

# Social Support and Symptom Etiology: Implications for Patient Education

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## Abstract

*This study evaluated the relationship between organic involvement in symptom etiologies and levels of self-reported loneliness. Among 107 students visiting a university health center, a negative correlation was found between levels of loneliness and suspected organic involvement in symptom etiology ( $r = -.267, p = .01$ ). Findings from this study support the use of loneliness assessments as part of initial patient examinations, and the implementation of patient education approaches that address symptoms associated with loneliness.*

## Introduction

Even with strong empirical support for a positive relationship between feelings of loneliness and low levels of physical health, many medical care settings may focus solely on the identification and treatment of presumed organic causes of symptoms (e.g. pathogens or tissue anomalies) while largely ignoring the potential role of nonorganic agents, such as loneliness, that may be contributing to the development and expression of many common medical symptoms. The potential result is misdiagnosis, ineffective treatment, and an inefficient health care system. Health educators who function in patient education settings may be ideally situated to evaluate the seriousness of this concern, and to offer appropriate solutions.

### *Loneliness and Health*

The opposite of strong social support is loneliness. Two types of loneliness have been identified in the early health literature: the absence of a close, intimate attachment (emotional isolation); and the absence of friends, colleagues, or other links to a coherent community (social isolation) (Blai, 1989; Weiss, 1973). Both emotional and social isolation are encompassed within the larger concept of "social health," which is generally recognized by health professionals as an important dimension of holistic health (Butler, 2001, p. 5). It is further believed that all dimensions of holistic health (physical, intellectual, emotional, social, and spiritual) are dynamic and interactive. An imbalance in social health, for example, would predictably have an impact on other dimensions such as emotional and physical health.

In support of this dynamic view of holistic health, there is a considerable body of evidence linking loneliness with a variety of physical health indices, including: negative health and social consequences (Akerlind & Hornquist, 1992; Blai, 1989; Fox, Harper, Hyner, & Lyle, 1994; Mijuskovic, 1988; Olmstead, Guy, O'Malley, & Bentler, 1991), increased symptom reporting (Mahon, Yarcheski, & Yarcheski, 1998; Mahon, Yarcheski, & Yarcheski, 1993), negative perceptions of health status (Mahon, Yarcheski, & Yarcheski, 1997; Mahon et al., 1993), increased health costs (Geller, 2000), poor health behaviors (Mahon et al., 1998; Page, 1990), and increased health care utilization (Feldman, 1998; Geller, Janson, McGovern, & Valdin, 1999). Additionally, loneliness and lack of social support are associated with a variety of negative health consequences including poor survival after myocardial infarction (Berkman, Leo-Summers, & Horwitz, 1992), increased risk for breast cancer (Fox et al., 1994), and even an increased susceptibility to the common cold (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997).

### *Loneliness and Symptom Etiology*

It has been found that as few as 16% of medical patients can be diagnosed with a clear organic etiology for their primary symptom (Kroenke & Mangelsdorff, 1989). After studying one thousand patients in an internal medicine clinic over a three-year period, Kroenke and Mangelsdorff found that in 74% of the cases, the symptom etiology was unknown. In another 10% of cases, the cause of the symptom was identified as "psychological." Yet almost all patients received a biomedical intervention (e.g. drugs, surgery). Further, for those whose symptoms did not have a clear organic

etiology (84%), the treatments were largely ineffective. The authors concluded that, “the classification, evaluation, and management of common symptoms needs to be refined. Diagnostic strategies emphasizing organic causes may be inadequate” (Kroenke & Mangelsdorff, 1989, p. 262).

Mahon et al. (1998) demonstrated that some common symptoms, which do not have an organic etiology, are related to loneliness. It is therefore possible that in some of the 84% of cases with no known biological cause, poor social health may have been a contributing agent. If loneliness is a contributing factor in the expression of some of these medical symptoms, then it becomes clear why a specific organic agent is not easily identifiable. As Kroenke and Mangelsdorff (1989) emphasized, there is a need for refined diagnostic strategies that can discriminate between organic and nonorganic etiologies, and that can match nonorganic symptoms with appropriate causal agents (e.g. loneliness) and then prescribe appropriate treatments (counseling or education instead of drugs or surgery).

