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SELF-CONCEALMENT: CONCEPTUALIZATION, MEASUREMENT, AND HEALTH IMPLICATIONS

DALE G. LARSON
Santa Clara *University*

ROBERT L. CHASTAIN
Stanford University

This article introduces the construct of self-concealment, the active concealment from others of personal information that one perceives as negative or distressing. A Self-Concealment Scale (SCS) was developed and was included in a questionnaire battery completed by 306 subjects. The SCS had excellent psychometric properties. Self-concealment was conceptually and empirically distinguished from self-disclosure. Self-concealment significantly correlated with self-report measures of anxiety, depression, and bodily symptoms and accounted for a significant incremental percentage of the variance in physical and psychological symptoms even after controlling for occurrence of trauma, trauma distress, disclosure of the trauma, social support, social network, and self-disclosure. The implications of these findings are discussed and directions for further research are briefly outlined.

Self-concealment is a familiar human experience. Most people have uncomfortable feelings, thoughts, and information about themselves that they avoid telling others. These secrets can range from mildly embarrassing to highly distressing. Sometimes these secrets have been told to only one or two persons and sometimes to no one at all. Clinical practice and research, as well as casual observation, indicate that some individuals tend to self-conceal more than others do and that the most painful or traumatic experiences are often concealed; examples are sexual abuse as a child (Russell, 1986; Stark, 1984), rape (Binder, 1981; Burgess & Holmstrom, 1974), grief (Evans, 1976), family secrets (Karpel, 1980; Saffer,

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Sansone, & Gentry, 1979), strong negative thoughts about oneself or unhappiness in one's relationships, and serious medical conditions, including acquired immune deficiency syndrome (AIDS).

The aims of this article are threefold: first, to present a definition of self-concealment and to describe the psychometric properties of a self-concealment scale; second, to determine empirically whether self-concealment and self-disclosure are two separate and distinct constructs; and third, to examine the predictive validity of self-concealment in relation to psychological and physical health.

CONCEPTUALIZATION OF SELF-CONCEALMENT

Self-concealment is defined here as a predisposition to actively conceal from others personal information that one perceives as distressing or negative. The process of self-concealment, seen here as a special instance of boundary regulation in the maintenance of privacy (Derlega & Chaikin, 1977), can also be viewed within a model of self-presentation or image management in which social interactions present opportunities to disclose distressing or negative personal information (Schlenker, 1980). This self-concealed personal information is (a) a subset of private personal information, (b) consciously accessible to the individual, and (c) actively kept from the awareness of others. If disclosed at all, it is usually confided to only a small number of persons. Thus, self-concealment involves the conscious concealment of personal information (thoughts, feelings, actions, or events) that is highly intimate and negative in valence.

BACKGROUND

Work in the self-disclosure area and investigations of the link between confiding and health status provide important background for the current study and suggest that the systematic study of self-concealment can extend these lines of inquiry in valuable directions.

The relation between self-disclosure, the act of *revealing* personal information to others (Archer, 1980), and self-concealment, the act of *concealing* personal information from others, is an important conceptual and research issue. One possible relation is that these two constructs are simply the reverse of each other: the self-concealing individual is not disclosing, and the low-disclosure individual is self-concealing. However, the argument made here is that self-concealment and self-disclosure are two separate and distinct, though related, constructs.

SELF-DISCLOSURE RESEARCH AND THEORY

A review of the self-disclosure literature reveals that, although self-concealment has not been conceptually differentiated from self-disclosure, several authors have pointed to the significance of what may be identified as self-concealment phenomena. For example, Jourard (1959, 1971a, 1971b) emphasized the negative health consequences of hiding or actively concealing significant aspects of the self as well as the positive health consequences of disclosing important self-information (Goodstein & Reinecker, 1974). However, subsequent research has not directly studied the former dimension. In his review of the self-disclosure literature, Cozby (1973) pointed out that self-disclosure research has focused almost exclusively on the factors promoting disclosure and encouraged study of the factors inhibiting disclosure.

Other investigators have proposed a refocusing of self-disclosure research toward the study of how one manages one's most private self-information (Fisher, 1984; Goodstein & Reinecker, 1974). Fisher (1984) argued that the expanded class of behaviors included within the general rubric of self-disclosure has prevented an adequate testing of Jourard's disclosure/health hypothesis and has contributed to the equivocal nature of the findings relating self-disclosure to various indices of health status (Blotcky, Carscaddon, & Grandmaison, 1983; Chelune, 1979).

