crowne scale.

There were significant negative correlations for females between the SSQN and SSQS measures of social support and measures of emotional discomfort such as the MAACL Anxiety, Depression, and Hostility scales. A similar result obtained for the Lack of Protection scale whose items deal with recollections of separation anxiety in childhood. The EPI Extraversion measure for females was positively correlated with SSQN only, while the Neuroticism measure was negatively correlated only with SSQS in females. As a group, women with low social support appear to be significantly less happy and more introverted than those women with high social support. For

Table 2

Correlations of Social Support Questionnaire (SSQ) With
 Three Multiple Adjective Affect Checklist (MAACL) Scales and
 Other Personality Measures: The Lack of Protection Scale (LP),
 Eysenck Personality Inventory (EPI) Scales, and the Marlowe-Crowne Scale

Males							
	MAACL Anxiety	MAACL Depression	MAACL Hostility	Lack of Protection	EPI Extra- version	EPI Neuro- ticism	Marlowe- Crowne
SSQN	-.14	-.24	-.23*	-.02	.13	-.25*	-.09
SSQS	-.17	-.22	-.17	-.08	-.03	-.29**	.24*
Females							
SSQN	-.30***	-.31***	-.26***	-.32***	.35***	-.15	.03
SSQS	-.39***	-.43***	-.36***	-.22**	.09	-.37***	.16

* $p < .05$ ** $p < .01$ *** $p < .001$

males, the EPI Neuroticism scale was correlated moderately with both SSQS and SSQN.

The Marlowe-Crowne scale of social desirability correlated only with SSQS for men, and only at the $p < .05$ level.

There were several significant relationships between both the Number and Satisfaction SSQ scores and where subjects placed themselves on the Ladder of Life. For an item inquiring into where on the Ladder of Life subjects feel they are at present, the SSQN correlation was $+ .34$ ($p < .01$), while the SSQS correlation = $+ .57$ ($p < .001$). This suggests that people high in social support are more optimistic about their current life situation. For the item dealing with "where you think you will stand about five years from now," the SSQN correlation was $+ .21$ ($p < .05$) and the SSQS correlation was $+ .41$ ($p < .001$).

Two additional true-false items relating to the optimism-pessimism dimension were also administered. Both items dealt with how the subject felt during the past month. Seventy-three percent of high SSQS subjects (upper half of distribution) said that they had felt "on top of the world," while only 44% of low SSQS (lower quartile) responded in this way. The difference between these percentages was significant at the .001 level ($t = 3.51$). The other item asked subjects if during the past month they had felt "things were going your way." Eighty-three percent of high SSQN subjects said they had felt things were going their way, while 68% of low SSQN responded similarly ($t = 2.24$, $p < .005$). The difference between the two percentages was significant at the .02 level. The subjects also were asked if they had, during the past month, been "upset because someone criticized you." Fifty-three percent of low SSQS subjects described themselves as having been upset over criticism; the comparable high SSQS figure was 35% ($t = 2.02$, $p < .05$). These results suggest that people with high SSQ scores either have more positive experiences or take a more optimistic view of their experiences, or both.

A short questionnaire dealing with wishes and hopes for the future was also administered. Subjects were asked: "All of us want certain things out of life. In terms of what really matters in your own life, think about your wishes and hopes for the future. Then indicate the five hopes from the following list which are closest to your own." The list included a diversity of areas, but was particularly oriented to material and interpersonal hopes and wishes. Low SSQN subjects more often than high SSQN scorers hoped for: "a better or decent standard of living" (high SSQN, 16%; low SSQN, 32%, $p < .02$); "leisure time; recreation; travel" (high SSQN, 10%; low SSQN, 30%, $p < .001$), and "wealth" (high SSQS, 15%; low SSQS, 30%, $p < .02$). For all comparisons on attitudinal items (and Ladder of Life scales, as well), the results for SSQN and SSQS were in the same direction and suggested that low SSQ scorers were more concerned about achieving material success than were high SSQ scorers.

The results were quite different for items dealing with interpersonal relationships. High SSQS scorers were significantly more desirous than low SSQS scorers of achieving a happy family life ($p < .03$); educational success and happiness for their children ($p < .02$); acceptance by others ($p < .02$); and a happy old age ($p < .01$). It would appear that people high in social support are more involved in present and future social relationships while those low in social support are more involved in present and future material concerns.

