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Health-Related Information Seeking as a Function of Health-Related Locus of Control and Health Value

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Two studies were conducted testing the hypothesis that health-related information seeking is a joint function of a person's locus of control beliefs and the value placed on health. Using a health-related measure of locus of control, internal subjects who valued health highly relative to other terminal values (cf. Rokeach, 1973) chose more pamphlets about the particular health condition, hypertension, than did internal-low health value subjects or externals regardless of their health value. Little evidence was found to support the proposition that subjects differentially chose pamphlets according to author characteristics (i.e., male or female, doctors or nurses).

It is a widely held tenet that the more information a person has about a particular life-threatening condition, the greater the likelihood the person will take positive steps to ameliorate that condition. Although pertinent information is generally available from a wide variety of sources, individuals differ greatly in the extent to which they seek and subsequently utilize such input. Seeking information is one step in a chain of behaviors which ultimately might lead to positive consequences. The purpose of this paper is to show how social learning theory (Rotter, 1954; Rotter, Chance, & Phares, 1972) provides a theoretical perspective for studying individual differences in information-seeking regarding preventive health care. According to Rotter's social learning theory, a person will engage in goal-directed behavior only if she values the particular reinforcers available and if she believes that her actions will lead to these reinforcers in a particular situation. Thus, a person will seek information about a particular health threatening condition if the person both values the outcome (health) and believes that her behavior will influence her health.

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The individual's consistent beliefs and perceptions which influence behavior in various situations are referred to theoretically as generalized expectancies. Such expectancies are considered independent of the value or importance of the reinforcer. One generalized expectancy, internal versus external control of reinforcement (I-E), refers to the extent to which

an individual feels that he/she has control over the reinforcers that occur relative to his/her behavior (Rotter, 1966). Internals feel they are effective agents in determining the occurrence of rewards. Externals, however, tend to believe that forces beyond their control (fate, luck, chance, powerful others, the complexity of the world, etc.) determine the occurrence of reinforcement.

Using Rotter's (1966) I-E Scale as a means of classifying individuals as internals or externals, a number of studies have shown that internals are more likely to engage in behaviors, like information-seeking, that will confront a problem directly than are externals. Davis and Phares (1967) found that internals are superior to externals in actively seeking information relevant to the solution of future as well as present problems. Phares (1968) demonstrated that internals better utilize information in solving problems. Using an earlier version of the I-E Scale, Seeman and Evans (1962) demonstrated a similar pattern in health-related information-seeking behavior. They found that hospitalized tuberculosis patients who held internal locus of control beliefs knew more about their own condition, questioned doctors and nurses more, and expressed less satisfaction with the amount of feedback or information they were getting about their condition from the hospital personnel than did external patients.

Thus, in previous research, the generalized expectancy, internal-external control of reinforcement, has been demonstrated to have some influence upon information-seeking behavior in various situations including health care. It is even more reasonable to suspect, however, that an area-specific measure of locus of control which taps, for example, expectancies about control of health would do a better job of predicting health-related information-seeking. Rotter (1975), himself, has recognized the need for such situation-specific measures, but heretofore few efforts have been made to develop and utilize such instruments. Davis and Kirscht (1971) attempted to relate items measuring expectancy of control of health to taking precautions against influenza, but found, contrary to theoretical predictions, that internals (according to their expectancy measure) took fewer shots than externals. In the same study, however, they measured subjects' motivation to exercise control over health and found that highly motivated subjects were more likely to take precautions than less motivated subjects. According to social learning theory, locus of control is an expectancy, as opposed to a motivational construct and should therefore only be measured by expectancy items. Perhaps a more sophisticated

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expectancy measure than that employed by Davis and Kirscht would produce results congruent with theory and previous research.

Most studies relevant to information-seeking behavior are commonly set in threatening situations where the reinforcing value of eliminating the threat is assumed to be uniformly high. As a result, measurements of values

have not been included in such research. In the case of preventive health care, the individual faces only a mild threat of possible illness as opposed to the immediate threat of a diagnosed condition. Consequently, information-

seeking behavior in this context may be as much a function of the value an individual attaches to a healthy life as his/her beliefs that seeking preventive health care information will help him/her maintain his/her health.

