

**Expectancies about Control  
over Health:  
Relationship to Desire for Control  
of Health Care**

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*Data from four studies of adults are used to address the relationship between expectancies for control of one's health (an outcome) and preference for control of health care (a process). The former is operationalized by the use of the Multidimensional Health Locus of Control (MHLC) Scales; the latter by the B and I subscales of the Krantz Health Opinion Survey (KHOS). Descriptive data from the four studies are presented. Significant correlations exist between the B subscale and the PHLC and IHLC scales. Factor analysis of data from three of the studies reveals that, along with selected items from other scales, all of the items from both the PHLC scale and the B subscale load on the first factor. Both theoretical and methodological reasons for these findings are discussed.*

To what extent do individuals' expectancies about their control over their health relate to their preferences to get actively involved in their own health care? Do people who think their own behavior is responsible for their health want as much information as possible about their health status and health-related treatments? Do people who believe their health is dependent upon other people have unfavorable attitudes toward becoming involved in their own treatment programs? These are some of the questions addressed in this article. Data were collected from four samples of subjects studied for other purposes.

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Individuals' expectancies about their control over their health were operationalized by scores on the Multidimensional Health Locus of Control (MHLC) Scale (Wallston, Wallston, & DeVellis, 1978), which yields scores on three independent dimensions of health locus of control beliefs. The Internal Health Locus of Control (IHLC) Scale measures "health internality"—the extent to which a person believes health is a function of his or her behavior. The CHLC scale assesses "chance externality"—the degree to which a person believes that his or her health is unpredictable; a matter of fate, luck, or chance. Finally, the PHLC scale, "powerful others externality," taps the person's beliefs that health is largely determined by the actions of powerful others, either family members, friends, or health professionals. Research using the MHLC scale has been reviewed in two recent book chapters (Wallston & Wallston, 1981, 1982).

Preferences for self-care and health-related information were operationalized by scores on the Krantz Health Opinion Survey (KHOS; Krantz, Baum, & Wideman, 1980). Specifically, the KHOS consists of two moderately intercorrelated subscales: I (Information) and B (Behavioral Involvement). The seven-item Information scale is described as measuring the "desire to ask questions and wanting to be informed about medical decisions" (p. 980). The Behavioral Involvement scale consists of nine items "concerned with attitudes toward self-treatment and active behavioral involvement of patients in medical care" (pp. 979-980).

The MHLC scale and the KHOS scale share many similarities. They are both summated scales, multidimensional, and health-related in content, but they differ on at least two important dimensions. The MHLC Scale assesses beliefs or expectancies, while the KHOS purports to measure attitudes or preferences rather than expectancies. Also, the MHLC items focus on health as an outcome, while the KHOS concentrates on the health care delivery process. Relationships among these different constructs and their operationalizations have not been heretofore reported in the literature, except for Krantz et al.'s (1980) finding that their scales were essentially unrelated to the HLC scale (Wallston, Wallston, Kaplan, & Maides, 1976), a unidimensional predecessor of the MHLC scale.<sup>1</sup>

The purpose of this investigation was to examine the interrelationship between the MHLC scale and the KHOS. By determining the extent to which they are empirically related, we can gain a better understanding of the connectedness of their underlying theoretical constructs.

## METHOD

### Subjects

The subjects for this investigation came from four separate studies, the first three of which were conducted in Nashville, Tennessee, as part of a larger investigation of the discriminant validity of instruments assessing individuals' desire for control over the health care delivery process (see Smith, Wallston, Wallston, Forsberg, & King, in press, for specific details). The fourth study was

TABLE 1 Sample Characteristics

	<i>Study 1</i>	<i>Study 2</i>	<i>Study 3</i>	<i>Study 4</i>
N	124	122	172	133
Sex	72% F	63% F	100% F	100% M
Age <sup>a</sup>	49.7 (SD = 13.5)	44.2 (SD = 13.4)	25.3 (SD = 4.9)	59.8
Education <sup>a</sup>	16.4 (SD = 2.5)	15.0 (SD = 3.4)	13.9 (SD = 2.6)	11.6
Source	Community Agency	Churches & Clinic Waiting Room	Obstetricians' Offices, OB Clinic	VA Out-Patient Clinic

a. In years.

## RESULTS

### Descriptive Findings

Table 2 shows the means and standard deviations for each scale for each sample. The differences in means across samples will be discussed below.