Discussion

Correlations of the SSQ with a diversity of measures can help sketch the personalities of subjects differing in social support. Both SSQN and SSQS correlated significantly and negatively with anxiety, depression, and hostility as measured by the MAACL. In every case, these negative correlations were greater for females than for males, as were the correlations between

SSQ and the Lack of Protection scale. Whether, and in what way, these concerns and the insecurities related to childhood separation and rejection are causes of failure to attain desired social relationships in adult life is a question that merits further study. In any case, the MAACL results suggest that, particularly for women, social support is related inversely to states of psychological discomfort.

The EPI correlations indicated that the number of social supports (SSQN), but not satisfaction with social support (SSQS), is positively correlated with extraversion. This is what one would expect. The extravert has more social involvements than the introvert, and SSQN would appear to reflect the number of these involvements. The negative correlations between the EPI Neuroticism scale and both SSQN and SSQS are consistent with the MAACL results. They suggest that people who have fewer social supports and are dissatisfied with that state of affairs are more likely than others to be anxious and experience periods of emotional arousal.

The Ladder of Life and attitude data suggest that not only are people low in social support more emotionally labile, but that they tend to be more pessimistic about the present and future than are people high in social support. The pessimism and emotional tone of the lives of people low in social support may inhibit their social involvements and lead to preoccupations with material concerns, such as the needs for money and success. These material concerns may lead to preoccupations with security which inhibit the spontaneity necessary for an active social life.

Study III

This study inquired into the relationships between social support, the preceding year's positive and negative life events, internal-external locus of control, and self-esteem.

Method

Subjects

The subjects were 295 Introductory Psychology students.

Procedure

The SSQ and a special version of the Life Experiences Survey (LES) (Sarason, Johnson, & Siegel, 1978) were administered along with two additional instruments; Rosenberg's (1965) Self-Esteem measure and Nowicki and Duke's (1974) 40-item Locus of Control scale.

The modified LES lists a number of life events, such as "new job," "death of spouse," and "major change in financial status." If the event occurred in the prior year, respondents then rate the effect of the event, the degree to which the event was expected, and their sense of control over the event's occurring. The Rosenberg Self-Esteem Scale consists of 10 true-false items such as, "I wish I could have more respect for myself." The Locus of Control measure reflects the tendency to see oneself as having a strong influence over events (Internal orientation), in contrast to seeing oneself as being strongly influenced by events that are out of one's control (External orientation).

Results

In order to compare subjects in various segments of the SSQ score distribution, the subjects were divided into quintiles. Statistical comparisons were made among the quintiles.

Using analysis of variance, comparisons among the five SSQN groups showed a significant effect for the number of positive life events in the past year reported on the LES ($F(4, 290) = 3.24, p < .01$), but not for either the LES negative events score or the LES total events score. The means for number of

positive events for the five SSQN groups are presented in Table 3.

The special version of the LES used in this study asked subjects to rate how much each event affected their lives. These ratings extended from 1 (no effect) to 4 (great effect). Groups differing in SSQN showed significant differences ($F(4, 290) = 4.81, p < .001$) when these ratings were examined over the number of positive events listed by the subject (checked by the subject as "Good" events during the past year). Ratings were summed for the events checked.

Another special LES score was subjects' ratings of how much they had expected the events checked to occur ("How much did you expect the event would happen?"). This rating extended from 1 (not at all) to 4 (completely). Table 3 shows the means for this score for the SSQN quintiles ($F(4, 290) = 4.38, p < .002$). The third special LES rating concerned "To what extent did you have control over the event's occurrence?" which was rated from 1 (not at all) to 4 (completely). The means for this rating of positive events for the SSQN quintiles are presented in Table 3. An analysis of variance for these five groups was statistically significant ($F(4, 290) = 4.01, p < .004$).

It was possible to administer the locus of control and self-esteem measures to 148 of the subjects who had taken the SSQ. Comparisons of the five SSQN groups (defined by the distribution of scores for the original 295 subjects) on the Locus of Control and Rosenberg Self-Esteem scales yielded statistically significant results. The Locus of Control results ($F(4, 144) = 2.45, p < .05$) were due to a significantly higher externality mean for the lowest SSQN quintile than for the other SSQN quintiles. The Rosenberg result ($F(4, 144) = 2.96, p < .02$) was due to a higher self-esteem mean for the highest SSQN quintile than for the other quintiles.