The study of self-concealment is consonant with the foregoing observations and recommendations—it includes an explicit focus on the forces inhibiting disclosure and a concern with negative self-information of the most intimate and private nature. In these ways, the study of self-concealment builds upon conceptual developments within the self-disclosure research tradition.

SELF-CONCEALMENT AND HEALTH STATUS

The implications of self-concealment for health status have long been noted by clinical practitioners. Ellenberger (1970) has traced the historical importance of the concept of the "burdening" or "pathogenic" secret in the development of dynamic psychotherapy. For the psychoanalytically oriented therapist, the client's conscious secrets from the therapist represent a form of "deliberate, overt resistance" (Ekstein & Caruth, 1975, p. 202) that must be overcome. A focus on clients' most intimate and disturbing experiences and their difficulties in revealing them is not unique to analytically oriented clinicians. Indeed, the therapist's role as confidant—someone to whom clients can disclose their most private

thoughts, feelings, and behaviors—is a hallmark of the therapeutic relationship (Towbin, 1978).

Work in the social support area has demonstrated that having a confidant, someone to whom one can disclose fully, has a salutary impact. In several studies the availability of a confidant predicted health status and coping outcomes following stressful life events (Brown, Bhrolchain, & Harris, 1975; Lowenthal & Haven, 1968; Miller & Ingham, 1976).

The health significance of self-concealment has been even more explicitly underlined by recent evidence that not confiding traumatic events has undesirable long-term health consequences. In a series of studies Pennebaker and his colleagues have examined what they call the confiding-illness relation or the inhibition-disease link (Pennebaker & Chew, 1985) and have found that not expressing thoughts and feelings about traumatic events (divorce of parents, death of spouse, death of parent, and sexual traumas) leads to long-term health effects, even when social support levels are controlled (Pennebaker & O'Heeron, 1984). In a recent study, subjects writing about traumatic experiences showed improved cellular immune system functioning (Pennebaker, Kiecolt-Glaser, & Glaser, 1988).

Pennebaker concludes that "the act of not discussing or confiding the event with another may be more damaging than having experienced the event per se" (Pennebaker, 1985, p. 82) and theorizes that the mechanism accounting for these effects is increased physiological work resulting from the behavioral inhibition accompanying not confiding the traumatic event (Pennebaker & O'Heeron, 1984). The inability or unwillingness to discuss major upheavals with others is attributed to either circumstances or individual differences (Pennebaker & O'Heeron, 1984). One purpose of the present study is to introduce a measure of the general tendency to self-conceal that would permit more direct assessment of this issue. Another purpose is to broaden the scope of self-concealed personal information to include not only traumatic events but any events or experiences the revelation of which is perceived to be potentially threatening or harmful.

The above presentation leads to three main research questions addressed in this study.

1. Are there individual differences in the tendency to conceal personal information, and can they be reliably and validly measured using a self-report instrument? The psychometric properties of a scale designed to measure this new construct will be tested.
2. Is the self-concealment construct separate and distinct from self-disclosure? When examined in relation to other variables, how

similar or dissimilar are the correlational profiles of self-concealment and self-disclosure?

3. Does the self-concealment variable predict psychological and physical health status? To be a useful addition to theory, self-concealment should contribute uniquely and significantly to the prediction of psychological and physical health.

METHOD

SUBJECTS

Three methods were used to gather subjects. First, questionnaires were mailed to 248 persons on a mailing list maintained for the Health Psychology Program at the first author's university. This list consisted primarily of human services workers (e.g., nurses, physical therapists, social workers, clergy, and volunteers in social service agencies). Second, questionnaires were distributed to 366 persons attending professional training conferences at which the first author delivered an address. Conference attendees were asked whether they would like to volunteer to participate in a study of health and self-disclosure. One group of subjects at these conferences was immediately given copies of the research questionnaire with a return envelope; other subjects were asked for their names and addresses and were later mailed questionnaires. Finally, 225 questionnaires were distributed to graduate counseling psychology students (not currently in any of the author's courses) volunteering to participate in the study. Because of the highly intimate nature of many of the questions asked, extreme care was taken to protect the confidentiality of respondents. All subjects were told not to put their names anywhere on the questionnaire and were given a postcard to send separately for a report of the findings of the study.

