

Personal and Environmental Antecedents of Perceived Social Support Developed at College¹

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Investigated the personal and environmental factors that predict the development of perceived social support and the role these constructs play in the associations between perceived support and psychological distress. Incoming freshmen who had moved away to college were assessed at the beginning of their first semester on a variety of personal characteristics as well as the social density of their residence halls. Follow-up measures of perceived support at college and psychological distress were obtained at the end of their first semester. Controlling for social desirability, higher levels of psychological distress, lower levels of social competence, and living in high social density residence halls independently predicted lower levels of follow-up perceived support. However, these factors could not entirely account for the concurrent association between low perceived support and psychological distress.

Although the relation between perceived social support and a variety of health outcomes is well established (Barrera, 1986; S. Cohen & Wills, 1985), there is a lack of information about a number of basic social support processes (Heller, Swindle, & Dusenbury, 1986). For example, the personal and environmental factors involved in the development of perceived social support and the extent to which they can account for the relation between support and health remain largely unknown (S. Cohen, Sherrod, & Clark, 1986; R. Hays & Oxley, 1986). In addition to scholarly interest, the answers to such questions may have important practical implications. Interventions designed to increase social support need to be guided by information about how sup-

¹The author thanks Patricia Cassady, Blair Daughtridge, Dorsey Edmundson, and Dale Sowers for assistance in coding data, and four anonymous reviewers for helpful comments on earlier drafts.

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port develops, and the issue of whether personal factors can account for social support effects must be resolved before this research influences public policy (S. Cohen et al., 1986; Kiesler, 1985). This article describes a longitudinal investigation of the personal and environmental variables that predict which persons develop high or low levels of perceived social support during a major life transition (moving away to college). Whether these support antecedents can account for the subsequent relation between support and psychological health was also investigated.

A number of person variables have been shown to be associated with perceived support, suggesting that they may play a role in its development. These include social competence (Sarason, Sarason, Hacker, & Basham, 1985), anomie (Sarason & Sarason, 1982), self-esteem (S. Cohen, Mermelstein, Kamarck, & Hoberman, 1985), self-disclosure (S. Cohen et al., 1986), dysfunctional attitudes (Lakey & Cassady, 1988), exploration preference (Pearl & Trickett, 1988), and of course, psychological distress (Barerra, 1986; S. Cohen & Wills, 1985). Of these, social competence and psychological distress have received the most research attention.

Heller (1979) originally proposed that perceived social support may partly reflect preexisting levels of social competence. He hypothesized that persons with high levels of social competence may be more successful in forming close personal relationships, thus increasing the availability of support. In recent years, a number of investigators have documented associations between perceived support and social competence as assessed by self-ratings (S. Cohen et al., 1986; Sarason et al., 1986), peers (Cauce, 1986), and objective observers (Sarason et al., 1986). Unfortunately, there have been few longitudinal investigations, leaving it unclear as to whether social skills precede or perhaps result from the development of social support. A notable exception is S. Cohen et al.'s (1986) prospective study of social competence, social anxiety, self-disclosure, and change in perceived support during the transition to college. They found that students who experienced reductions in appraisal support by the end of their first semester (compared to their precollege support levels) reported higher levels of social anxiety and lower levels of self-disclosure during a precollege testing session. Further, lower social competence assessed at the end of the first semester predicted a decrease in tangible support by the beginning of the second semester. However, these person variables did not predict changes in overall support levels, nor did they predict changes in subscale scores in the majority of analyses.

Psychological distress also has been hypothesized to impair the development of social support (Heller & Swindle, 1983; Monroe & Steiner, 1986). Distressed persons may be less likely to initiate social contact, may lack social skill, or may disclose socially undesirable information that increases the risk for rejection. Although there have been a number of longitudinal studies

relevant to this question, different paradigms have produced conflicting results. Of the longitudinal studies of social support and distress, few have reported analyses of whether initial symptoms predict changes in follow-up support status. Of these, most failed to find evidence for a prospective symptom—support relation (Compas, Wagner, Slavin, & Vannatta, 1986; Lin & Ensel, 1984; Schaefer, Coyne, & Lazarus, 1981; Turner, 1981). In contrast, prospective studies of marital satisfaction and marital stability (close cousins of the social support constructs according to Coyne & DeLongis, 1986) generally have found initial symptomatology of both spouses to be strong predictors of follow-up marital status and satisfaction (e.g., Kelly & Conley, 1987; Vaillant, 1978). In addition, a number of investigators have documented that distressed individuals are more likely to be rejected by others (Boswell & Murray, 1981; Coyne, 1976; Gotlib & Robinson, 1982) suggesting that symptomatic persons would have more difficulty developing supportive relationships.

