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An investigation of differences in frequency of health problems between internally and externally oriented college students

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An investigation of differences in frequency of health problems between internally and externally oriented college students

Abstract

During the past 15 to 20 years there has been a great deal of personality research on the concept of internal, versus external control of reinforcement, or locus of control. A major portion of the research is probably explained by the availability of the Rotter Internal-External Control Scale. Locus of control has not just been limited to a "measurable" concept in psychology; it has also been associated and applied to current social concerns and problems. Much of the research in personality and social psychology today is problem oriented. Some of the topics and concerns are mastery and control over the environment, conformity and reactions to social influence, achievement needs, anxiety, adjustment and defensiveness.

AN INVESTIGATION OF DIFFERENCES IN FREQUENCY OF HEALTH
PROBLEMS BETWEEN INTERNALLY AND EXTERNALLY
ORIENTED COLLEGE STUDENTS

A Research Paper
Presented to
the Department of School Administration
and Personnel Services
University of Northern Iowa

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts in Education

by
Stephen Kent Klein

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Entitled: An Investigation of Differences in Frequency
of Health Problems Between Internally and
Externally Oriented College Students

had been approved as meeting the research paper require-
ment for the Degree of Master of Arts in Education

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CHAPTER I

THE PROBLEM

Introduction

During the past 15 to 20 years there has been a great deal of personality research on the concept of internal, versus external control of reinforcement, or locus of control. A major portion of the research is probably explained by the availability of the Rotter Internal-External Control Scale. Locus of control has not just been limited to a "measurable" concept in psychology; it has also been associated and applied to current social concerns and problems. Much of the research in personality and social psychology today is problem oriented. Some of the topics and concerns are mastery and control over the environment, conformity and reactions to social influence, achievement needs, anxiety, adjustment and defensiveness.

All of us seek to account for and to explain both our own behavior and that of others. An extensive part of our own behavior is composed of social interactions, and our achievement of satisfactions requires that we look to others. As society becomes increasingly complex, this interdependence or social aspect of life takes on increasing importance. Furthermore, as Western people have become successful in building their technology their basic survival needs have been secured. This has enabled Western people to turn their attention to themselves; they have become the object of their own study.

Statement of the Problem

The purpose of this study is to determine if there is a difference in frequency of health problems between health locus of control internals and health locus of control externals.

Importance of the Problem

In 1950, according to the National Health Information Clearinghouse, Americans on the average spent \$68 on health care, in 1977 the estimate was approximately \$634. Individual's health costs are up 836% while the consumer price index rose 156% over the same period. Yet little is done concerning prevention and control of one's health. For health prevention to become a reality, individuals must acknowledge that they can take charge and believe they can control their health.

Assumptions and Limitations

This study assumes that human behavior is determined to a great extent by several variables, including reinforcement value, expectancies, and psychological situations. While locus of control is an important determinant of behavior, its effects are moderated by the social learning theory concepts. Therefore, a fuller understanding of the potential behavioral effects of locus of control will result from an analysis of the manner in which it relates to these other concepts.

It is also assumed that self-reports on frequency of health problems is honest, and that I-E is a measurable concept using a self-report instrument. It assumes that there is some distribution of frequency of health problems among the general population. And also, this study assumes that a limited time sample is indicative of the entire life span of the population. Some limitations to be considered.

How refined the list containing the frequency of health problems is generalized to health problems. Can this study be generalized to the entire population? Is the individual's self-report honest and how accurate is the individual's memory? And finally, college students overall are more educated and have developed a stronger awareness of these related items than say a noncollege person.

CHAPTER II

REVIEW OF RELATED MATERIAL

Almost all research done in the area of internal versus external control of reinforcement stems back to Julian Rotter's social learning theory (1954) and the role of the psychological situation in determining the direction of human behavior. These two studies (1954 & 1966) were published in the 1950's and in the mid 1960's when the internal-external control terms were established.

The significance of the belief in fate, chance or luck has been discussed by Rotter over a long period of time. His studies have dealt with groups or societies rather than individuals. One early discussion (Veblen 1899) felt that a belief in luck or chance represented a barbarian approach to life and was generally characteristic of an inefficient society. Although Veblen was not concerned with individual differences, his discussion implied that a belief in chance or luck as a solution to one's problems was characterized by less productivity and, consequently, resembles Rotter's hypothesis (1954) that a belief in external control of reinforcements is related to general passivity.