From the preceding, a hypothesis about preventive health information seeking can be stated. Given the opportunity to gather information about a health problem which may or may not affect him/her, the individual who values health highly will seek more information than one who does not value health or who holds external beliefs. That is, one who values a healthy life and believes that he/she can control his/her own health will perceive preventive information as being more instrumental in meeting his/her goals. Two studies testing this hypothesis were conducted.

A secondary purpose of these studies was to explore possible biases in information-seeking as a function of the sex and role status of the source of information. Goldberg (1969) showed that merely changing the sex of an article's authorship resulted in quite different evaluations of its worth. Using a similar technique, our subjects were given the opportunity to choose from among information purportedly prepared by male and female doctors and nurses.

Two samples of college students were administered a health-related locus of control scale and a measure of the value of health (modeled after Rokeach's 1973 Value Survey). After exposure to a mildly threatening written message about the danger of hypertension, they were given an opportunity to seek further information about this topic by choosing from among a list of pamphlet titles, prepared by various health care professionals.

STUDY 1

Method

Subjects. The subjects were 44 male and 44 female college students who participated in order to fulfill a requirement in introductory psychology courses. Subjects were run in noninteracting group settings.

Procedure. At the beginning of each session, subjects entered a classroom setting where a female experimenter awaited them. Once all subjects were present in the room, the experimenter distributed a booklet of paper-and-pencil measures. The experimental booklet given to all subjects indicated that the purpose of the study was to obtain information about health beliefs and knowledge of hypertensive problems within groups of local community members. Such information was purported to be of value by giving a videotape picture of potential users of a newly established hypertensive clinic.

The first questionnaire in the booklet, the health-related locus of control scale (HLC), consisted of 11 items measuring subjects' expectancy of control over their health (cf. Wallston, Wallston, Kaplan, & Maides, in press). The HLC scale requested subjects to indicate the extent to which they agreed or disagreed with each statement along a six-point Likert-type scale. Five of the items on the HLC scale were classified as internal belief statements. Statements were considered internal if they manifested beliefs that an individual's health is controlled primarily by his/her own behavior (e.g., "Whenever I get sick it is because of something I've done or not done."). Conversely, six externally worded statements presented beliefs that an individual's health is largely contingent upon factors such as fate, luck, chance, and powerful others (e.g., "No matter what I do, if I am going to get sick I will get sick.").

After completing the HLC scale, subjects were requested to complete a "Value Survey" which instructed them to rank order 10 terminal values (preferable end states of existence) from "1" (most important value) to "10." Nine of the 10 terminal values listed were taken from Rokeach's (1973) Value Survey. A tenth value, health, was added to determine its relative position vis-a-vis other important outcomes a person might desire.

Questions aimed at gaining an estimate of the subjects' experience with hypertension and knowledge about the topic were included in the experimental booklet. Subjects were asked to rate their knowledge pertaining to high blood pressure (i.e., hypertension) from inadequate to more than adequate prior to reading a written message on the topic. After reading the written message, they were asked to complete a 10-item quiz on hypertension and again rate the adequacy of their knowledge about high blood pressure (hypertension). The purpose of the

written message and the deliberately difficult quiz was to make subjects aware of how little they actually knew about this life-threatening condition.

Dependent Measures

After completing all independent measures and reading the message on hypertension, subjects were requested to read through a list of 16 pamphlet titles. They were informed that the list consisted of pamphlets which could be ordered for the hypertensive clinic from a national organization. Each pamphlet title was given with the name and professional title of its author. Four pamphlets were purportedly written by male doctors, four by female doctors, four by male nurses, and four by female nurses. Type of author was randomly dispersed throughout the list of titles.