In addition to social competence and psychological distress, persons with high levels of negative cognition may perceive their social relations more negatively. Persons with low self-esteem or many dysfunctional attitudes (e.g., “If a person disagrees with me, it means he does not like me”) may be more likely to interpret negatively the supportive attempts of others or to devalue the quality of their personal relationships. This hypothesis is suggested by research indicating that persons with low perceived support tend to report low self-esteem and many dysfunctional attitudes (S. Cohen et al., 1985; Lakey & Cassady, 1988). In addition, some work on person perception suggests that people rely on the same constructs to describe others that they use in describing themselves (Higgins, King, & Mavin, 1982; Hirschberg & Jennings, 1980; Lewicki, 1984). Thus, persons with negative and dysfunctional attitudes about themselves may extend this negativity to perceptions of their social environment.

In addition to person factors, there is suggestive evidence that the physical environment may play a role in the development of supportive relations. Social density, the number of persons in a given amount of space, has been associated with several adverse health and social outcomes (Baum & Paulus, 1987). In studies of new college students, Baum and Valins (1977, 1979) found that students assigned to high-density residence halls expressed greater desire to avoid social interactions and spent more time isolated in their bedrooms than students in less-dense halls. In a laboratory setting, these students sat further away from and made less eye contact with another person in a waiting room, and expressed more discomfort than students from low-density residence halls. Although density and social support have not been explicitly studied, the adverse effects of social density on social behavior suggests that high levels of social density might impede the development of perceived social support.

Beyond the direct influence of personal and environmental factors on support development, these factors may have interactive effects as well. For example, Perl and Trickett (1988) found that personal exploration preferences and residence hall exploration climate interacted to predict network reciprocity. Similarly, Holahan and Wilcox (1978) found a trend for social competence and residence hall height to interact in predicting friendship formation. By assessing both personal and environmental characteristics, the present study was also able to investigate whether these factors interacted to influence support development.

Although existing research provides some support for the role of social competence, psychological distress, and environmental factors in the development of supportive social relationships, there are several methodological refinements that would help clarify the nature of these associations. The most frequently used design involves administering perceived support and person measures at two points in time, and then predicting Time 2 perceived support from Time 1 person variables, with Time 1 support controlled. However, there are several problems with this design. First, this design tests hypotheses about *changes* in existing social support rather than its *initial development*. For example, if Time 1 competence predicted Time 2 perceived support after Time 1 support levels were controlled, it would indicate that competent persons developed even more support than they had at Time 1, and that persons with low competence levels developed even less. However, the hypothesis that social competence contributes to the development of social support predicts that the relative standing of high- and low-competence persons would remain approximately the same. Such an effect would go undetected in the typical study because an analysis of residuals only provides information about change over time. A second problem with this design is that controlling for Time 1 support scores inadvertently controls for the effects of person variables. If personal characteristics influence support, then this effect would be reflected as shared variance between the Time 1 measures of support and individual differences. Yet, if Time 1 support scores were controlled, the shared variance between person variables and support would be partialled out, effectively eliminating the variance reflecting the causal relation between personal characteristics and support.³ Thus, a more sensitive test of these

³For example, consider a situation in which support developed at college is predicted by high school levels of a given person variable and high school levels of social support. If the personal characteristic had a causal effect on college support at $r = .30$, and a cross-sectional relation with high school support at $r = .40$, controlling for prior support would seriously underestimate the strength of the causal relation between the person variable and subsequent support. The magnitude of the underestimation would depend upon the stability of support perceptions from high school to college. Using the formula for partial correlation provided by W. Hays (1973), the relation between prior personality and subsequent support would range from $r = -.15$ when support stability = .90 to $r = .17$ when support stability = .40. Controlling for initial support would correctly estimate the "true" causal relation only when stability = .20, an extremely unlikely occurrence.

hypotheses would involve studying individuals who must build social support almost from scratch, rather than studying changes in already established support. Second, prior support levels should not be controlled statistically to avoid eliminating variance associated with person effects. Further, given that most of the person variables associated with social support are also correlated with psychological distress, it would be important to rule out any confounding between personality and symptomatology (Monroe & Steiner, 1986). For example, social competence may predict the development of perceived support, but this may be due to the fact that persons with fewer social skills also tend to be more distressed. Controlling for initial distress would determine whether social competence predicts support development independently of symptomatology. Last, it would be necessary to determine that the obtained prospective relations between self-report measures were not mere reflections of prior social desirability.