### Bivariate Correlations Between Measures

Table 3 presents separately for each study the simple correlations between each of the MHLC scales (IHLC, PHLC, and CHLC) and the two KHOS subscales (I and B). The Powerful Others Health Locus of Control Scale (PHLC) is consistently related both negatively and significantly to the two KHOS subscales, although the magnitude of correlation is higher with the behavioral involvement (B) subscale than with the information subscale (I). This same pattern prevails with the measure of health internality (IHLC), although the correlations are positive, as one would expect, and account for less shared variance. The correlations between the Chance Externality Health Locus of Control (CHLC) Scale and the KHOS subscales are consistently negative but generally of a very low magnitude, although three of eight are statistically significant at  $p < .01$ .

### Factor Analysis

Data from the first three studies were aggregated into a single dataset and subjected to a principal components factor analysis with varimax rotation. A three-factor solution emerged. The first and largest factor consisted of all six of the PHLC items, all nine of the B items from the KHOS, four of the six CHLC items, and three of the seven I items from the KHOS. The second factor contained the six IHLC items and the remaining two items from the CHLC. The final factor consisted of the remaining four I subscale items.

TABLE 2 Means and Standard Deviations of Scales by Study

Study	<i>K-I</i>	<i>K-B</i>	<i>IHLC</i>	<i>CHLC</i>	<i>PHLC</i>
1. (N = 124)					
$\bar{X}$	30.19 <sup>a</sup>	34.01 <sup>c</sup>	24.29 <sup>e</sup>	14.85 <sup>e</sup>	18.74 <sup>c</sup>
sd	7.56	9.55	5.33	5.16	5.53
2. (N = 122)					
$\bar{X}$	26.66 <sup>a</sup>	30.61 <sup>c</sup>	24.65 <sup>e</sup>	16.78 <sup>c</sup>	19.91 <sup>e</sup>
sd	7.13	8.53	4.89	5.08	5.45
3. (N = 172)					
$\bar{X}$	28.87 <sup>a</sup>	31.11 <sup>c</sup>	25.88 <sup>e</sup>	16.20 <sup>c</sup>	19.82 <sup>e</sup>
sd	6.58	7.90	3.68	4.66	4.47
4. (N = 133)					
$\bar{X}$	2.40 <sup>b</sup>	1.70 <sup>d</sup>	45.57 <sup>f</sup>	31.61 <sup>f</sup>	45.42 <sup>f</sup>
sd	1.87	1.72	9.17	10.02	8.83

a. Possible range: 7-42.

b. Possible range: 0-7.

c. Possible range: 9-54.

d. Possible range: 0-9.

e. Possible range: 6-36.

f. Possible range: 12-60.

## DISCUSSION

From the results of these four studies, it is clear that there is a great deal of overlap between the MHLC scales and the KHOS. This is especially the case with the PHLC and B scales; persons who believe their health is controlled by powerful others are less likely to agree with items advocating self-treatment or with the active behavioral involvement of patients in medical care. Similarly, persons who believe that their own behavior affects their health, (internal locus of control) have more positive attitudes toward self-treatment and active involvement in their own care. Both of these findings are consistent with the theoretical underpinnings of these two sets of measures of health beliefs. Although of somewhat lower magnitude, the intercorrelations of the MHLC scales and the I scale, which measures desire to ask questions and to be informed about medical decisions, are also theoretically consistent.

These results also shed some light on why Krantz et al. (1980) found little overlap between their measures and the earlier, unidimensional Health Locus of Control (HLC) Scale (Wallston et al., 1976). The major dimension of health locus of control beliefs, which was nearly absent in the 11-item HLC scale, was belief in control of one's health by powerful others. As seen in the results reported here, it is mainly the PHLC scale scores that are responsible for the high degree of overlap with Krantz's measures.