*Problem Statement*

Very little previous research has attempted to estimate the degree of organic involvement in symptom etiologies as part of the initial patient examination. If accurate differentiation is possible as part of a refined diagnostic strategy, then relationships between nonorganic symptoms and such constructs as loneliness might be revealed. The purpose of this study was to attempt to differentiate between organic and nonorganic causes of symptoms as part of an initial patient examination, and to then evaluate the strength of relationship between suspected type of etiology (organic Vs nonorganic), and degree of student loneliness. Finally, implications for health educators who function in patient education settings are discussed.

**Procedures**

*Sample*

The population of interest was university students who use campus health centers for the treatment of common symptoms. The convenience sample included 114 consecutive students that visited the health center of a regional university in the western U.S. Seven students declined to participate, resulting in a 6% dropout rate and a final sample size of 107. Sixty-one percent of participating students were female, 88% were between the ages of 18 and 30, and 26% were married. The majority of students were single, lived

off campus, and visited the health center one to three times per quarter. Further data on sample demographics is presented in Table 1.

Table 1. Demographic Characteristics of Participants (n = 107)

Variable	(n)	%
<b>Age</b>		
18-22	45	42.1
23-26	36	33.6
27-30	13	12.1
Over 31	13	12.1
<b>Gender</b>		
Male	46	43.0
Female	61	57.0
<b>Marital Status</b>		
Single	73	68.2
Married	28	26.2
Divorced/ Separated	6	4.8
<b>Average Number of Visits to Health Center Per Quarter</b>		
1-3	70	65.4
4-6	28	26.2
7-10	7	6.5
Over 10	2	1.9
<b>Place of Residence</b>		
On Campus	31	29.0
Off Campus	76	71.0

### Measures

Two physicians who worked full-time at the university health center were asked to use findings from routine physical exams, oral evaluations, diagnostic test results, and patient histories to rate the degree of suspected organic involvement in the etiology of symptoms using a five-point scale. Five represented a symptom that was “almost certainly organic,” three represented “an equal chance that the symptom was nonorganic or organic,” and one represented a symptom that was “almost certainly nonorganic.” In order to help promote valid, reliable ratings, a small pilot test was completed. Ten random patient files were selected, and both physicians made an independent determination of symptom etiology. Discrepancies were discussed, assumptions about etiology were evaluated, and strategies were developed for achieving greater accuracy and consensus on future symptom ratings.

Both physicians independently rated the symptoms for each of the 107 patients who participated in the study. One physician rated the initial symptom etiology of 68 patients. The second physician performed the initial evaluation on the remaining 39 patients. To help control for subjective bias, each physician rated the other physician's patients by referring back to the patient files (including diagnostic test results, findings from initial examinations, and patient histories). In order to assign equal weight to each physician's rating, the mean of the two scores was used to estimate the degree of organic involvement for each symptom. A moderate, statistically significant correlation was found between the two physicians' scores ( $r = .535, p = .001$ ), indicating a modest degree of consistency in rating the degree of organic involvement.

Loneliness was evaluated by using the 20-item Revised UCLA Loneliness Scale [RUCLA-LS]. Scores on this scale range from 20 to 80, with a high score representing greater loneliness. Construct validity has been established for college students by correlating loneliness scores with scores on the Beck Depression Inventory ( $r = .62$ ), as well as the Costello-Comrey Anxiety ( $r = .32$ ) and Depression Scales ( $r = .55$ ) (Russell, Peplau, & Cutrona, 1980). Factor analysis with relevant variables has been used to establish construct validity for college students and young adults (Austin, 1983; McWhirter, 1990). Discriminant validity was established by correlating loneliness scores

with personality and mood variables. It was found that single-item, self-reports of loneliness correlated more highly with the loneliness scale ( $r = .71$ ) than such measures as anxiety ( $r = .36$ ), introversion-extroversion ( $r = -.46$ ), and self-esteem ( $r = -.49$ ) (Russell et al., 1980). High coefficient alpha reliabilities ( $r > .80$ ) have been reported for several college student/young adult samples using the RUCLA-LS (Mahon et al., 1998; McWhirter, 1990; Russell et al., 1980).