A total of 306 questionnaires was returned. Of the respondents, 277 were female and 29 were male, reflecting the small percentage of males in the populations sampled. Response rates for the three samples were, respectively, 29% (n = 73), 41% (n = 151), and 36% (n = 82), giving an overall response rate of 36%. The response rates were not significantly ($p < .05$) different among the three samples. These response rates could indicate a self-selection problem due to nonrespondent bias, but they appear acceptable given the highly personal and time-demanding nature of the questionnaire. Although nonrespondent bias could not be estimated in these samples, the respondents represent a subsample of primary

interest—human services workers willing to respond to this kind of questionnaire.

A multivariate analysis of variance (MANOVA) was performed to test the comparability of the three samples and males and females on the nine major variables of the study. These variables represented health, social support, social networks, self-concealment, and self-disclosure. A two-factor MANOVA (sex by group) revealed the following: (a) sex, $F(9, 223) = 1.60$, $p > .10$; (b) group, $F(18, 446) = 0.70$, $p > .80$; (c) sex-by-group interaction, $F(18, 446) = 0.67$, $p > .80$. Thus, there is no evidence of sex or group differences in the total sample ($N = 306$).

Demographic characteristics of the final sample included an average age of 42 years (range, 21 to 79; SD = 10.9); 82% with college education and 60% with education beyond college; 61% married, 16% divorced, 15% single, 4% separated, and 4% widowed; 43% Protestant, 28% Catholic, 7% other Christian religion, 10% no preference, and 12% other. Eighty-seven percent of the subjects indicated that they were currently working in the human services.

MEASURES

Self-Concealment Scale. The 10 items making up the Self-Concealment Scale (SCS) used in the data analyses reported below are presented in Table 1. Scale items refer to (a) a self-reported tendency to keep things to oneself (e.g., "There are lots of things about me that I keep to myself"); (b) possession of a personally distressing secret or negative thoughts about oneself that have been shared with few or no other persons (e.g., "I have negative thoughts about myself that I never share with anyone"); and (c) apprehension about the disclosure of concealed personal information (e.g., "If I shared all my secrets with my friends, they'd like me less").

The internal consistency estimate of Cronbach's alpha showed $a = .83$ ($N = 306$). Test–retest reliability was assessed in an independent sample of female graduate counseling psychology students ($n = 43$) with a 4-week interval between testing and revealed $r = .81$.

Self-Disclosure Index. Subjects also completed the Self-Disclosure Index (SDI), an 11-item scale developed by Miller and her associates (Miller, Berg, & Archer, 1983). The version used here, which specifies willingness to disclose to a same-sex stranger in the future, can be considered an "expectation" measure and thus a better predictor of future disclosing behavior than a "history" measure. Subjects indicated extent of disclosure on a scale from 0 (discuss not at all) to 4 (discuss fully and completely). The SDI had an internal consistency of $a = .91$ ($N = 306$).

TABLE 1
Means and Standard Deviations of Individual SCS Items

SCS Items	M	SD
1. I have an important secret that I haven't shared with anyone.	2.73	1.42
2. If I shared all my secrets with my friends, they'd like me less.	2.44	1.10
3. There are lots of things about me that I keep to myself.	3.00	1.15
4. Some of my secrets have really tormented me.	2.85	1.31
5. When something bad happens to me, I tend to keep it to myself.	2.49	1.09
6. I'm often afraid I'll reveal something I don't want to.	2.33	1.01
7. Telling a secret often backfires and I wish I hadn't told it.	2.59	.91
8. I have a secret that is so private I would lie if anybody asked me about it.	2.40	1.32
9. My secrets are too embarrassing to share with others.	2.42	1.03
10. I have negative thoughts about myself that I never share with anyone.	2.71	1.21
Total scale	25.92	7.30