Table 3

Mean Scores on the Life Experiences Survey (LES)
as a Function of Quintiles of SSQN Distribution

SSQN Quintiles	N	LES - Number of Positive Events	Effect of Positive Events	Expectancy of Positive Events	Control Over Positive Events
1 Lowest	54	3.90	11.66	11.36	12.42
2	55	3.96	12.40	12.18	13.42
3	64	4.07	14.23	14.47	15.64
4	58	4.88	15.57	14.79	16.12
5 Highest	64	5.27	17.59	16.94	18.16

Analyses for SSQS quintiles failed to show significant differences for the Number of positive events checked on the LES. Unlike the SSQN comparisons, the SSQS quintiles differed significantly in the number of negative events ($F(4, 290) = 4.18, p < .003$). The highest SSQS quintile checked a mean of 2.72 negative events, while the low SSQS quintile's mean was 4.56 negative events. The SSQS quintiles did show significant differences on the rated effects of positive events ($F(4, 290) = 2.42, p < .05$). These differences were similar to, but weaker than the comparable SSQN quintile comparisons. Significant in the SSQS, but not the SSQN comparisons, were quintile differences in the degree to which reported negative events had been expected ($F(4, 290) = 2.92, p < .02$). The lowest SSQS quintiles had a mean expectancy rating for negative events of 10.93; the comparable mean for the highest SSQS quintile was 7.62. The SSQS quintiles also differed in rated control over negative life changes ($F(4, 290) = 4.54, p < .002$), with lower quintiles indicating a feeling of more control over negative than did higher scoring quintiles (lowest SSQS quintile mean: 11.88; highest SSQS quintile mean: 7.56). The SSQS results for the Rosenberg Self-Esteem measure paralleled those for SSQS ($F(4, 290) = 4.98, p < .001$), with higher quintile groups reporting more self-esteem than lower ones.

Discussion

Research on life changes has focused increasingly on negative rather than other types of occurrences in one's life. This is because of growing evidence that negative events are more associated with human dysfunctions than are positive events (Sarason, Sarason, & Johnson, in press). The results of this study suggest that positive events may be related to the number of social supports, a likely moderator of stressful life events. People high in the number of social supports report not only the occurrence

of more positive events than do people who are low in number of social supports, they also report that the positive events are more expectable and exert a greater impact on their lives. In addition, they believe they have more control over the positive events. Our findings in this regard are consistent with evidence reported by Lefcourt et al. (in press) and Sandler and Lakey (Note 3). People high in number of social supports may experience more rewarding interpersonal relationships than do those who are low in social support.

While the significant SSQN differences on the LES occurred only for positive events, there were a number of significant SSQS differences on negative events. This suggests the two SSQ dimensions enter into sufficiently different relationships to justify further comparisons between them.

Our data do not enable us to make causal statements about the relationship between social support and positive life events. That is, we cannot say either that because people have a good supply of social support they experience positive life events or that because people experience positive life events they acquire a sense of having social support. All we can say at this time is that social support and positive life events are linked. Studies of the social competencies of people differing in social support could help us better understand the degree to which social skills are a key factor in acquiring social support (Heller, 1979). Subjects low in social support tend to have an external locus of control and to be relatively low in self-esteem. This might suggest that these people are deficient in some of the assertiveness skills useful in relationships with other people.

Study IV

The idea that social support functions as a buffer against the stresses and strains of life has been expressed by many writers. Much clinical evidence and anecdotal data seem to back up (Sarason, Sarason, & Johnson, in

press) a theory of attachment which suggests that in development, positive relationships with significant others foster self-reliance and the ability to persevere in the face of obstacles and distractions. Appealing as this concept is, there is a need for experimental research on the role played by social support when people must perform in demanding situations. This study was designed to help fill this need.

The study related two individual difference variables to persistence on a task made frustrating by virtue of the fact that some of the problems assigned to subjects were insoluble. The task involved solving mazes so complex that subjects could not be sure that the insoluble ones were, in fact, insoluble. Persistence in working on the maze task was used as a measure of ability to cope with frustration. In addition to persistence, cognitive interference was examined as a dependent variable.

The two individual difference variables were the Number score on the Social Support Questionnaire (SSQN) and score on the Nowicki-Duke measure of Internal-External Locus of Control (I-E). It was believed that externally-oriented subjects low in social support would be least able to withstand the frustration, uncertainty, and threat to self-esteem posed by the maze task.