To address these issues, the present research studied a sample of persons who were faced with a major life transition that involved developing almost entirely new social networks. College students who were moving away from their parents' homes to attend college for the first time were chosen for study. To minimize the effects of preexisting social networks, only those students who attended high school at least 50 miles away from campus were studied. Pilot research with this population indicated that only 13% of students' high school social network members accompanied them to college. To determine the personal and environmental antecedents of perceived support developed at college, participants were assessed on prior levels of social competence, social anxiety, psychological distress, self-esteem, dysfunctional attitudes, and the social density of their residence halls. To control for confounds associated with individual differences in reporting negative information, all participants completed a measure of social desirability.

METHOD

Participants

Participants were 121 white college students (46 men, 75 women) who (a) completed both waves of the study, (b) were first-semester freshmen, (c) were not living with their parents or other relatives, and (d) had moved at least 50 miles away from the city in which they completed high school. This represented 88% of the original sample of 137 students who completed the Time 1 assessment, and students who completed both sessions did not differ significantly from dropouts on any of the Time 1 measures. The average age of the sample was 18.03 years, with a range of 17 to 19 years. They were enrolled in a small state university in the Southeast, with a student body com-

posed primarily of students of middle-income families from rural areas and small cities. Students participated in exchange for academic credit.

Procedure

The Time 1 assessment occurred within the first 2 weeks of classes. Students completed standard measures of psychological distress, social desirability, social competence, social anxiety, self-esteem, and dysfunctional attitudes in groups ranging in size from 5 to 25. In addition, students reported information about their place of residence (name of dormitory, home with parents, etc.) and in what city they had completed high school. Students did not complete a measure of perceived support at this time because of Newcomb's (1961) finding that students' reports of social relations were unreliable during the first few weeks of college, and did not stabilize until after the fifth week. Thus, reports of social support during this initial period would be of dubious validity.

The Time 2 assessment occurred 10 to 12 weeks later, near the end of the first semester. In addition to the personality measures completed at Time 1, students also completed widely used measures of perceived support and life events. They were asked again to report on their place of residence, so that students who moved out of dormitories during the semester would not be included in analyses comparing more and less densely populated residence halls.

Assignment to Residence Halls. According to Residence Life officials, students who wish to live in dormitories are assigned to particular residence halls according to a lottery system. Exceptions to this system are rare, and students with special needs are assigned to dormitories on the basis of matching the student with a particular resident assistant, rather than placing them in a particular dormitory. Thus this system of assigning students to residence halls closely approximates true random assignment. Two types of dormitory designs were selected for study. The higher density dormitory design had 36 double-occupancy rooms along a central, double-loaded corridor. The 72 students on each floor shared one lounge and four bathrooms (18 students per bathroom). Thirty-seven students in the present study were assigned to this dormitory design. Forty-nine students were assigned to a less-dense dormitory design which had 28 double-occupancy rooms along a central, double-loaded corridor. In addition, this design included a suite area and separate bathrooms for each four rooms (8 students per bathroom). Most of the remaining 35 students lived off campus and were not included in analyses of residential density because of the extreme heterogeneity of their living environments. A very small number of students lived in a third dormitory design, but there were not enough observations in this group to allow statistical analyses.

Instruments

Social Support. This research utilized the Interpersonal Support Evaluation List (ISEL; S. Cohen & Hoberman, 1983; S. Cohen et al., 1985) because it is a widely used measure of social support, has established reliability and validity, and was used by S. Cohen et al. (1986) in their study of support development. An additional advantage of using the ISEL in the present research is that a large number of the items specifically refer to support available "at school or in town."⁴ The ISEL was modified for the present study by providing a 5-point response format with *strongly agree* (1) and *strongly disagree* (5) as extreme responses. In addition to a total scale score, the ISEL provides four subscales: tangible, appraisal, esteem, and belonging support. The reliability of these scales in the present sample was $\alpha = .93$ for the full-scale score, $.92$ for the appraisal subscore, $.83$ for the esteem subscale, $.86$ for the tangible subscale, and $.73$ for the belonging subscale.