Note. The scale uses a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Social Support and Social Network Measures. Measures of self-reported social support and social network strength were included. Subjects were asked to think of the several kinds of social support they might receive from different people in their lives (spouse or partner, friends, closest relatives, neighbors, and work associates) and were asked to rate each of these persons in terms of how much support they received from them. The exact instructions were as follows: "The support we get from others can take many forms. It includes people giving us information and guidance, being there when we need them, boosting our spirits, making us feel that they care for us, and helping out with small favors like running an errand or doing household chores. Using these examples of support as a guideline, rate each of the following person(s) in terms of how much support you feel you receive from them." Two variables—Social Support from Spouse/Partner and Social Support from Others (friends, closest relatives, neighbors, and work associates combined)—were generated from these ratings. To obtain measures of social network strength for friends and relatives, subjects were asked to indicate separately

number of close ("feel at ease with, can talk to about private matters, and can call on for help") friends and close relatives.[1]

Physical Symptom Checklist. A 39-item physical symptom checklist, which shows adequate reliability and validity (Cohen & Hoberman, 1983; Cohen, Kamarck, & Mermelstein, 1983), asked subjects to indicate the extent to which they had been bothered by 39 commonly occurring symptoms (e.g., back pain, headache, blurred vision, muscle soreness) during the immediately preceding 4-week period. This checklist uses a 5-point scale ranging from "Not at all" to "Extremely" and had an internal consistency of a = .86 (N = 306).

Anxiety and Depression Scales. Two measures of psychological distress taken from the Typology of Psychic Distress instrument (PSYDIS; Mellinger, Baiter, Manheimer, Cisin, & Parry, 1978) were included: a Mood Depression scale (4 items) and a Mood Anxiety scale (6 items). The items were originally taken, for the most part, from an early version of the Hopkins Symptom Checklist (HSCL) and have been used extensively in research, demonstrating excellent psychometric properties (Mellinger et al., 1983). This instrument was chosen because it asks about symptoms experienced during the past year, consistent with the research goal of measuring more long-standing health status. The two scales had good internal reliability for scales with so few items (Mood Anxiety, alpha = .78; Mood Depression, alpha = .79). The measures used the following response format: 1 = Not Bothered at All, 2 = Bothered Some but Not Much, and 3 = Bothered a Lot.

Life Events or Experiences. Another section of the questionnaire asked about the occurrence of traumatic or distressing life events or experiences—death of parent(s) before age 17, sexual molestation as a child, physical abuse as a child, rape experience as an adult, and 20 other events or experiences, including death of a child, abortion, divorce of parents before age 17, affair/infidelity, alcoholic parent(s), alcohol or drug use, and unhappiness or difficulties in one's marriage. For each of the events or experiences that applied to them, subjects were asked to indicate (1) whether they had kept its occurrence secret from anyone, (2) how many persons they had told about it ("No one," "1-3," or "4 or more"), and (3) how much it had distressed them during the past year. A "Secret Total" variable was computed as the total number of life events or experiences a subject reported having kept secret. The total number of life events or experiences a subject indicated not having disclosed to anyone was also computed.

1. The social network items were from research conducted by the Human Population Laboratory, California Department of Health Service Research, and the Centers for Disease Control, U.S. Department of Health and Human Services (Kaplan & Camacho, 1983). The social support items were adapted from the Dimensions of Social Support Scale developed by Frances Cohen, University of California, San Francisco.

RESULTS

PSYCHOMETRIC PROPERTIES OF THE SCS

An exploratory maximum-likelihood factor analysis was performed on the 10 SCS items to determine dimensionality. Although two factors were extracted with two eigenvalues greater than 1 (6.57 and 1.38, respectively), the SCS was essentially unidimensional because (a) the first factor accounted for over 65% of the common variance, (b) the second factor was uninterpretable even after orthogonal and oblique rotations, and (c) item loadings on the first factor ranged from .46 to .71. The internal consistency of the SCS (a = .83) also supported unidimensionality. The moderate corrected item—total correlations indicated that the SCS items were not redundant. In addition, the mean for the interitem correlations, which provides a relatively pure index of scale homogeneity, was .34. Thus, the SCS appears to be a reliable and essentially unidimensional instrument.

SELF-CONCEALMENT VERSUS SELF-DISCLOSURE

Is self-concealment empirically as well as conceptually distinct from self-disclosure? If these two constructs cannot be clearly differentiated, then self-concealment may merely be the reciprocal or "mirror image" of self-disclosure. This important question was answered by a series of analyses. The first step was to subject the 11 SDI items and the 10 SCS items to a maximum-likelihood factor analysis. The null hypothesis that one factor was sufficient to account for the within-set variance was rejected in favor of the alternate hypothesis that more factors were needed, x^2 (189) = 1062.6, $p < .0001$. The two-factor solution showed that the 11 SDI items had relatively high loadings on the first factor (.50 to .78) and low loadings on the second factor (.02 to –.22). The 10 SCS items had high loadings on the second factor (.44 to .70) and low loadings on the first factor (.00 to –.15). These results were essentially duplicated using a combined cross-validation sample of 110 undergraduates and 60 graduate students (126 females and 44 males). [2] Although related to self-disclosure, the SCS represents a new construct that is separate and distinct from self-disclosure.