Method

Subjects

The subjects were 40 undergraduates taking an Introductory Psychology course at the University of Washington. Serving in the experiment helped the students fulfill a course research participation requirement. Prior to and independent of the maze experiment, subjects had taken the Social Support Questionnaire and Locus of Control questionnaires. On the basis of scores on these instruments, they were divided into four groups that comprised a

2 X 2 factorial design. The four groups consisted of subjects who were:

- a) high scorers on SSQN who were Internals;
- b) high scorers on SSQN who were Externals;
- c) low scorers on SSQN who were Internals;
- d) low scorers on SSQN who were Externals.

High and low scores on these instruments were defined by scores above and below their medians determined for the entire class (N = 410) which had taken the questionnaires. The SSQN median was 99.90; the Locus of Control median was 48.75.

The 10 subjects in each of the four experimental groups were equally divided between males and females. Because there were no sex differences on the dependent measures, the results will be presented for males and females combined.

Procedure

The subjects, who were tested individually, were assigned the task of solving four maze problems. They were given 50 copies of each maze and were instructed to attempt to solve each problem, taking a new copy after deciding that a solution attempt had been unsuccessful. After going on to a new copy, subjects were instructed not to return to an earlier one. Two of the mazes were soluble and two were insoluble.

The subjects were told that there was no time limit and that they could terminate work on the mazes by indicating their desire to do so to the experimenter. Actually, the experimenter allowed the subject no more than 30 minutes to work on the mazes.

After the maze task had been terminated, each subject completed the Cognitive Interference Questionnaire (CIQ) (Sarason, 1978) which provides a measure of self-preoccupying thoughts that interfere with task performance.

("I thought about how poorly I was doing" is an example of the CIQ items.)

Results

Only data for the first insoluble problem are presented because several subjects' persistence on this problem was of such duration that they could not complete later portions of the task. Table 4 presents the lengths of time subjects in the four experimental groups devoted to the first insoluble problem. The only significant result of an analysis of variance that was performed was for the Social Support X Locus of Control interaction ($F(1, 36) = 4.93, p < .03$). Table 5 presents the CIQ scores for the four groups. Externals reported more cognitive interference than did Internals ($F(1, 36) = 6.60, p < .01$), while the low SSQN group reported more cognitive interference than did high SSQN scorers ($F(1, 36) = 4.87, p < .05$). The interaction was also statistically significant ($F(1, 36) = 5.95, p < .02$). As Table 5 illustrates, the main effect differences were primarily attributable to the interaction effects, the group composed of Externals who were low in social support showing more cognitive interference than did the other three groups.

Discussion

This study suggests that social support in interaction with locus of control is significantly related to both persistence and cognitive interference on a complex, challenging, and frustrating task. Persistence plays a positive role in adaptation to life. For example, in an academic environment, long periods of time may pass without students getting any feedback about their work. Students' confidence in their ability ultimately to achieve their goals and their personal security during periods of uncertainty help them persist.

Table 4

Mean Time in Minutes Spent on First Insoluble Problem

Locus of Control	Social Support Number Score	
	High SSQN	Low SSQN
External	12.58	9.77
Internal	12.26	13.23

Table 5

Cognitive Interference Questionnaire (CIQ) Scores

Locus of Control	Social Support	
	High SSQ	Low SSQ
External	21.20	28.60
Internal	21.00	20.90

The present findings are consistent with Bowlby's (1969, 1973, 1980) theory of self-reliance. According to Bowlby, social support provides a sound basis for curiosity, exploration, and persistence in working toward the attainment of goals. While his theory is particularly directed toward child development, it seems applicable to social attachments that characterize any period of life. The task in the experiment reported here was a challenging, somewhat stressful one, for the subjects. A high level of social support combined with an internal locus of control may function as a buffer against the deleterious effects of stress.

General Discussion

We have described a new instrument designed to measure (1) the number of social supports in a person's life, and (2) the degree to which they are personally satisfying. The reliability of the instrument is quite high and its correlations with other measures contribute steps to understanding the relationship of social support to personality indices of well-being and self-esteem. While the SSQ does not seem to be highly biased by the social desirability response set, it is related to the experience of anxiety, depression, and hostility. People high in social support seem to experience more positive (desirable) events in their lives, have higher self-esteem, and take a more optimistic view of life than do people low in social support. In general, low social support seems related to an external locus of control, relative dissatisfaction with life, and difficulty in persisting on a task that does not yield a ready solution.

Although the studies reported here are only beginning steps in mapping the social support construct, they do suggest that the SSQ may be a useful instrument in quantifying the number of and the satisfaction with social supports. The availability of baseline measures of these variables can be used to

assess changes that take place in a person's life. For example, are there changes in perceived social support as a function of experiences like psychotherapy and illness? Social support measures could also play roles in experimentation in the areas of personality and social psychology. For example, do people differing in social support differ in helping behavior and their response to attitude change manipulations? How can supportive relationships within complex organizations (for example, the military, schools, clinics) be enhanced so as to maximize performance and minimize unwanted stress?