Subjects were requested to assist the clinic in ordering a stock of pamphlets by indicating the ones they would choose if they came to the clinic. Subjects were told to feel free to select as many or as few pamphlets in which they might be interested. 411 subjects received a list of the same 16 pamphlets differing only in the order of pamphlet title presentation and author of pamphlet.

After completing all measures in the booklet, subjects were given a written debriefing statement informing them of the nature of the study. They were also given information on special arrangements to have their blood pressure checked along with a pamphlet on hypertension prepared by the American Heart Association.

Results

Subjects were asked to rate the adequacy of their knowledge about hypertension both prior to and immediately following reading the written

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message and completing the hypertension quiz. Analysis of variance for these ratings did not show any differences in ratings among conditions. indeed, a main effect for sex, $F(86) = 2.14$, $p < .05$, found on the initial ratings indicated that females tended to view their knowledge of hypertension as more adequate than did males, but this effect was not indicated on the final ratings of adequacy of knowledge. moreover, all subjects tended to view their adequacy of knowledge below the midpoint of the scale (on a 14-cm scale, for the first ratings $M = 4.46$ and for the second ratings $M = 4.03$). These ratings suggest that subjects in all conditions tended to view their knowledge of hypertension as somewhat inadequate. In addition, Pearson product moment correlations between adequacy of knowledge ratings and total number of pamphlets were not significantly different from zero. Thus, there is little reason to suspect that information-seeking in this experiment was a function of differential perceptions of or knowledge of hypertensive problems among conditions.

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Information-Seeking

Subjects were classified as internals (externals) if they scored below (above) the median $M = 34.5$ on the HLC. If they ranked health in one of the top four positions, they were classified as high health value; otherwise they were designated low health value.

The number of pamphlets selected was analyzed by a $2 \times 2 \times 2 \times 2 \times 2$ analysis of variance for unequal N. The three between-subjects factors were: sex of subject (male, female), HLC classification (internals, externals), and health value (high, low). Pamphlet authorship consisted of two within-subject factors: sex of author (male, female) and role status (MD, RN).

The major hypothesis required a test of the interaction between HLC classification and health value. The F-value for this interaction was 3.93 ($df = 1, M$) which was significant at $p < .05$. Regarding, for the moment,

type of authorship, internal-high health value subjects chose more pamphlets

($M = 10.95$) than internal-low value ($M = 9.05$), external-high value ($M = 8.0$), or external-low value subjects ($M = 9.86$), which did not differ from each other. A test for planned comparisons among these means indicated that the mean number of pamphlets chosen by subjects in the internal-high value of health group was significantly higher than the means for the three other groups ($p < .05$). None of the other F-values for the between-subjects factors alone approached significance.

The question of possible bias in information seeking due to type of authorship did not produce straightforward results. The simple effects of the two within-subjects factors were not significant. Across all types of

subjects, pamphlet selection from male doctors ($M = 2.40$) did not differ from male nurses ($M = 2.35$), female doctors ($M = 2.4$) or female nurses

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($F(1, 80) = 6.62, p < .02$). There were, however, a number of interactions involving between-and-within-subjects factors, including a significant but uninterpretable five-way interaction ($F(1, 80) = 6.62, p < .02$).

Discussion

Support was obtained for the major hypothesis, derived from social learning theory, that health related information-seeking behavior is a joint function of an internal health related locus of control belief and holding health in relatively high value. There also appeared to be no systematic bias on the part of these subjects toward favoring information purportedly prepared by male and female doctors and nurses.

What remained puzzling, however, were the higher order interactions involving subject and source characteristics. These interactions were not predicted by theory or intuition, yet they were intriguing enough to warrant further investigation. By replicating the study with a new sample of subjects we hoped not only to strengthen further our major theoretical findings but to investigate whether these higher order interactions were real or merely artifacts.

STUDY 2

Method

Subjects. Fifty-two male and 45 female undergraduates volunteered to participate as subjects. Approximately one-third of the subjects were recruited from psychology classes; the remaining subjects were solicited by telephone.

Procedure. The procedure was essentially a replication of the one used in Study I.