2. Further evidence for the two-factor solution was provided by results from a series of confirmatory factor analyses using LISREL. The two-factor model was superior to the one-factor model (GFI = .848 versus .630, adjusted GFI = .814, coefficient of determination = .915, and RMS = .092). The 10 SCS item loadings ranged from .41 to .95, and the 11 SDI items ranged from .52 to .95 on their respective factors (all other loadings were set to 0). These results were duplicated in two independent cross-validation samples. In the above analyses, the correlations between the self-concealment latent construct and the self-disclosure latent construct ranged from -.017 to -.317 in the different sets of confirmatory analyses (which are close to the -.27 correlation in the total sample; see Table 2).

PREDICTIVE VALIDITY

The next question addressed was the "so what" question often left begging in much theoretical work. Even if we can reliably measure this new construct, the crucial test is whether self-concealment uniquely contributes to predicting important health outcomes. What is the predictive validity of the SCS in the presence of other competing explanatory variables, especially self-disclosure?

The current research design permits assessment of the contribution of self-concealment to health outcomes-physical symptoms (as measured by the 39-item physical symptom checklist) and psychological distress (as measured by the anxiety and depression scales from the PSYDIS measure).

The analyses of these relations included correlations, analysis of variance (ANOVA), and hierarchical multiple regression. Results showing the relations between self-concealment and the health measures are presented below.

Table 2 shows the correlational profiles for both the SCS and the SDI. None of the correlations between the SDI and health outcomes was

TABLE 2
Correlational Profiles for Self-Concealment (SCS) and Self-Disclosure (SDI) in Total Sample and in Cross-Validation Sample

VARIABLE	TOTAL SAMPLE (N = 306)		CROSS-VALIDATION SAMPLE (N = 110)	
	SCS	SDI	SCS	SDI
Self-concealment (SCS)	1.00	-.27****	1.00	-.23*
Physical symptoms	.29****	.00	.30**	-.17
Depression	.41	-.08	.32***	-.14
Anxiety	.32****	.02	.41****	-.14
Social support, Others	-.27**"*	.01	-.17	.13
Social support, Spouse	-.10	-.12*	-.14	.00
Social network, Friends	-.33****	.22*"	-.16	.22*
Social network, Relatives	.12*	.06	-.05	.12
Secret total	.14*	.15*	.20*	-.00
Told no one	.41****	-.07	.29**	-.26**

`p<.05.
"p<.01.
p<.001.
**.", p < .0001.

significantly different from zero, whereas the SCS was significantly related to all three health outcomes. These results were upheld in the cross-validation sample of 110 undergraduates and are also reported in Table 2.[3] Thus, self-concealment was more highly and significantly related to all three health outcomes than was self-disclosure.

A different look at the relations between the SCS and the health outcomes is provided by forming high- and low-SC groups using different grouping definitions (e.g., mean, median, and quartile splits). Results from one-way ANOVAs also showed that the high-SC group had significantly more bodily symptoms, depression, and anxiety than the low-SC group. A 2 x 2 ANOVA (high/low on SCS with high/low on SDI) performed on physical symptoms showed only a significant main effect for SCS grouping ($F = 9.59$, $p = .002$). Neither SDI grouping nor the interaction between SCS and SDI groups was significant ($F = 0.93$, $p = .337$, and $F = 2.21$, $p = .138$, respectively).

