

Smoking Withdrawal as a Function of Locus of Control

Soo Duo Nymh *University of Nicotiana*

ABSTRACT: A 2×2 factorial design was employed to investigate the influence of Locus of Control (internal versus external) and of the type of withdrawal support system (telephone versus no-follow-up withdrawal support) on smoking withdrawal. A significant interaction was found for Locus of Control and type of withdrawal support; the external, no-follow-up group had significantly higher post-withdrawal-period smoking rates than the other groups. It is suggested that the smoker's personality is a factor in the effectiveness of withdrawal support strategies.

Smoking Withdrawal as a Function of Locus of Control

Smoking withdrawal has been termed one of the major health-related problems of the United States (Owen, 1984). Many individuals attempt to quit smoking, only to relapse after short periods of time. Numerous studies (for example, Best & Steffy, 1971; McFall & Hammer, 1976) have attempted to identify specific withdrawal techniques (for example, aversive conditioning) that are effective over relatively long periods of time. One of the prime considerations seems to be matching the withdrawal support system with the personality of the person.

An example¹ of the type of study that has been conducted in this area is one reported by Best (1976), who employed a factorial combination of three variables: stimulus satiation or environmental analysis, punishment or no punishment, and persuasive communication before or after withdrawal. The participants in the study were 89 habitual cigarette smokers who were solicited through public announcements and who volunteered to participate. Each individual was assigned to either the stimulus satiation condition or the environmental analysis condition on the basis of his or her score on the Internal-External (I-E) Locus of Control Scale (Rotter, 1966), which identifies individuals in terms of their perceptions of control. That is, an internally controlled person views himself or herself as the primary controller of the reinforcers in the environment, whereas an externally controlled person views the environment (including other people) as the primary controller of his or her behavior. Best also employed a persuasive communication, giving reasons not to

Footnotes

¹ There are numerous studies that could have been cited. The Best (1976) article was chosen at random from the *Journal of Consulting and Clinical Psychology*.

smoke, that was administered either before or after the treatment condition. Half of the participants were punished for relapses after treatment by doubling the pre-treatment smoking rate for one day; the other half were not punished. Based upon reports made by the individuals during a 90-day period, the findings indicate that those individuals who were exposed to the stimulus satiation and persuasive communication before the treatment and those who were exposed to the environmental analysis and persuasive communication after the treatment had the lowest relapse rates. The data point to the fact that, in establishing techniques that maintain smoking withdrawal, adjusting the "treatment to individual differences may be a useful strategy to employ" (Best, 1976, p. 7).

The present investigation was undertaken to examine more closely the Locus of Control construct in relation to both the Locus of Control of smokers and the techniques employed for maintaining smoking withdrawal. Specifically, it was hypothesized that individuals identified as externally controlled would demonstrate low relapse rates under support conditions in which the environment controls their behavior.

Method

Participants

The individuals who participated in the study were volunteers solicited from a list of more than 500 people who had contacted a county public health clinic to request information on how to quit smoking. These people were contacted by mail and invited to an evening meeting, where smoking withdrawal techniques were discussed and individuals were asked to take part in an experimental smoking withdrawal program. A total of 160 people subsequently volunteered.

Instrument

The I-E scale was given to the volunteers to identify each person's Locus of Control. The scale is an adaptation of one originally developed by Phares (1957). The forced-choice scale contains 29 pairs of items, including six filler items to disguise the purpose of the scale. The majority of the items deal with the individual's subjective appraisal of how reinforcement is controlled. The items are not directly related to an individual's preference for internal or external control, but are related to the value that an individual places on internal or external control.

Design

A 2×2 factorial design was used. The first factor was the Locus of Control of the volunteers as measured by the Internal-External Locus of Control scale. The participants were divided into two groups: Those whose scores were above the median composed the External Group, and those whose scores were below the median composed the Internal Group. The second factor was the type of technique used for maintaining smoking withdrawal. Half of the individuals in each Locus of Control group were telephoned each day by the public health clinic staff and asked to record their smoking rate on a progress chart (Phone Group). The other half of each group were given progress charts on which to record smoking rates and were not telephoned (Alone Group). The dependent variable was based on the self-reports of the volunteers and was defined as the average number of cigarettes smoked by each group over a 150-day period following the initial treatment.

Procedure

Individuals who had contacted a county public health clinic for informa-

tion on how to quit smoking were invited to a public meeting at which withdrawal from smoking was to be discussed. At the evening session, a lecture was given by a medical doctor, who detailed the physiological changes in the body that result from smoking. A film was presented showing a lung cancer operation and interviews with lung cancer patients. Next, a slide presentation detailed various smoking withdrawal techniques. A question-and-answer period followed. Then, a request was made for volunteers to take part in an experimental smoking withdrawal program. Of the 257 people present, 160 volunteered.