In Rotter's social learning theory (1954) a reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future. Once an expectancy for a behavior reinforcement sequence is built up, the failure of the reinforcement to occur will reduce or extinguish the expectancy. According to Rotter, when the reinforcement is seen as not contingent upon the subject's own behavior that its occurrence will not increase an expectancy as much as when it is seen as contingent. Conversely, its non-occurrence will not reduce an expectancy so much as when it is seen as

contingent. It seems likely, depending on the individual's history of reinforcement, individuals would differ in the degree to which they attributed reinforcements to their own actions.

In the first expository paper dealing with the control dimension (Rotter, Seeman, and Liverant, 1962), the construct was described as distributing individuals according to the degree to which they accept personal responsibility for what happens to them. Lefcourt (1966) describes the control dimension in these terms, "internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control; external control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors on certain situations and therefore beyond personal control."

The first attempt to measure individual differences in a generalized expectancy or belief in external control as a psychological variable was begun by Phares (1957) in his study of chance and skill effects on expectancies of reinforcement. Phares developed a Likert-type scale with 13 items and this scale was expanded by James (1957) to 26 items plus filler items based on the items which appeared to be most successful in the Phares study.

The James-Phares scale has been used in research involving correlates of individual differences in a generalized expectancy for internal-external control. However, the late Shephard Liverant (1958) in association with Rotter and M. Seeman (1962) broadened the test. It was expanded to 60 items and then later Rotter, Liverant, and Crowne (1961) reduced the scale to 23 items and finally the scale from which most of the subsequent data has been collected is a 29-item, forced choice test developed by Rotter, Liverant, and Crowne including 6 filler items

intended to make somewhat more ambiguous the purpose of the test.

Rotter (1966) commented that several item analysis of the I-E scale were carried out during the early development of the scale. Items that held little reliability were isolated.

Seeman and Evans (1962), in one of the earliest studies in this area, centered on the relationship between locus of control and the knowledge and information-seeking behavior of patients in a tuberculosis hospital. Patients were given an early I-E scale in order to select 43 internal-external pairs of white male patients. They were interviewed regarding their satisfaction with the information provided by hospital staff. Seeman and Evans found that internals knew more about their condition and were more inquisitive with physicians about tuberculosis and their own situations. Relatively speaking, internals attempted to gain a greater degree of control over their life situation than did externals.

The Seeman and Evans study suggests that a low generalized expectancy for personal control also contributes to reduced acquisition of information. This is so because belief in an external locus of control is accompanied by a low expectancy that one's own efforts will have an impact, therefore, information is not seen as a productive enterprise.

Wallston and Wallston (1976) approached the difficulty of predicting behavior in a specific area such as health when using measures of generalized expectancies such as the Rotters (1966) I-E scale. The present research was based on the assumption that a health related locus of control scale would provide more sensitive predictions of the relationship between internality and health behaviors. The study describes the development of one such instrument, the Health Locus of Control (HLC) Scale and demonstrates the differential functional utility of this new measure over the traditional, more generalized I-E scale.

Using the I-E Scale (Duke and Lancaster, 1976) attempted to predict internality and externality in males after the loss of their father. They found the boys who experienced father loss subsequently adopted a more external locus of control.

In more recent years researchers have brought the I-E locus of control scale under fire. (Bradley and Gaa, 1977) like (Solomon and Oberlander, 1974) have found that measures of locus of control differ greatly from one area to another. For example, Bradley and Gaa found scales to be quite different from the health field versus educational areas. They attribute this to the increased number of modifications made to the I-E Scale each time a study is undertaken.

(Zuckerman and Gerbasi, 1977) reported that there have been well over 600 studies done on some aspect of locus of control. They feel that in many cases the I-E Scale has been used for no reasons other than its popularity and availability. Consequently, since its introduction, the concept of locus of control has been extended to examine interpersonal, social and political variables that were not initially conceived to be relevant to belief in internal-external control. Zuckerman and Gerbasi concluded that the I-E Scale has been used to make predictions for which it is not suited and the I-E construct has been endowed with causal properties which it does not have.