A hierarchical regression procedure (Cohen & Cohen, 1975) was used to test the incremental contribution of self-concealment to health outcomes. In this analysis five alternative sets of predictor variables were entered into the regression equation prior to the addition of self-concealment. For instance, it is reasonable to suppose that the mere fact of trauma (e.g., molestation as a child) may lead to negative health outcomes and that disclosure of this trauma and general levels of social support could buffer these health effects. Only if self-concealment uniquely predicts health outcomes, after controlling for these alternative explanations, is it appropriate to conclude that self-concealment itself has a negative impact on health. The five competing sets of predictor variables, in order of entry, are (1) trauma incidence[4]—four variables (physically abused as a child, sexually molested as a child, raped as an adult, and death of parent(s) before age 17); (2) trauma distress during past year; (3) trauma disclosure; (4) social support and social network—four variables (social support spouse/partner, social support others, social network friends, social network relatives); and (5) SDI score (see Table 3).

With bodily symptoms as the dependent measure, trauma incidence accounted for a significant proportion of the variance ($R^2 = .060$, $p < .01$). Trauma disclosure did not make a significant contribution, but trauma distress ($R^2 = .042$, $p < .05$) added significantly to the prediction of outcome. Self-disclosure, however, did not make a significant contribution. Thus, the five sets of alternative predictor variables were able

3. Further analyses were not cross-validated because of insufficient sample sizes.

4. Number of subjects reporting traumas were as follows: sexually molested as a child, 55; physically abused as a child, 25; rape experience as an adult, 26; death of parent(s) before age 17, 22.

TABLE 3
Hierarchical Multiple Regression Analysis

INDEPENDENT VARIABLE	STEP	DEPENDENT VARIABLE: BODILY SYMPTOMS BLOCK R^2	BODILY SYMPTOMS INCREMENT R^2	DEPRESSION BLOCK R^2	DEPRESSION INCREMENT R^2	ANXIETY BLOCK R^2	ANXIETY INCREMENT R^2
Trauma (abused as a child, molested, raped, death of parents)	1	.060**		.010		.007	
Trauma distress	2	.102	.042*	.024	.014	.034	.027
Trauma disclosure	3	.111	.009	.041	.017	.053	.019
Social support and social network (4 variables)	4	.146	.035	.187	.146***	.134	.081***
Self-Disclosure Index	5	.148	.002	.191	.004	.134	.000
Self-concealment	6	.184	.036**	.265	.074***	.186	.052***
Total multiple R		.429		.515		.431	

* $p < .05$.

** $p < .01$.

*** $p < .001$.

to account for about 15% of the variance in bodily symptoms (see Table 3), and the addition of self-concealment increased prediction still further (R^2 = .036, $p < .01$).

The patterns of results for the depression and anxiety measures were quite similar. For each, only the social support/social network variables significantly explained variance in the outcome variable (p , .001), with self-concealment making a significant additional contribution ($p < .001$). For depression, the addition of self-concealment enabled a further improvement to 26.5% of the variance (R^2 increment = .074, $p < .001$). For anxiety, the addition of self-concealment improved prediction to 18.6% of the variance (R^2 increment = .052, $p < .001$).

To summarize, after controlling for trauma incidence, trauma distress, trauma disclosure, social support and social network, and self-disclosure levels, self-concealment accounted for significant increments in variance explained for all three outcomes. Although the total variance accounted for in the dependent variables may seem lower than desirable, the predictive validity coefficients (total multiple *Rs*) ranged from .429 to .515. In addition, these coefficients were quite acceptable given that the dependent measures were not corrected for attenuation due to unreliability. Thus, although the existence of trauma has a negative impact on health and although social support can ameliorate this impact, at least with psychological symptoms, it remains the case that self-concealment has a uniquely negative impact on mental and physical health.

DISCUSSION

The SCS is a reliable measure of self-concealment. Self-concealment and self-disclosure are distinct and separate constructs. Self-concealment is significantly related to physical and psychological symptoms. The expectation that self-concealment would contribute uniquely and significantly to the prediction of psychological and physical status even after accounting for trauma level, trauma distress, trauma disclosure, social support and social network variables, and general self-disclosure levels was confirmed. Self-concealment contributes significantly and uniquely to increased depression, higher anxiety, and more physical symptoms, after controlling for the other variables. The social support and social network variables contributed significantly to depression and anxiety, but self-concealment made an additional and significant contribution. Thus, the effect of the self-concealment variable on health outcomes is not a function of differing levels of social support for the high- and low-self-concealment groups.