### Protocol

This study used informed consent and was approved by the Institutional Review Board of the University where the research was conducted. On asking to be seen at the student health center, participating patients completed a consent form, filled out a demographic survey, and responded to items on the revised UCLA loneliness scale. Once the paper work was completed and collected patients presented their symptom(s) to one of the participating physicians. Physicians used routine physical exams, oral evaluations, patient histories, and diagnostic test results to rate suspected degree of organic involvement in symptom etiology. Physicians were not aware of student scores on the loneliness scale.

### Analysis

To estimate the strength of relationship between loneliness (RUCLA-LS), and the level of suspected organic involvement in symptom etiology (mean physician score), the Pearson product moment correlation coefficient ( $r$ ) was used. The Pearson coefficient was also used to evaluate the strength of correlation between average physician ratings and continuous demographic variables (age, visits to health center, distance from home). One-way analysis of variance [ANOVA] was used to identify significant differences in mean physician scores between discrete student demographic categories (gender, marital status, place of residence).

## Results

Physician ratings of suspected organic involvement in patient symptoms were skewed toward organic explanations. The mean score for the entire sample was 4.34 ( $SEM = .11$ ) out of a possible 5 (almost certain organic etiology). The mean score for males was 4.4 ( $SEM = .10$ ), with the mean score for females being 4.3 ( $SEM = .11$ ). The distribution of physician ratings is detailed in Table 2.

Table 2. Symptom Ratings by Physician (*n* = 107)

Rating	Physician One		Physician Two	
	n	%	n	%
1	2	1.9	0	0.0
2	6	5.6	7	6.5
3	9	8.4	8	7.5
4	39	36.4	26	24.3
5	51	47.7	66	61.7

Scores on the RUCLA-LS can range from 20 to 80, with higher scores indicating higher levels of loneliness. The mean loneliness score for this sample was 34.71, with a standard deviation of 10.44 (males: *M* = 35.28, *SD* = 11.20; females: *M* = 34.13, *SD* = 9.82). The mean loneliness scores obtained in this study were slightly lower than normative data reported by Russel et al. (1980) (males: *M* = 37.06, *SD* = 10.91; females: *M* = 36.06, *SD* = 10.11).

The primary relationship of interest in this study was the possible correlation between physician ratings of suspected organic involvement in the etiology of patient symptoms, and patient levels of self-reported loneliness. A negative correlation was predicted with the expectation that symptoms among those who were most lonely were least likely to be the result of organic causes (i.e. pathogens or tissue abnormalities). In other words, lonely students were more likely to have symptoms that were caused by their loneliness, while non-lonely students were more likely to have symptoms that were genuinely caused by organic agents. As predicted, the correlation between loneliness scores and organic involvement was significant and negative (*r* = -0.267, *p* = .01) (see Table 3). The more lonely a student felt, the less likely that her or his symptoms were perceived by physicians as having organic causes.

As a secondary interest, possible relationships between physician ratings and student demographic variables were also investigated. No correlation was found between physician ratings and continuous variables such as patient age or frequency of health

center visits. Interestingly, however, there was a significant negative correlation between physician ratings and the distance the students were living from home. The farther away students lived, the less likely that their symptoms were perceived as being organic. Perhaps the farther that students lived away from home the more likely they were to be lonely? If so, then distance from home may be a meaningful variable that is associated with loneliness among college students, and consequently with the development of nonorganic medical symptoms (see Table 3).

Table 3. Correlation Coefficient for Continuous Subject Variables and Mean Physician Ratings

Variable	<i>n</i>	Correlation Coefficient ( <i>r</i> )	<i>p</i>
Age	107	-0.063	.52
Health Center Visits	107	0.056	.58
Distance From Home	107	-0.208	.03
RUCLA-LS	107	-0.267	.01

Variations in mean physician scores among discrete student demographic categories (marital status, residence, gender) failed to produce statistically significant results.

