DOCUMENT RESUME

ED 322 421 CG 022 693

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TITLE Multidimensional Health Locus of Control and Causal Attributions as Predictors of Health and Risk Factor Status after Cardiac Rehabilitation.
PUB DATE May 90
NOTE 12p.; Poster presented at the Annual Meeting of the Midwestern Psychological Association (62nd, Chicago, IL, May 3-5, 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *At Risk Persons; Attribution Theory; *Behavior Patterns; *Health Promotion; *Heart Disorders; Predictor Variables; *Rehabilitation; Test Validity
IDENTIFIERS *Compliance (Medical); Multidimensional Health Locus of Control Scale

ABSTRACT

Compliance with many health-promoting regimens is often poor, even among individuals with known chronic disease. Lifestyle changes recommended by cardiac rehabilitation educators are often not adopted or not maintained by clients having suffered myocardial infarction and/or coronary bypass surgery. Subjects were graduates (N=117) of a Phase II cardiac rehabilitation program in a major midwestern city. Subjects provided information on demographics, risk factor status, stress, details regarding their cardiac event, and retrospective views of the causes of their cardiac event. The Multidimensional Health Locus of Control (MHLOC) was included. MHLOC internal and chance scales were significantly correlated with retrospective views of the cardiac event on over one-half of the opportunities. The composite scales combining MHLOC internal and chance and combining MHLOC powerful others and chance successfully predicted retrospective views of the cardiac event in one-half of the cases. Causal attributions and the composite "Your Behavior" predicted almost one-half of the retrospective views. The MHLOC scales, and especially the composites, showed enough relationships to encourage this pursuit. Supplemented by other predictors, they may permit presentation of health messages with more effective content, messages better promoting secondary and primary prevention. (ABL)

Multidimensional Health Locus of Control and Causal Attributions as Predictors of Health and Risk Factor Status after Cardiac Rehabilitation

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RUNNING HEAD: Health Locus

This paper reproduces the content of a poster presented at the 62nd annual meeting of the Midwestern Psychological Association in Chicago, IL May 3-5, 1990.

Introduction

Compliance with many health-promoting regimens is often poor, even among individuals with known chronic disease. Lifestyle changes recommended by cardiac rehabilitation educators are often not adopted or not maintained by clients having suffered myocardial infarction and/or coronary graft bypass surgery. Researchers seek knowledge which may permit making health messages more effective in promoting both secondary and primary prevention. We looked at the possible prediction of several relevant psychological and health status variables by Wallston and Wallston's (1981) Multidimensional Health Locus of Control (MHLOC) and by causal attribution questions we developed.

Method

Subjects and Materials

We solicited participation by mail among 231 graduates of a Phase II cardiac rehabilitation program in a major midwestern city. One-hundred seventeen replied within the time-frame we requested. Participants responded to a ten-page questionnaire we composed, usually marking one of six choices on optically readable questionnaire forms purchased from National Computer Systems, Inc., in Minneapolis. They answered various demographic questions, questions on current risk factor status (eg. cigarette smoking, vigorous and mild exercise, weight, serum cholesterol),

and other questions regarding their cardiac event, as well as questions regarding stress during the last year, stress the last few days, and retrospective views of the causes of their cardiac event. Other questions assessed the extent to which they attributed their cardiac event as importantly caused by tension, by their own behavior, and by the behavior of others. The MHLOC was included, as were questions regarding physical difficulties experienced in daily living and questions dealing with foods usually consumed.

Procedure

Cardiac rehabilitation program staff provided names and last-known mailing addresses of clients who had participated in the program during the last five years. A package was mailed to each including an introductory letter explaining our interests and the rehabilitation program's involvement, a questionnaire and pencil, an addressed and stamped return envelope, and an informed consent explanation and document which program graduates signed if agreeing to participate. Individuals not replying within four weeks were telephoned and asked if further information was desired, thus reminding an additional 20 to reply.

Results

Our 117 participants providing at least partial data were predominantly male (72%), white (87%), and in their sixth decade (50%). Work outside the home was reported by 43% with 49% retired and 8% unemployed or homemakers. Median family income

was between $30,000 and $40,000 and median schooling was between 13 and 15 years. Nine percent were diabetic, 12% reported having suffered a stroke. Angina or similar symptoms were reported by 48%, and the median time since their first cardiac event was 47 months.

Regarding risk factors, 83% never smoked cigarettes or had quit, 17% still smoked. Serum cholesterol values for the 57% who reported numerical answers ranged from 123 to 325 mg/dl with a median of 219. Median body-mass index would be considered about 10% over ideal weight. Up to one hour per week of vigorous exercise was reported by 44%, another 21% up to two hours, and 35% more. Nineteen percent reported up to an hour of mild exercise per week, 21% up to 2 hours, and 24% over 5. On a question regarding current over-all health, only 3% replied "very poor" and 14% "poor", 61% replied "good" and 22% "excellent".