One of the most important questions about social support concerns the relationship between social support and social skills. Do people have many or few social supports because of their levels of social skills? To what degree can social skills be regarded as outcomes of socially supportive experiences earlier in one's life? Social support and social skills may be related in complex ways. Clinical, developmental, and experimental studies are needed to provide information about these relationships.

Of equal importance, perhaps, is the question of whether and, if so, how social support functions as a buffer against stress. In an earlier series of investigations, social support was studied as a manipulated, rather than as an assessed characteristic (Sarason, in press). It was shown that performance and self-preoccupation (as measured by the Cognitive Interference Questionnaire) were affected by specially created opportunities for social association and acceptance by others. Performance increased and self-preoccupation decreased as a function of social support manipulations. The time now seems ripe for studies that investigate social support simultaneously from assessment and experimental standpoints.

Recent discussions on the role of social support have greatly proliferated in the clinical literature. More often than not, they have been presented

on conceptual and conjectural bases. Empirical approaches to social support research are now necessary. The work reported here presents a potentially useful tool for such research, as well as suggests possibly fruitful avenues of approach for social support investigation.

Reference Notes

1. Miller, R. S., & Lefcourt, H. M. Social intimacy: An important moderator of stressful life events. Unpublished manuscript, University of Waterloo, 1980.
2. Miller, R. S., & Lefcourt, H. M. The assessment of social intimacy. Unpublished manuscript, University of Waterloo, 1980.
3. Sandler, I. N., & Lakey, B. Locus of control as a stress moderator: The role of control, perceptions, and social support. Unpublished manuscript, Arizona State University, 1980.

References

- Andrews, G., Tennant, C., Hewson, D., & Schonell, M. The relation of social factors to physical and psychiatric illness. American Journal of Epidemiology, 1978, 108, 27-35.
- Auerbach, S. M., & Kilmann, P. R. Crisis intervention: A review of outcome research. Psychological Bulletin, 1977, 84, 1189-1217.
- Barrera, M., Jr., Sandler, I. N., & Ramsay, T. B. Preliminary development of a scale of social support: Studies on college students. American Journal of Community Psychology, in press.
- Bowlby, J. Attachment and Loss, Vol. 1: Attachment. London: Hogarth Press, 1969.
- Bowlby, J. Attachment and Loss, Vol. 2: Separation: Anxiety and anger. London: Hogarth Press, 1973.
- Bowlby, J. Attachment and Loss, Vol. 3: Loss. New York: Basic Books, 1980.
- Brim, J. A. Social network correlates of avowed happiness. Journal of Nervous and Mental Disease, 1974, 58, 432-439.
- Bronfenbrenner, U. Some familial antecedents of responsibility and leadership. In L. Petrullo & B. M. Bass (Eds.), Leadership and interpersonal behavior. New York: Holt, Rinehart, & Winston, 1961.
- Cantrill, A. H., & Roll, C. W. Hopes and fears of the American people. New York: Universe Books, 1971.
- Caplan, G. Support systems and community mental health. New York: Behavioral Publications, 1974.
- Crowne, D., & Marlowe, D. The approval motive. New York: Wiley, 1964.

- De Araujo, G., Dudley, D. L., & Van Arsdel, P. P., Jr. Psychosocial assets and severity of chronic asthma. Journal of Allergy and Clinical Immunology, 1972, 50, 257-263.
- De Araujo, G., Van Arsdel, P. P., Jr., Holmes, T. H., & Dudley, D. L. Life change, coping ability, and chronic intrinsic asthma. Journal of Psychosomatic Research, 1973, 17, 359-363.
- Eaton, W. W. Life events, social supports, and psychiatric symptoms: A re-analysis of the New Haven data. Journal of Health and Social Behavior, 1978, 19, 230-234.
- Eysenck, H. J., & Eysenck, S. B. Manual: Eysenck Personality Inventory. San Diego: Educational and Industrial Testing Service, 1968.
- Heller, K. The effects of social support: Prevention and treatment implications. In A. P. Goldstein & F. H. Kanfer (Eds.), Maximizing treatment gains: Transfer enhancement in psychotherapy. New York: Academic Press, 1979, 353-382.
- Henderson, S. A development in social psychiatry: The systematic study of social bonds. Journal of Nervous and Mental Disease, 1980, 168, 63-69.
- Hirsch, B. J. Natural support systems and coping with major life changes. American Journal of Community Psychology, 1980, 8, 159-172.
- Kelly, J. G., Muñoz, R. F., & Snowden, L. R. Characteristics of community research projects and the implementation process. In R. F. Muñoz, L. R. Snowden, & J. G. Kelly (Eds.), Social and psychological research in community settings. San Francisco: Jossey-Bass, 1979, 343-363.
- Lefcourt, H. M., Miller, R. S., Ware, E. E., & Sherk, D. Locus of control as a modifier of the relationship between stressors and moods. Journal of Personality and Social Psychology, in press.