## Discussion

### Limitations

This exploratory study used a relatively small, cross-sectional, convenience sample that included students visiting a single university health clinic during four consecutive days (*n* = 107). A larger sample size taken over a longer period of time may have been able to detect stronger correlations between the variables of interest. Using a larger diversity of college campuses would have enhanced the generalizability of findings. It should also be remembered that a correlation research design cannot demonstrate cause and effect relationships.

### Implications of Findings

Many symptoms seen in student health centers may have causal agents that are nonorganic. And yet current diagnostic strategies may favor organic explanations for patient symptoms and thereby fail to account for the full complexity of the symptom, which may result in inappropriate diagnosis and treatment. The two central questions of this study were: (a) can medical care physicians discriminate between organic and nonorganic etiologies? And, if so, (b) do nonorganic etiologies correlate with other factors that potentially contribute to symptom reporting—such as loneliness?" *Etiology classification.* The first question deals with the ability of physicians to discriminate between organic and nonorganic symptom etiologies. The inter-rater correlations for this study were somewhat lower than is typically considered desirable ( $r = .535, p = .001$ ). Values of  $r = .80$  or higher would provide better evidence that both physicians were genuinely recognizing and consistently evaluating the degree of organic involvement in symptom etiology (Green & Lewis, 1986, p. 97). The short training course that was provided for the physicians in this study may not have been rigorous enough to produce consistent results. Alternatively, this type of evaluation may be so subjective that no amount of training will result in high inter-rater correlations. It is further possible that the nature of symptoms in this sample was too homogenous to produce the level of diversity in symptom etiology to adequately test the physicians' abilities to distinguish the level of organic involvement. No other research was identified in the literature that attempted to evaluate the ability of physicians to accurately estimate the degree of organic involvement in symptom etiology as part of an initial patient examination.

Another peculiarity of this study was that the distribution of physician scores was highly skewed towards organic involvement. (One physician gave 86.0% of symptoms a rating of either 4 or 5, and the second physician gave 84.1% of symptoms a rating of 4 or 5—both heavily favoring organic explanations for symptom etiology.) The bias toward organic explanations for symptom etiologies may have been a result of subjective judgments from two physicians whose medical training may have predisposed them to favor organic etiologies. Alternatively, the majority of symptoms evaluated in this study may have genuinely developed from organic causes. Still another

explanation exists. While an earlier study found that only 16% of symptoms in a primary care setting had a clear organic etiology, there were key differences between the sample used in that study and the present sample (Kroenke & Mangelsdorff, 1989). In the earlier study, the average age of patients was 59.5 years, the illness was followed for a longer period of time, and most symptoms were related to chronic illness. In the present study, 88% of patients were under 30, patients were seen once, and most had acute illness symptoms. In conclusion, the statistically meaningful level of inter-rater correlation found in this study (in spite of a challenging sample and less than optimal coefficients), suggests that discrimination between organic and nonorganic etiologies during initial patient evaluations might be possible, but further training and evaluation is necessary.

*Loneliness and etiology.* Based on evidence cited in the literature review, it seems probable that many symptoms seen at university health centers and other medical settings may be related to imbalances in the nonorganic dimensions of health, including poor social health and loneliness (Feldman, 1998; Geller et al., 1999). Accordingly, the second purpose of this study was to evaluate the strength of relationship between suspected type of etiology (organic Vs nonorganic), and degree of student loneliness. This study found a significant negative correlation between loneliness and suspected organic involvement in symptom etiology ( $r = -.267, p = .01$ ). The higher the levels of loneliness, the less likely the physicians were to rate patient symptoms as being organic in origin.