Means and standard deviations on the MHLOC scales and two composites, "Internal" (the internal score minus the chance score) and "Powerother" (the powerful other score minus the chance score) are given in Table 1.

Tables 2 and 3 show which correlations were statistically significant in predicted directions relating the MHLOC scales and the two composites to attributions regarding the cardiac event, to smoking and exercise beliefs and performance, to stress variables and other risk factors, and to health rating and reported troubles in daily living.

Table 4 similarly shows correlations between our attribution scales and the same outcome variables.

Discussion

MHLOC internal and chance scales were significantly correlated with retrospective views of the cardiac event on 5 of 8 opportunities, with beliefs about exercise' importance in 1 of 4 cases, with stress and other risk factors in 4 of 16 cases, and with health rating and troubles in living on 4 of 4 opportunities. Overall, these two scales successfully predicted on 14 of 32 opportunities. Of 16 opportunities, the MHLOC powerful others scale predicted only belief in the importance of exercising the first 6 months after a cardiac event, a belief likely installed by medical experts during rehabilitation.

The composite scales combining MHLOC internal and chance and combining MHLOC powerful others and chance successfully predicted retrospective views of the cardiac event in 4 of 8 cases, and did so more powerfully than the individual scales, as evidenced by more correlations significant at .01 and .001 levels. The composites predicted beliefs about exercise in 3 of 4 cases and predicted risk factor status in 5 of 16. Health rating and troubles were predicted in 3 of 4 cases. Overall these composite variables predicted outcome measures on 15 of 32 opportunities.

Causal attributions and the composite "Your Behavior" predicted 7 of 16 retrospective views but 0 of 4 belief in the importance of exercise opportunities. Seven of 32 risk factor

predictions were successful, but 0 of 8 cases with health rating or troubles. Overall, 14 of 64 possible correlations were significant. By chance, 3 or 4 would be expected. One could argue there is little reason to expect prediction of current beliefs about exercising or of current health rating or troubles in functioning from causal attributions regarding a previous cardiac event. This would leave 14 of 48 successful predictions, much better than chance expectation but still quite inferior to the predictability achieved by the MHLOC scales and composites.

The MHLOC scales, and especially the composites, show enough relationships to encourage us to continue this pursuit. Supplemented by other predictors, they may permit presentation of health messages with more effective content, messages better promoting secondary and primary prevention.

Table 1

Means and Standard Deviations on MHLOC Belief Scales (the First Three) and on Composite Scales (Internal minus Chance and Powerful Others minus Chance)

Scales	Mean	SD
MHLOC Internal	26.19	4.76
MHLOC Chance	14.97	5.25
MHLOC Powerother	24.21	5.77
Internal	11.38	7.19
Powerother	9.55	6.78

Table 2

Pearson Correlations relating MHLOC Scales to All Others.

Criterion Variables	MHLOC Variables		
	MHLOC int	MHLOC cha	MHLOC poth
Things You Did	*[1]		
Could Have Done	*	*	
Others Did			
Any Gains?	*	**	
Cig Smoke			
Exerc Important	*		
Exer Imp for 6 m			*
Amount Vig Exerc			
Amount Mild Exer			
Stress for Year	*		
Stress Lately	*		
Cholesterol		**	
Grams Fat/wk		**	
BMI			
Health Rating	**	***	
Troubles	**	**	

[1] (* $p < .05$, ** $p < .01$, *** $p < .001$)

Table 3

Pearson Correlations relating MHLOC Composite Variables to All Others. (Internal is MHLOC internal minus MHLOC chance. Powerother is MHLOC powerful others minus MHLOC chance.)

Criterion Variables	MHLOC Composite Variables	
	Internal	Powerother
Things You Did Could Have Done Others Did Any Gains?	***[1]	***
	***	***
Cig Smoke		
Exerc Important	**	*
Exer Imp for 6 m		**
Amount Vig Exer		
Amount Mild Exer		
Stress for Year	*	
Stress Lately	**	
Cholesterol		*
Grams Fat/wk	**	*
BMI		
Health Rating	-**	**
Troubles	***	

[1] (* $p < .05$, ** $p < .01$, *** $p < .001$)

Table 4

Pearson Correlations relating Attribution Scales to All Others. (Your Behavior is 2(Behavior) minus Tension minus Fate.)

Criterion Variables	Attribution Scales			
	Tension	Behavior	Fate	Your Behavior
Things You Did	***	**	*	
Could Have Done	*	**		
Others Did	**			-**
Any Gains?				
Cig Smoke				
Exerc Important				
Exer Imp for 6 m				
Amount Vig Exer				*
Amount Mild Exer		*		**
Stress for Year	**			
Stress Lately	*		**	
Cholesterol				
Grams Fat/wk				
BMI		*		
Health Rating				
Troubles				

[1] (* p < .05, ** p <.01, ***p < .001)

Wallston, K. A., & Wallston, B. S. (1981). Health locus of control scales. In H. M. Lefcourt (Ed.), Research with the locus of control construct (v1). New York: Academic Press.