CHAPTER III

METHODS

Subjects

Subjects included male and female students attending the University of Dubuque. Ages ranged from 18 to 24 years and students were selected randomly from courses with larger enrollments at the University.

Instruments

The first questionnaire (see Appendix A) was adopted from the original Rotter's scale and was modified by Wallston and Wallston to assess if one was either externally oriented or internally oriented. The subject is asked to answer true or false to the eleven questions. By responding positively to internal questions and negatively to externally worded questions the subject would be considered internally oriented; if they responded positively to the externally worded questions and negatively to the internally worded questions they would be considered to be externally oriented.

Two hundred and eleven questionnaires with cover letter were distributed to a captive sample at the conclusion of the class they were attending.

Two experimental groups were selected from the two hundred and eleven returned questionnaires. One group represented the external individuals, the second the internal oriented group. If the subject responded positively to all five of the internally worded questions they were placed into the internal group. The remaining six questions were externally worded, so if the subject responded positively to five out of six or all six they were placed into the external group.

The two experimental groups contained thirty subjects each for a total of sixty subjects. The internal group consisted of twenty-one males and eight females.

A follow-up questionnaire (see Appendix B) was sent to the sixty subjects through the mail with a self addressed envelope to enable the subject to fill out the questionnaire and return it. The follow-up questionnaire was developed by the researcher and asked the subject a series of health related questions similar in content to those questions asked on a typical medical history sheet. The questions were designed to obtain a numerical value for the frequency of a health related problem in a certain area.

Fifty-four were returned within ten days and direct student contact from the remaining six individuals resulted in a 100 per cent response.

Analysis Procedures

Upon completion of tabulating the sixty follow-up questionnaires of the two experimental groups, a Chi-Square procedure was used to investigate any significant differences between the thirty subjects in the two experimental groups. A .05 level of probability was established for statistical significance.

CHAPTER IV

RESULTS

The Chi-Square table enables one to find out if frequencies are different than expected. The following tables are contingency tables using the 2 X 2 design. To obtain a χ^2 value the following formula was used.

$$\chi^2 = \text{Sum of } \frac{(\text{observed}-\text{expected})^2}{\text{expected}}$$

The numbers in the table are the observed frequency. The expected frequency is computed by multiplying the cells corresponding row total by its corresponding column total and dividing the product by the grand total for the sample. Significance at the .05 level with degrees of freedom = 1 is 3.84 and larger.

TABLE I

Relationship Between Internals and
Externals and Their Smoking Habits

	Smoker	Non-Smoker	Total
Internal	9	21	30
External	14	16	30
Total	23	37	60

$$\chi^2 = 1.793 \text{ less than } .05$$

Differences between Internals and Externals hold no strong statistical differences at the .05 level. This indicates that the two groups have

similar smoking habits.

TABLE II
Relationship Between Internals and
Externals and Hours of Sleep Nightly

	7 hrs. and less	8 hrs. and more	Total
Internal	19	11	30
External	26	4	30
Total	45	15	60

$$x^2 = 4.35 \text{ greater than } .05$$

The results are strong, indicating a significant difference between the two groups at the .05 level. Almost three times as many internals received more than eight hours of sleep compared to the externals.

TABLE III
Relationship Between Internals and Externals
and Their Average Number of Colds Annually

	2 and less	3 and more	Total
Internal	14	16	30
External	6	24	30
Total	20	40	60

$$x^2 = 4.8 \text{ greater than } .05$$

Results indicate a strong difference between Internals and Externals and their average number of colds annually. Twenty-four out of thirty externals had three or more colds annually compared to sixteen out of thirty in the internal group.

TABLE IV

Relationship Between Internals and Externals
and the Frequency of Flu Symptoms in the Past Two Years

	4 and less	5 and more	Total
Internal	22	8	30
External	18	12	30
Total	40	20	60

$$x^2 = 1.2 \text{ less than } .05$$

Results show no real statistical difference between the Internal and External groups. The number values are too similar in the columns to produce a significant result at the .05 level.

TABLE V

Relationship Between Internals and Externals
and Acidic Stomach in an Average Year

	4 and less	5 and more	Total
Internal	26	4	30
External	24	6	30
Total	50	10	60

$$x^2 = .48 \text{ less than } .05$$

The x^2 value is extremely small reflecting that the two groups contain only a slight difference in the number of acidy stomachs annually.