Other research has found similar levels of correlation between loneliness and various health related outcomes. For example, as loneliness increases emergency department utilization goes up ( $r = .32$ ) (Geller et al., 1999), there is an increase in the reporting of medical symptoms ( $r = .21$ ) (Mahon et al., 1997), and self-reported health status declines ( $r = -.35$ ) (Mahon et al., 1997). Based on the results of this and other studies, it seems likely that loneliness has a genuine relationship with the development and expression of medical symptom etiologies. Specifically, those with higher levels of loneliness may have less organic involvement in the etiology of their symptoms. Nevertheless, the symptoms lead to more emergency department visits and poorer perceptions of

personal health. As the true cause of the symptoms continues to be misdiagnosed and mistreated, the cycle continues.

### *Conclusion*

The findings of this study are consistent with the proposition that physicians and other medical staff may be able to discriminate between organic and nonorganic symptom etiologies as part of initial patient examinations, and that those symptoms that do not seem to have an organic cause may originate with imbalances in nonorganic dimensions of health, such as poor social health and loneliness. While inter-rater correlations were not as high as might be desired, the possibility raised by this research is that physicians or other medical staff might be trained to get better at identifying symptoms that do not appear to have an organic etiology. This question will require further research to resolve, but the findings from this exploratory study are cautiously optimistic.

For those who are lonely, symptom evaluation may require diagnoses that go beyond organic explanations and that take into consideration the patient's sense of connectedness to others and to a larger community. Loneliness contributes to introspectiveness, increased reporting of symptom patterns, and less positive perceptions of health status (Mahon et al., 1993). By way of explanation, it has been found that college students who are lonely are less likely to practice positive health behaviors, in part due to less social support (Mahon et al., 1998). This is consistent with the motivational framework developed by Peplau and Perlman (1982) suggesting that loneliness decreases motivation for certain health behaviors. If loneliness is indeed a factor that relates to some medical symptoms, and it goes undetected and untreated, then the result may be long-term increases in medical care utilization (Feldman, 1998; Geller et al. 1999), ineffective treatments (Kroenke & Mangelsdorff, 1989), a lifetime of poor health practices (Mahon et al., 1998), and a significant increase in negative health outcomes and higher health care costs (Geller, 2000).

### *Practice Implications*

As revealed by the literature review conducted as part of this study, there have been relatively few research publications dealing with loneliness and health in recent years. Yet there is an accumulation of data that indicates the reality of a significant relationship

(Geller, 2000). At this point, the need is for models and strategies that allow for the early identification of loneliness as a contributor to medical symptoms followed by appropriate treatments. For example, it has been recommended in the literature that medical staff and patient educators be trained to assess social support, loneliness, and positive health practices as part of routine examinations, annual health screenings, student health service visits, and in a variety of other settings (Mahon et al., 1998). It has further been suggested that future research examine if allocating resources for the prevention, diagnosis, and treatment of loneliness can be cost effective (Geller, 2000). Some medical schools are beginning to address the relationship between physical health and other dimensions of health by offering elective coursework in such areas as social health, including discussions about the health benefits of strong social support (National Wellness Association, 1996-97).

It has been further suggested that patient histories taken by medical care staff should include assessments of loneliness, social support, and positive health practices, and that these variables should be monitored on a regular basis (Mahon et al., 1998). For individuals who score low in these areas, individual and group counseling should be offered and patients should be introduced to stronger social networks through church, community, and volunteer activities (Blai, 1989; Mahon et al., 1998). All these recommendations call for an ever-increasing alliance between medical care providers and other social service, health education, and allied health practitioners in treating multiple dimensions of health from a holistic perspective.

Significant efforts will be required to break away from approaches to health care that rely primarily on biomedical explanations for disease, and to embrace broader approaches that can address the diagnosis and treatment of nonorganic agents of disease, such as loneliness. Kroenke and Mangelsdorff (1989, p. 262) concluded that, "the classification, evaluation, and management of common symptoms needs to be refined. Diagnostic strategies emphasizing organic causes may be inadequate." If subsequent research can confirm the impact of social health on physical health, then future strategies might include patient assessments that can evaluate the social dimensions of health, holistic treatments that go beyond pharmaceutical and surgical

treatments, and patient education programs that identify those at risk for loneliness and offer appropriate educational and counseling interventions (Page, Wrye, & Cole, 1986). Health educators that work in patient education settings are in an excellent position to move such efforts forward.

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