TABLE 3 Simple Correlations Between MHLC and KHOS Subscales

Study	<i>KHOS Scale</i>							
	<i>I-Scale</i>				<i>B-Scale</i>			
	1	2	3	4	1	2	3	4
IHLC	.28***	.16*	.20**	.08	.44***	.25**	.26***	.12
CHLC	-.15	-.22**	-.09	-.25**	-.15	-.15	-.22**	-.05
PHLC	-.46***	-.36***	-.18*	-.22**	-.66***	-.59***	-.56***	-.34***

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

One major conclusion from these studies, then, is that it is highly likely the PHLC scale and the B subscale are measuring a similar construct, although the former purports to measure expectancies about control over one's health (an outcome) and the latter is ostensibly an attitude measure relating to an important aspect of health care delivery which is a process, not an outcome. Examination of wording of the items of these two measures reveals remarkable similarity. While the degree of overlap between these two measures is high and they both loaded on the same factor in the factor analysis, it should be borne in mind that the PHLC scale, at best, predicts only slightly over 40% of the variance in the B scale. A lot of potentially useful variance is thus left unaccounted for.

The overlap between the MHLC scales and the KHOS-I scale is far less than the overlap with the B scale, despite the logical theoretical proposition that persons who espouse internal locus of control beliefs should be more prone to ask questions about their health and be desirous of information about medical conditions that affect them (Seeman & Evans, 1962). Part of the reason for this attenuated correlation may be due to the finding from other studies that the relationship between health locus of control beliefs and health-related information seeking is modulated by the value placed on health (Wallston, Maides, & Wallston, 1976; Wallston & Wallston, 1981). Since health value was not assessed in these studies, it is not possible to test this notion with these data.

A more parsimonious explanation for the attenuated correlations between these measures is that the I scale is, in fact, a true measure of the construct "desire for control over one's health care encounters," and thus a different construct than that measured by the MHLC scales. Expectations of control over health outcomes need not necessarily be strongly related to how much one desires control over the health care delivery process. Other results available from Studies 1, 2, and 3 appear to provide convincing evidence that, indeed, the I scale does measure "desire for control," and the B scale and MHLC scales do not, except insofar as they are correlated with the I scale. The I scale, for example, did

a better job discriminating among types of preparation for childbirth and choices of a place to die than did the B or MHLC scales (Smith et al., in press).

One further methodological comment is appropriate. It is obvious in comparing the results of Study 4 with those of Studies 1-3 that the magnitude of overlap between the measures is much lower in Study 4 than in the earlier studies. This could be due to many factors. For instance, not only were the subjects less healthy in Study 4, they were also of a different sex (all males), considerably older, and far less well educated than the samples studied in Nashville. Any of these sample differences could be responsible for the lower correlation coefficients. It is most likely, however, that these differing results were due to the different mode and form of questionnaire administration that existed in Study 4. As described in the "Methods" section, not only were the response scales different, but in Studies 1-3 the MHLC and KHOS items were interspersed and in Study 4 they were administered separately. Thus, it is quite possible that Studies 1-3 had higher shared method variance than did Study 4.

The differences in mean scale scores from study to study (as shown in Table 2) reflect the characteristics of the subjects in those studies, especially their educational levels and degree of chronicity of health conditions. The mean IHLC scores, for example, for subjects in Studies 1, 2, and 3 were more than one standard deviation higher than their mean PHLC scores, while the subjects in Study 4, all of whom had a longstanding chronic illness, had nearly identical IHLC and PHLC mean scores. These findings are comparable to other normative data reported in Wallston and Wallston (1981). Also, subjects' mean scores on the Krantz scales appear to vary as a function of mean number of years of education. The more highly educated the sample, the more they wished to participate actively in their own care. The one exception to this trend was Study 2. However, over 40% of the subjects in that sample came from a primary care clinic, and it is conceivable some of them had chronic illnesses, thus making that subset more similar to the patients in Study 4.

In conclusion, this study suggests that individuals' expectations about control over their health are related to their preferences for control over their health care. Understanding individual preference is an important part of understanding behavior and is necessary for planning means of increasing preventive health behaviors and compliance. Therefore, it is important to continue development of the measurement of desires or preferences. At this time, the KHOS is the only available measure of preference for type of health care. It merits further research. Furthermore, while the MHLC scales and the KHOS each have their own strengths and weaknesses, together they provide the health researcher with an armamentarium of measures of health attitudes and beliefs. If used knowledgeably these measures can help enrich our understanding of health behaviors. We advocate that the potential consumer of these instruments become as informed as possible of their purpose and characteristics before making a judicious choice of which subscales to use for a particular study.

## NOTE

<sup>1</sup>In a sample of 200 undergraduates, the total score on the KHOS correlated .31 with the HLC scale. In a second sample of 83 Ss, correlations between the HLC scale and all KHOS scales were "even lower" (Krantz et al., 1980, p. 981).

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