TABLE VI

Relationship Between Internals and Externals
and Frequency of Headaches Monthly

	2 and less	3 and more	Total
Internal	10	20	30
External	17	13	30
Total	27	33	60

$$x^2 = 3.298 \text{ less than } .05$$

Results reflect a difference between the two groups but only at the .10 level. Externals overall had fewer headaches than internals.

TABLE VII

Relationship Between Internals and
Externals with a Shortness of Breath

	Shortness	No Shortness	Total
Internal	5	25	30
External	10	20	30
Total	15	45	60

$$x^2 = 2.22 \text{ less than } .05$$

Twice as many externals had a shortness of breath than internals, but due to the sample size the difference was not statistically significant at the .05 level.

TABLE VIII

Relationship Between Internals and Externals
With Families that have a History of Medical Problems

	Problems	No Problems	Total
Internal	6	24	30
External	10	20	30
Total	16	44	60

$$x^2 = 1.36 \text{ less than } .05$$

The numerical difference between internals and externals is very minimal thus resulting in no statistical significance at the .05 level.

TABLE IX

Relationship Between Internals and Externals
and Their Drinking Habits

	Twice a week and less	More than twice a week	Total
Internal	14	16	30
External	6	24	30
Total	20	40	60

$$x^2 = 4.8 \text{ greater than } .05$$

Results indicate a significant difference between Internals and Externals in relationship to their drinking habits. The x^2 value = 4.8 which is almost high enough to be significant at the .01 level.

TABLE X

Relationship Between Internals and Externals and Their Exercising Habits

	Daily to weekly	Monthly/Very Seldom	Total
Internal	22	8	30
External	17	13	30
Total	39	21	60

$$x^2 = 1.83 \text{ less than } .05$$

Results reflect only a small difference between internals and externals and their exercising habits.

TABLE XI

Relationship Between Internals and Externals and self-report of being overweight

	Overweight	Normal	Total
Internal	3	27	30
External	3	27	30
Total	6	54	60

$$x^2 = 0 \text{ less than } .05$$

The groups both reported the same results indicating no difference.

CHAPTER V

SUMMARY

The purpose of this study is to determine if there is a difference in frequency of health problems between health locus of control internals and health locus of control externals.

The construct of Internal-External (I-E) locus of control deals with the extent to which one believes that reinforcements are a function of one's behavior (internal) or a function of luck, powerful others, etc. (external). The most widely used measure of individual differences in locus of control is Rotter's I-E Scale (1966). Since its introduction the I-E construct has been the focus of extensive research.

Wallston and Wallston (1976) approached the difficulty of predicting behavior in a specific area such as health when using measures of generalized expectancies such as the Rotter's I-E Scale.

(Bradley and Gaa, 1977) made an investigation into how well the locus of control measures what it intends to measure. They found that its use is so widespread the more precise measures are needed in all areas of locus of control. Along the same lines, (Zuckerman and Gerbasi, 1977) report that well over 600 studies have been carried out over some aspect of locus of control.

In present study, subjects included male and female students ranging from 18 to 24 years of age attending the University of Dubuque. Two hundred and eleven questionnaires were distributed randomly to assess if the student was internally or externally oriented. From the two hundred and eleven, 60 were chosen to form two experimental groups. Thirty represented the internally oriented group and 30 in the externally oriented group. A follow-up questionnaire was sent to the 60 students

asking a series of health related questions similar in content to a medical history sheet.

A Chi-Square procedure was used to investigate any significant differences between the sixty subjects in the two experimental groups. A .05 level of probability was established for statistical significance.

Results that were significant at the .05 level are; internals get an average of more sleep a night, drink less alcohol, and are less susceptible to attracting a cold. Another result that was significant but didn't support the hypothesis is that externals have fewer headaches than internals. All other investigations held no statistical significance at the .05 level.

Because of the nature of the data we cannot make any direct conclusions. For example, one can conclude that if a person drank more than twice a week, averaged less than seven hours of sleep nightly, it might be a factor in making one susceptible to the common cold. And assuming that low sleep patterns and high drinking patterns go hand in hand since a majority of social drinking occurs in the evening into the night time hours would support the example.