Psychological Distress. Participants completed two measures of psychological distress, the Beck Depression Inventory (BDI; Beck, 1967), and the trait form of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970). These measures were chosen because they have been widely used in research on social support, and have established reliability and validity. The reliabilities of these scales in the present sample were $\alpha = .87$ for Time 1 anxiety, $\alpha = .88$ for Time 2 anxiety, $\alpha = .80$ for Time 1 BDI, and $\alpha = .86$ for Time 2 BDI.

Social Competence and Social Anxiety. A measure of social competence based on a scale developed by Levenson and Gottman (1978) with the modifications described by S. Cohen et al. (1986, p. 965, note 3) and the six social anxiety items from the Self-consciousness scale (Fenigstein, Scheier, & Buss, 1975) were administered. These scales were chosen to enhance the comparability of the present work with S. Cohen et al. (1986) and because those researchers found some prospective relations between these measures and social support. Further information about the construct validity of the original scales are reported in Levenson and Gottman (1978), Kolko and Milan (1985), and Fenigstein et al. (1975). In the present research the reliabilities for the two scales were $\alpha = .80$ for social competence and $\alpha = .71$ for social anxiety.

Self-Esteem and Dysfunctional Attitudes. Students completed the Rosenberg self-esteem scale (Rosenberg, 1979) and the Dysfunctional Atti-

⁴Internal consistency analyses indicated that ISEL items specifically referring to support "at school or in town" correlated strongly with the other items ($r = .74$), indicating that students responded to the entire scale in terms of perceived support available at college. In addition, the study's findings were replicated with a scale based only on items specifying locally available support. Results are reported for the full ISEL to enhance comparability to other research using the ISEL and because using all items substantially reduces measurement error.

tudes Scale (Weissman & Beck, 1978; reviewed by Hammen & Krantz, 1985). The Rosenberg scale consists of 10 items that tap attitudes about the self. The Dysfunctional Attitudes Scale is a 40-item scale designed to assess depressionogenic attitudes emphasized by Beck's (1967) cognitive theory of depression. Example items are "I am nothing if the person I love doesn't love me" and "If I fail at my work, then I am a failure as a person." Both instruments were modified for the present research by using a 5-point scale. These measures were included in the present investigation because previous cross-sectional research had indicated that they correlated with both perceived support and psychological distress (Lakey & Cassady, 1988). The reliabilities of these scales in the present sample were $\alpha = .84$ for self-esteem and $\alpha = .88$ for dysfunctional attitudes.

Stressful Life Events. The measure of stressful life events was the College Student Life Events Scale developed by Sandler. It has been found to correlate with psychological distress and other life events scales (Sandler & Lakey, 1982) and to be free from symptom and social desirability-related response biases (Lakey & Heller, 1985).

Social Desirability. To enable the statistical control of socially desirable responding, students completed the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964). This scale was chosen because of its wide use in social science research. The reliability of this scale in the present sample was $\alpha = .77$.

RESULTS

The means, standard deviations, and simple intercorrelations among the study variables are presented in Table I. *T*-test analyses had indicated no significant differences on any variable between male and female respondents, and multiple regression analyses (J. Cohen & Cohen, 1975) indicated no interactions by sex for any of the study findings. Thus data were combined for both sexes.

To determine the person variables that predicted the development of perceived social support, multiple regression analyses were conducted in which Time 1 person variables were used to predict Time 2 perceived support scores. To control for response biases, social desirability was forced as the first step. BDI and trait anxiety scores were entered simultaneously as the second step to determine the role of general psychological distress. Distress was entered before the other person variables to determine whether they predicted support independently of symptomatology. The remaining variables were entered into the equation according to their ability to predict unique portions of Time 2 perceived support. As portrayed in Table II, the results indicated