Results

Manipulation Checks

Subjects' ratings of the adequacy of their knowledge about hypertension were below the midpoint of the 14-cm scale. That is, subjects tended to rate their knowledge of hypertension as less than adequate both prior to reading the written message and taking the hypertension quiz ($M = 5.42$) and after such activities ($M = 4.41$). As in Study I, it appeared that most subjects, regardless of experiential group, tended to rate their knowledge of hypertension as less than adequate. Again, the correlations between adequacy of knowledge ratings and the total number of pamphlets chosen were not

significantly different from zero.

The data on pamphlet selection were analyzed, as in Study 1, by a $2 \times 2 \times 2 \times 2 \times 3$ analysis of variance. Again, the interaction between HLC classification and health value was significant ($F(1, 89) = 4.55, p < .04$). Internal-high value subjects chose more total pamphlets ($E = 11.62$) than

internal-low value ($G = 9.68$), external-high value ($U = 8.77$), or external-low value subjects ($% = 10.00$) which did not differ from each other.

Comparisons among these means indicated that subjects in the internal-high value of health group chose a significantly larger number of pamphlets than subjects in other groups ($p < .05$). No other comparisons among means were significant.

Also, replicating Study I, no simple bias effects were found for pamphlet selection due to type of authorship. Pamphlets purportedly written by male nurses were again chosen least ($g = 2.37$), but not significantly less than

those prepared by male doctors or females of either role status ($a = 2.55$).

The five- and four-way higher order interactions between subject and source characteristics found in Study I were not replicated with this new sample. Health value did interact with sex and role of authorship but not in the same manner as in Study I. The only apparent bias which appeared in both samples was that male, external-high health value subjects were particularly loath to choose pamphlets authored by male nurses; similarly, female, internal-low health value subjects were less likely to select pamphlets written by male physicians.

DISCUSSION

Having replicated the major theoretical finding of Study 1, greater confidence can be placed in the assertion that information-seeking about a little known health-related condition is a joint function of expectancy (i.e., internal health-related locus of control beliefs) and reinforcement value (i.e., relatively high value for health). Rotter (1975) has stated that locus of control researchers often err by neglecting to measure reinforcement value; these studies illustrate Rotter's point. Believing that one's health is influenced by one's attitude (i.e., holding internal health-related beliefs) is not, alone, sufficient to predict information seeking about this particular topic measured in this particular manner.

In addition, this technique for measuring information-seeking (having subjects choose from among a list of pamphlet titles those they are interested in reading) appears to have utility for investigations in this area.

There is, of course, no way from these studies to estimate the relation between this measure of behavioral intention and actual information seeking in vivo, but it does have the advantage of being easy to administer and score.

It remains an open question, however, whether this technique is an effective means for studying bias due to the characteristics of the source of information. Perhaps our subject population (college students) was truly unconcerned with whether the information was written by males or females, doctors or nurses; or, more parsimoniously, perhaps they attended only to the titles of the pamphlets and did not even bother looking at

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the authors' names. We must discount the occurrence of interactions

between subject and source characteristics; first, because they by-and-large were different for the two samples, and, second, because they are not predicted by theory or common sense. Even if male, external-high health value subjects were the ones primarily responsible for the slightly lower choice of pamphlets purportedly authored by male RNs, we do not claim this to be an important discovery.

What is important, however, is the utility of using a health-related measure of locus of control (i.e., the HLC) in conjunction with a measure of health value to explain health-related information seeking. In another paper (Wallston et al., in press), we have shown that such an area-specific measure of generalized expectancy has higher functional utility in health situations than the nonspecific I-E Scale (Rotter, 1966), which has gained wide-spread acceptance even by other investigators of health behavior. When we classified subjects in Study 1 (above) as internal or external according to their scores on the I-E Scale, we failed to support our major hypothesis. Rotter (1975) has encouraged locus of control researchers to develop instruments to suit their own specific needs; hopefully, our success will spur the development of other area-specific measures which, in turn, should lead to better prediction of behavior.

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