The results from the headache investigation indicate that externals have fewer headaches than internals which is on the contrary to what the researcher predicted. Again from the data collected one cannot make any direct statements why this is so, but a few assumptions can be looked at. It might be possible that some internals are so involved in fitness, dieting, and keeping in tune with what they do that stress may be more of a burden than to an external who lives a more carefree, whatever happens happens, laid-back type of lifestyle. The internal may be so wrapped up in getting to the track to work out or making sure that they stay under 1500 calories that extra stress is exerted upon them possibly

causing more stress type headaches.

A question that can change the entire outlook of the study is one's family history of medical problems. How much poor health is really inherited through the generations? And, more importantly, is internality-externality inherited?

If one were to further investigate the hypothesis using the same format and content it would probably be beneficial to enlarge the two experimental groups to 75 or 100 in each group. Also, a control group would make the statistical aspect more interesting and valid.

In a final comment in respect to the hypothesis that internals have fewer frequency of health problems than externals we cannot make a yes-no statement but, results do indicate that in certain areas there contains a definite difference between the groups.

The researcher supports the hypothesis and plans to pursue it to a greater extent during the next two years. A similar study, perhaps with more content will be conducted at Boise State University in an attempt to obtain more clearcut information and data to support the hypothesis.

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APPENDIX A

January 19, 1981

Dear Student:

As a finishing measure in my requirements for a master's degree, I am completing a research paper on health and locus of control. I would appreciate your time and honesty in answering this questionnaire to the best of your ability. If I find that you fit into the sample I'm trying to develop, I'll send you a follow-up questionnaire asking for your frequency of health problems in the last years.

Thank you for your cooperation.

Steve Klein

Name _____

APPENDIX A

	I BELIEVE THIS TO BE (CIRCLE ONE)	
1. If I take care of myself, I can avoid illness.	True	False
2. Whenever I get sick it is because of something I've done or not done.	True	False
3. Good health is largely a matter of good fortune.	True	False
4. No matter what I do, if I am going to get sick I will get sick.	True	False
5. Most people do not realize the extent to which their illnesses are controlled by accidental happenings.	True	False
6. I can only do what my doctor tells me to do.	True	False
7. There are so many strange diseases around that you can never know how or when you might pick one up.	True	False
8. When I feel ill, I know it is because I have not been getting the proper exercise or eating right.	True	False
9. People who never get sick are just plain lucky.	True	False
10. People's ill health results from their own carelessness.	True	False
11. I am directly responsible for my health.	True	False

APPENDIX B

Male _____ Female _____

HEIGHT: 5'-5'4" _____ 5'5"-5'9" _____ 5'10"-6'1" _____ Over 6'1" _____

WEIGHT: 100-125 _____ 125-150 _____ 150-175 _____ 175-200 _____ Over 200 _____

SMOKER _____ NON-SMOKER _____

DRINKING HABITS: Abstainer _____ Once or twice a week _____ More than twice
a week _____

TAKING MEDICATION NOW? Yes _____ No _____

ALLERGIES? Yes _____ No _____

SLEEP: 5-6 hours _____ 6-7 hours _____ 8-9 hours _____ More than 9 hours _____

EXERCISE: Daily _____ weekly _____ Monthly _____ Very Seldom _____

ANY CHRONIC DISEASES? Yes _____ No _____ (Such as diabetes or high blood pressure)

Does your family have any history of medical problems? Yes _____ No _____

Some of the following questions you will have to scan your memory the best you can.

How many colds do you usually have in an average year? None _____ 1 or 2 _____
3 or 4 _____ More than 4 _____

How many times have you had flu symptoms in the past two years? None _____
1 to 2 times _____ 3 to 4 times _____ 5 to 6 times _____ 7 to 8 times _____
More than 8 times _____

During an average year how many times do you have acidy stomach or diarrhea?
None _____ 1 to 2 times _____ 3 to 4 times _____ 5 to 6 times _____
7 to 8 times _____ More than 8 times _____

How often do you get headaches? Once a week _____ Once or twice a month _____
Four or five times a year _____ Once or twice a year _____
Never _____ (including migraines)

Do you have shortness of breath or asthma? Yes _____ No _____

Do you consider yourself overweight? Yes _____ No _____