The volunteers were then given the I-E scale and divided into two groups on the basis of their scores. Those with scores above the median were assigned to the External Group ($n = 80$), while those with scores below the median were assigned to the Internal Group ($n = 80$). Half of the members of each group were then given withdrawal and progress schedules (see Table 1) and then excused.

Table 1 Smoking Withdrawal Schedule

Day	Amount
1	Normal consumption
2-4	$\frac{1}{2}$ day-1 consumption
5-7	$\frac{1}{4}$ day-1 consumption
8-10	$\frac{1}{8}$ day-1 consumption
11-160	None

Table 2 Summary of the Analysis of Variance

Source	SS	df	MS	F	p
Locus of Control (LC)	1,075.0	1	1,075.0	19.44	<.01
Support Technique (ST)	1,060.0	1	1,060.0	19.17	<.01
LC \times ST	4,600.0	1	4,600.0	83.20	<.01
Within	8,615.0	156	55.29		
Total	15,360.0	159			

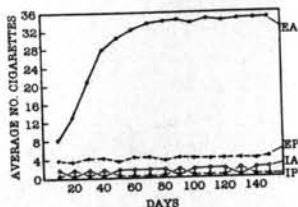


Figure 1 Average number of cigarettes smoked per day for External-Phone (EP), External-Alone (EA), Internal-Phone (IP), and Internal-Alone (IA) groups.

The other half of the members of each group were given withdrawal and progress schedules. They were also told that they would be telephoned each day. During these calls, they could ask any questions that they might have and were reminded to complete their progress schedules. After the volunteers had given their phone numbers to the clinic staff, they were excused.

Results

The analysis of variance of the factorial design is summarized in Table 2. Locus of Control was found to interact with the withdrawal-maintaining technique, $F(1, 156) = 83.20, p < .01$. The Internal Group in both the Phone and Alone conditions and the External Group in the Phone condition were found to differ little in the smoking rates observed after withdrawal. Furthermore, their smoking rates were found to be very low over the 150 days of withdrawal, as shown in Figure 1.

The External-Alone group was found to quickly revert to pretreatment smoking rates after an initial decrease in the number of cigarettes smoked per day.

The main effects of Locus of Control and support technique were both significant, $F(1, 156) = 19.44, p < .01$, and $F(1, 156) = 19.17, p < .01$, respectively. The significances of both main effects are due to the high level of smoking in the External-Alone group.

Discussion

The findings of the present investigation are consistent with those reported by Best (1976) and with social learning theory (James, 1957), in that the External Group were likelier to relapse if not provided with external support. The Internal Group, on the other hand, were relatively successful regardless of the withdrawal support technique employed. These findings suggest two conclusions.

First, smoking withdrawal procedures must be tailored to the individual's personality—a suggestion also made by Best (1976). For an individual deemed to be Internal on the Locus of Control scale, the type of withdrawal-maintaining system may not be very crucial. In contrast, the External individual seems to require some type of support system—an interpretation that is in agreement with the Locus of Control construct. However, caution should be exercised in generalizing these findings, since volunteers were used and Locus of Control may be confounded with many other variables.

A second implication is that future research on smoking withdrawal should focus on several techniques rather than attempting to ascertain which technique is best for all people. The available data indicate that there is no one procedure that is maximally effective for all; the cure varies with the individual.

References

- Best, J. A. (1976). Tailoring smoking withdrawal procedures to personality and motivating differences. *Journal of Consulting and Clinical Psychology, 41*, 1-8.
- Best, J. A., & Steffy, R. A. (1971). Smoking modification tailored to subject characteristics. *Behavior Therapy, 2*, 177-191.
- James, W. H. (1957). *Internal versus external control of reinforcement as a basic variable in learning theory*. Unpublished doctoral dissertation, Ohio State University.
- McFall, R. M., & Hammer, C. L. (1976). Motivation, structure, and self-monitoring: Role of nonspecific factors in smoking reduction. *Journal of Consulting and Clinical Psychology, 37*, 80-86.
- Owen, E. (1984). Personal communication.
- Phares, E. J. (1957). Changes in expectancy in skill and chance situations. *Journal of Abnormal and Social Psychology, 54*, 339-342.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80* (1, Whole No. 609).

Author Notes

The experiment was created for use in this chapter. The data and the author are fictitious, and correspondence would be meaningless. However, if this were an actual study, an author's note might be "Requests for reprints may be sent to Soo Duo Nymh, University of Nicotiana, 1 Tobacco Road, Burley, Kentucky 42101."

Summary

After the data have been collected and analyzed, the findings should be communicated to others. There are a variety of ways to do this—papers