- Luborsky, L., Todd, T. C., & Katcher, A. H. A self-administered social assets scale for predicting physical and psychological illness and health. Journal of Psychosomatic Research, 1973, 17, 109-120.
- Marlowe, D., & Crowne, D. P. Social desirability and response to perceived situational demands. Journal of Consulting Psychology, 1961, 25, 109-115.
- Medalie, J. H., & Goldbourt, U. Angina pectoris among 10,000 men: II. Psychosocial and other risk factors as evidenced by a multivariate analysis of a five year incidence study. American Journal of Medicine, 1976, 60, 910-921.
- Miller, P., Ingham, J. G., & Davidson, S. Life events, symptoms, and social support. Journal of Psychosomatic Research, 1976a, 20, 515-522.
- Miller, P., & Ingham, J. G. Friends, confidants, and symptoms. Social Psychiatry, 1976b, 11, 51-58.
- Murphy, L. B., & Moriarty, A. E. Vulnerability, coping, and growth. From infancy to adolescence. New Haven: Yale University Press, 1976.
- Nowicki, S., & Duke, M. P. A locus of control scale for non-college as well as college students. Journal of Personality Assessment, 1974, 38, 136-137.
- Nuckolls, K. B., Cassell, J., & Kaplan, B. H. Psychosocial assets, life crisis, and the prognosis of pregnancy. American Journal of Epidemiology, 1972, 95, 431-441.
- Renne, K. S. Measurement of social health in a general population survey. Social Science Research, 1974, 3, 25-44.
- Rosenberg, M. Society and the adolescent self-image. Princeton: Princeton University Press, 1965.

- Sandler, I. N. Social support resources, stress, and maladjustment of poor children. American Journal of Community Psychology, 1980, 8, 41-52.
- Sarason, I. G. Interrelationships among individual difference variables, behavior in psychotherapy, and verbal conditioning. Journal of Abnormal and Social Psychology, 1958, 56, 339-344.
- Sarason, I. G. The Test Anxiety Scale: Concept and research. In C. D. Spielberger & I. G. Sarason (Eds.), Stress and anxiety, Vol. 5. Washington, D. C.: Hemisphere Publishing Corporation, 1978, 193-216.
- Sarason, I. G. Test anxiety, stress, and social support. Journal of Personality, in press.
- Sarason, I. G., Johnson, J. H., & Siegel, J. M. Assessing the impact of life changes: Development of the Life Experiences Survey. Journal of Consulting and Clinical Psychology, 1978, 46, 932-946.
- Sarason, I. G., Sarason, B. R., & Johnson, J. H. Stressful life events: Measurement, moderators, and adaptation. In S. R. Burchfield (Ed.), Stress: Psychological and physiological interactions. Washington, D. C.: Hemisphere Publishing Corporation, in press.
- Sosa, R., Kennell, J., Klaus, M., Robertson, S., & Urrutia, J. The effect of a supportive companion on perinatal problems, length of labor, and mother-infant interaction. New England Journal of Medicine, 1980, 303, 597-600.
- Vaillant, G. E. Natural history of male psychological health: II. Some antecedents of healthy adult adjustment. Archives of General Psychiatry, 1974, 31, 15-22.
- Vaillant, G. E. Adaptation to life. Boston: Little, Brown, 1977.
- Weiss, R. S. The provisions of social relations. In Z. Rubin (Ed.), Doing unto others. Englewood Cliffs, New Jersey: Prentice-Hall, 1974, 17-26.

Winefield, H. R. Social support and the social environment of depressed and normal women. Australian and New Zealand Journal of Psychiatry, 1979, 13, 335-339.

Zuckerman, M., & Lubin, B. Manual for the Multiple Affect Adjective Check List. San Diego, California: Educational and Industrial Testing Service, 1965.

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