It is important to note, however, that the relation between self-concealment and physical symptoms, when controlling for anxiety and

depression, is demonstrated in an interaction, rather than in a direct effect.[5] Subjects with high levels of trauma distress and high self-concealment reported significantly ($p < .0001$) more physical symptoms even after controlling for anxiety and depression. The obtained relation between self-concealment and physical symptoms must be interpreted quite cautiously for another reason. Recent work has shown that neuroticism or negative affectivity is related to somatic complaints but not to disease (Costa & McCrae, 1987; Smith, Pope, Rhodewalt, & Poulton, 1989); Watson & Pennebaker, 1989), and further, that correlations between various personality variables and health reports may actually reflect shared variance with neuroticism. The present study employed a self-report physical symptom measure and did not establish the discriminant validity of the SCS relative to neuroticism. Thus, the obtained relation between self-concealment and physical symptoms could reflect an association between chronic distress and somatic complaints rather than a relation between self-concealment and actual physical illness.

Although generalizability of these findings may be limited because of the small percentage of males and possible self-selection, three points should be noted: (a) cross-validation samples showed similar measurement distributions and relations, (b) males and females did not differ on the measures of interest in any of the samples, and (c) if respondents were not representative because they are more willing to disclose personal information or were more psychologically astute, the relations between health outcomes and the psychological constructs would be more likely to be attenuated rather than exaggerated (i.e., respondents will be less variable with respect to these measures).

What are the mechanisms accounting for the relations obtained between self-concealment and the health measures? One possible pathway for the effects of self-concealment on health status is physiological work (Pennebaker & O'Heeron, 1984) resulting from behavioral inhibition associated with self-concealment. As discussed above, many writers have concluded that self-concealment processes—whether labeled as nondisclosure (Jourard), a failure to confide (Pennebaker), or readjustment of the privacy regulation system (Margulis, 1977)—exact a price and function as internal stressors.

Self-concealment as construed and measured here includes a behavioral inhibition component. The SCS items ask about the propensity to keep things to oneself, about fear of revealing something one doesn't want to, and about the readiness to lie if asked about concealed self-information; these items tap inhibitory processes like those described by Pennebaker. The SCS item "When something bad happens to me, I

5. Partial $r = .06$, $p = .16$

tend to keep it to myself" directly assesses the tendency not to confide traumatic experiences. Thus, one hypothesis is that health effects are mediated by behavioral inhibition accompanying self-concealment.

A second pathway could be through the role of self-concealment as a personality variable mediating coping responses to distressing external events or troubling inner experiences. In this view, inhibition of the disclosure of troubling experiences restricts the range of available coping responses, preventing more active, problem-focused coping responses and leaving primarily emotion-focused responses (Lazarus & Folkman, 1984) as possible alternatives. In their study of coping and health, Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen (1986) identified *self-control* as a form of emotion-focused coping assessed by items such as "I tried to keep my feelings to myself" and "Kept others from knowing how bad things were." Subjects tended to use more self-control coping when threat to self-esteem was high, consistent with self-concealment theory. In a separate study, Folkman and Lazarus (1986) reported that subjects with high levels of depressive symptoms used more self-control coping strategies than did subjects low in symptoms.

A third and related hypothesis is that self-concealment affects health status by limiting the range and frequency of helping behaviors offered by significant others. By avoiding discussions of problems, particularly those threatening to self-esteem, high self-concealers are deprived of important kinds of social support. A possible resulting scenario is that social comparison data are not received, difficulties are not normalized, the stakes involved in confiding increase, and additional help is not sought (Snyder & Ingram, 1983).

Further research is planned to study behavioral inhibition, coping, and help seeking as pathways for the direct and indirect effects of self-concealment on health over time in different populations. Using objective measures of health status will address the limitations of self-report outcome measures like those used in the present study. An additional goal of this research is to clarify the relations between self-concealment, negative affectivity (Watson & Pennebaker, 1989), emotional control (Watson & Greer, 1983), self-control (Folkman et al., 1987), social desirability (Crowne & Marlowe, 1960), and other relevant variables.

The investigation of self-concealment could encompass a wide range of research endeavors. For example, research exploring the origins of self-concealment could provide important insights for clinical theory and treatment approaches. The role of self-concealment in the development and dissolution of intimate relationships is another arena for subsequent work.

The present study operationalizes a construct that clinicians have long viewed as significant in the etiology and treatment of psychological

and psychosomatic disorders. Although further work is needed for a fuller understanding of the psychology of self-concealment, initial evidence suggests that this new construct is an important addition to research on personality and health.

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