Table I. Intercorrelations, Means, and Standard Deviations (N = 121)^a

Variable	1	2	3	4	5	6	7	8	9	10	M	SD
1. Social desirability	—	-.17	-.07	-.25 ^c	-.24 ^c	11	-17	23 ^c	-26 ^c	18 ^b	84.8	5.6
2. BDI 1		—	.66 ^c	.73 ^c	.62 ^c	18 ^b	35 ^c	-56 ^c	35 ^c	-39 ^c	8.3	6.1
3. BDI 2			—	.51 ^c	.69 ^c	14	25 ^c	-42 ^c	15	-49 ^c	8.1	7.4
4. Anxiety 1				—	.74 ^c	26 ^c	52 ^c	-62 ^c	47 ^c	-39 ^c	43.9	9.6
5. Anxiety 2					—	21 ^b	47 ^c	-45 ^c	36 ^c	-45 ^c	43.7	9.8
6. Social competence						—	22 ^b	43 ^c	-24 ^c	53 ^c	36.3	6.6
7. Social anxiety							—	-44 ^c	36 ^c	-21 ^b	15.3	4.2
8. Self-esteem								—	-41 ^c	44 ^c	30.5	4.9
9. Dysfunctional attitudes									—	-27 ^c	141.3	17.1
10. Perceived support										—	142.5	19.5

^aDecimals are omitted from intercorrelations.

^bp < .05.

^cp < .01.

Table II. Multiple Regression Analyses for Predicting Follow-Up Perceived Support

Predictor variables	Mult. <i>R</i>	<i>R</i> ²	<i>R</i> ² change
Personality variables only (<i>n</i> = 121)			
Social desirability	.183 ^b	.034	—
Psychological distress	.426 ^c	.181	.148 ^c
Social competence	.612 ^c	.375	.194 ^c
Personality variables and social density (<i>n</i> = 85)			
Social desirability	.242 ^b	.058	—
Psychological distress	.340 ^b	.116	.057 ^a
All time 1 personality variables	.518 ^c	.268	.153 ^c
Social density	.552 ^c	.305	.036 ^b

^a*p* < .10.^b*p* < .05.^c*p* < .01.

that social desirability was a significant predictor of follow-up perceived support (mult. $R = .18$, $F = 4.11$, $p = .045$). Beyond social desirability, psychological distress predicted an additional 14.8% of the variance in the development of perceived support (F for R^2 change = 10.46, $p < .001$), such that more distressed students developed less perceived support. Once social desirability and psychological distress had been taken into account, both self-esteem (R^2 change = .080; $F = 6.94$, $p = .01$) and social competence (R^2 change = .194, F change = 35.66; $p = .001$) predicted follow-up perceived support. However, when social competence was entered into the equation, self-esteem no longer made a significant contribution.

To replicate the analyses of S. Cohen et al. (1986), the multiple regression analysis described above was conducted for each ISEL subscale. The results of these analyses were virtually identical to the results for the full-scale score. The only differences were that social desirability was a slightly less good predictor of the subscales (p values ranged from .06 for appraisal support to .16 for tangible support) and that self-esteem predicted the development of esteem support beyond the effects of social desirability, distress, and social skill (R^2 change = .036, F change = 7.50, $p = .007$).

To determine whether social density of the living environment influenced the development of perceived support, students who lived in more versus less socially dense residence halls were compared on follow-up support status. Because student assignment to residence halls was not completely random in the strictest sense, multiple regression analyses were conducted in which all Time 1 person variables were forced into the equation before residence hall status. These analyses necessitated the exclusion of students who lived off campus or who did not reside in one of the two residence hall types studied, and thus are based on an N of 85. An analysis of how this subgroup

compared to students living off campus or in other dormitories indicated no significant differences on any variable. Further, the pattern of findings for the person variables was not substantially different for this subgroup as compared to the entire sample. The results of this multiple regression analysis indicated that controlling for all Time 1 person variables, students in more-dense residence halls developed less perceived support than those in less-dense halls (R^2 change = .036, F change = 4.03, p = .048). Parallel analyses of ISEL subscores indicated that this effect was due entirely to density's effect on appraisal support (R^2 change = .061, F change = 7.04, p = .01) as the environmental variable did not significantly influence any other ISEL subscore. Finally, multiple regression analyses (J. Cohen & Cohen, 1975) were conducted to determine whether social density interacted with any of the person variables in predicting perceived support. However, none of the interaction terms approached significance.

Additional analyses were conducted to determine whether social density influenced either of the two symptom measures. Controlling for Time 1 trait anxiety and all other Time 1 person variables, dormitory residence was significantly associated with Time 2 trait anxiety, accounting for an additional 3.1% of the variance (F change = 4.45, p = .038). An examination of group means indicated that students in higher density halls experienced elevations in anxiety by the end of the semester, whereas students in lower density dormitories experienced slight reductions in anxiety. A parallel multiple regression analysis for BDI scores revealed a trend in the same direction, but it did not achieve statistical significance (F change = 1.89, p = .178).

Given that a number of person variables were found to predict the development of college perceived social support, a final group of analyses was conducted to determine whether these characteristics could account for the relation between social support and psychological health. Controlling for initial dysphoria and all other Time 1 person variables, perceived support accounted for an additional 6.6% of the variance in follow-up BDI scores (F change = 17.90, p = .001), such that high support was associated with low dysphoria. A parallel analysis conducted on follow-up anxiety scores produced comparable results: Controlling for initial anxiety and all Time 1 person variables, perceived support continued to be associated with lower levels of follow-up anxiety, accounting for an additional 3% of the variance (F change = 8.59, p = .004). Similar analyses were conducted to determine whether prior personal characteristics could account for any stress buffer effects of social support (J. Cohen & Cohen, 1975). However, although negative life events predicted Time 2 symptoms even when all relevant Time 1 variables were controlled (F change = 18.26, p = .001 for BDI; and F change = 8.39, p = .005 for anxiety) there was no evidence of a stress buffer effect in any analyses (even in the least conservative tests when no Time 1 variables were controlled).

DISCUSSION

The main findings of this research are that students with high levels of psychological distress, low levels of social competence, and living in more socially dense residence halls develop lower levels of college perceived social support by the end of the first semester than their more fortunate counterparts. This adds to the body of evidence suggesting that various personal and environmental factors influence the development of social relations (Baum & Valins, 1977; S. Cohen et al., 1986; Holahan & Wilcox, 1978; Perl & Trickett, 1988). However, these social support antecedents could not entirely account for the follow-up association between low support levels and psychological distress, as this relation remained significant even when all Time 1 variables were controlled.

The present finding that distressed students are less successful in developing perceived social support complements the existing literature on social reactions to psychologically disordered persons (Boswell & Murray, 1981; Coyne, 1976; Gotlib & Robinson, 1982). This literature generally has shown that distressed persons are rejected following brief social interactions (Gurtman, 1986). The current results suggest that distress may produce more enduring problems in social relations than have been observed previously. Although the present research does not permit conclusions about the mechanisms for this effect, several studies have found that brief exposure to depressed persons (or others behaving in a depressed fashion) induces negative mood and produces negative personality evaluations of the target person (Boswell & Murray, 1981; Coyne, 1976; Gurtman, 1986). Gotlib and Robinson (1982) have identified a number of interpersonal behaviors exhibited by distressed persons that may account for this effect. In their study of social interaction, dysphoric students (mean BDI = 14) made fewer supportive statements, smiled less, produced fewer pleasant or aroused facial expressions, made more negative statements, and engaged in more monotonous speech than controls. Not surprisingly, students reacted more negatively to their dysphoric peers. Similar processes may have been operating in the present investigation. Future research might include behavioral measures of social behavior to help determine how distress could inhibit the development of supportive relationships.

Cognitive mechanisms also may have been responsible for the finding that distressed persons developed less perceived support. It is well established that depressed persons are prone to negative thinking (Segal & Shaw, 1986) and the more dysphoric individuals in the present sample may have devalued the support that was actually available to them. In fact, both measures of negative cognition (low self-esteem and dysfunctional attitudes) predicted follow-up perceived support beyond social desirability (partial $r = -.41$ and

– .24, respectively), but these effects were substantially reduced or eliminated when psychological distress was controlled.

Unlike measures of negative cognition, social competence predicted the development of support beyond both psychological distress and social desirability. In replicating the work by S. Cohen et al. (1986), the present study adds to previous work by suggesting that social competence precedes the development of college perceived social support. In addition, the present study demonstrated that competence predicts future support independently of social desirability and psychological distress. Unfortunately, the present work could not determine the mechanisms responsible for this effect. Kolko and Milan (1985) have shown that persons high in perceived social competence engage in a number of behaviors similar to those identified by Gotlib and Robinson (1982), suggesting that such behaviors may have produced the effect in this study. To confirm this, behavior observation methods could be combined with the methods of the present study.

In addition to person variables, it appears that characteristics of the physical environment also play a role in the development of perceived social support, as students assigned to high-density residence halls developed less follow-up perceived support and more anxiety. This is consistent with the results of Baum and Valins (1977), who found that living in high-density residence halls was associated with increased social withdrawal. The present findings link social density and social support research, and suggest that an additional mechanism for crowding effects may involve reductions in perceived support (cf. Baum & Paulus, 1987). Interestingly, this effect was specific to appraisal support (the availability of someone with whom to discuss one's problems), the most heavily emphasized support component in the theoretical literature (e.g., Heller & Swindle, 1983; Thoits, 1986). Other aspects of social relations (tangible support, the availability of material aid; belonging support, the availability of others with whom to socialize; and esteem support, the availability of favorable social comparison) were uninfluenced by social density. Thus, social density specifically impaired the perception that others would help with personal difficulties without damaging more general perceptions of the social environment.

In addition to determining some antecedents of college perceived social support, the present findings also address some of the major rival hypotheses for perceived support effects. Critical reviewers have raised the possibility that support effects may merely reflect the role of preexisting social competence (Heller, 1979) or psychological disorder (Monroe & Steiner, 1986). However in the current study, prior levels of distress, social competence, social desirability, self-esteem, dysfunctional attitudes, and social anxiety could not entirely account for the relation between perceived support and psychological health. This finding is consonant with those of S. Cohen et

al. (1986) who found that prior levels of social competence and self-disclosure could not account for the stress-moderating effect of perceived support. Nonetheless, the strength of the relation between perceived support and distress was substantially reduced when prior person variables were controlled, suggesting that part of the cross-sectional association between support and health can be accounted for by preexisting personal characteristics. This pattern of results is consistent with the reciprocal relation between perceived support and psychological distress hypothesized by Heller and Swindle (1983) and Monroe and Steiner (1986). High levels of distress may impair the development of perceived support, which in turn increases the likelihood of further distress, whereas well-being may enhance support, leading to continued mental health.

Finally, a number of methodological points deserve comment. Although care was taken to control statistically for several rival hypotheses, the correlational design makes it impossible to rule out the possibility that some unmeasured third variable (e.g., precollege stressful life events or family support) accounted for the effects of prior personal characteristics. This limitation is somewhat more difficult to apply for the effects of residential density however, as assignment to residence halls approached true random assignment, and all Time 1 person variables were controlled statistically. Second, it was assumed that the measure of perceived social support reflected participants' perceptions of their actual social relations in college. But if instead perceived support is a stable personality characteristic insensitive to change in social networks (cf. Sarason, Sarason, & Shearin, 1986), then the present research could not have identified its antecedents. However, the finding that residential social density influences support perceptions is inconsistent with the notion that perceived support is an uninfluencable personality characteristic, as is S. Cohen et al.'s (1986) finding that the ISEL showed relatively low stability coefficients between precollege and college testings. Third, although person variables were assessed within 2 weeks of the beginning of classes, it is conceivable that the social relations developed during this time accounted for the observed prospective effects. The present study cannot rule out the possibility that stable supportive relationships developed in less than 2 weeks and made sizable impacts on symptomatology and social competence. It seems unlikely however, that such powerful effects of social support on symptoms and social competence could occur in such a short period of time, especially given the instability of social relations during this time period (Newcomb, 1961). Further, other researchers have documented substantial flux in new freshmen's social relationships (R. Hays & Oxley, 1986; S. Cohen et al., 1986), suggesting that 2 weeks is not enough time to develop a stable social network. Nonetheless, future research could assess students' personal characteristics before arriving on campus. Fourth, it is unknown

whether the effects observed in this sample generalize to noncollege student populations, especially considering that there are few situations in which there are so many potential friendship choices. Although studying persons faced with building new social networks appears to have some utility, other groups (e.g., military recruits or business persons being transferred to a new city) should be studied to establish the generalizability of these effects.

From a practical perspective, the present findings suggest that certain individuals may be at risk for developing insufficient levels of perceived support during major life transitions. However, groups at risk may be identified by assessing certain personal characteristics as well as the physical properties of their living environment. Perhaps this risk may be reduced by training persons in additional interpersonal skills (e.g., Shure & Spivack, 1982), providing them with information related to the demands of the transition (e.g., Bloom, 1971), by modifying the physical environment (Holahan & Saegert, 1973), or its social structure (Felner, Ginter, & Primavera, 1982). Regardless of the specific intervention, it is important to remember social support is not randomly assigned, and that some groups may need assistance in acquiring the social support they need.

In summary, this research found that neither prior psychological distress nor social competence could entirely account for the relation between perceived social support and psychological health. In addition, students with high levels of psychological distress, low social competence, and living in socially dense residence halls were less able to develop perceived social support at college. Thus, those most in need of support were those least likely to obtain it.

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