

Mastery and Inoculation Against Setbacks as Active Ingredients in the JOBS Intervention for the Unemployed

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Earlier analyses of the JOBS II intervention for unemployed job seekers demonstrated that the intervention facilitated reemployment, reduced depressive symptoms, and improved role and emotional functioning (A. D. Vinokur, R. H. Price, & Y. Schul, 1995). The present study focuses on mediational processes of the active ingredients targeted by the intervention. Structural equation modeling analysis demonstrated that an enhanced sense of mastery had mediating effects on reemployment, financial strain, and reduction in depressive symptoms. Another active ingredient, inoculation against setbacks, was shown to protect those who suffered the setback of losing a job after temporarily regaining one. The inoculation protected them from experiencing the high level of depressive symptoms that was typical of their counterparts in the control group.

Public recognition of the magnitude of economic, social, and psychological consequences of unemployment has stimulated the onset of social interventions to mitigate their harmful effects. Federal and state governments have been influential in implementing a number of programs to facilitate the return of welfare recipients, dislocated workers, and other disadvantaged social groups to gainful employment. The literature includes five types of intervention programs for which the foci vary from job-search skill enhancement to vocational training and basic education and the outcomes produce positive, although weak, effects (Fischer & Cordray, *in press*). The program evaluation studies do not present information regarding the theoretical frameworks that were the basis for designing the interventions or findings that shed light on the active ingredients that might have produced their outcomes. As a result, there is a need for determining whether or how these weak effects might be increased.

The JOBS intervention project is among recent efforts to promote the reemployment of workers who lose a job and to prevent the negative effects of unemployment on mental health and well being. Over the past 10 years, this theory-driven intervention project conducted two large randomized field studies. Results indicated that the JOBS intervention generated a broad array of beneficial effects (Caplan, Vinokur, Price, & van Ryn, 1989; Vinokur, Price, & Caplan, 1991; Vinokur, Price, & Schul, 1995). Those effects include earlier reemployment at better paying jobs (Vinokur, van Ryn, Gramlich, & Price, 1991) and the prevention of elevated depressive symptoms or depression

episodes (Price, van Ryn, & Vinokur, 1992), compared with randomized control groups.

In the present study, we build on the outcomes by seeking to identify their mediating mechanisms: What mechanisms are triggered by participation in the intervention, and in turn, how do these mechanisms influence the final outcomes (Judd & Kenny, 1981)? Examining and estimating mediation effects are important for a number of reasons. The most obvious one is that such an examination may lead to the identification of key ingredients that could be strengthened in future interventions (Brown, 1991; Pillow, Sandler, Braver, Wolchik, & Gersten, 1991). In addition, information about mediators may be used for screening individuals at risk into the intervention to make it more efficient (Emery, 1991). Focusing on likely mediators may also help to identify those that may take more time to have discernable effects on long-term distal outcomes (Mackinnon & Dwyer, 1993). For example, enhancement in job-search skills may result in faster reemployment, or it may result over a longer time period in job seekers finding more suitable and stable employment in better paying jobs. Thus, the purpose of this article is to identify active ingredients of the JOBS intervention and examine their mediating role.

The original JOBS intervention was designed as a job-search skill enhancement workshop for groups of 15 to 20 recently unemployed job seekers. In JOBS II, the most recent field study, each group met for five 4-hr sessions and was guided by a cotainer team composed of a man and a woman (for detailed content and implementation procedures, see Curran, 1992). An elaborate description of the intervention theory and its components is available in Price and Vinokur (1995) and in Caplan, Vinokur, and Price (1997).

The major features of the intervention are based on its (a) content that focused on the enhancement of job-search skills; (b) delivery format with two trainers conducting a group workshop; and (c) delivery process of training that maximizes active learning processes, as opposed to didactic passive teaching techniques. The active learning process involves the group members engaging in cooperative tasks aimed at identifying the problems

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This article is based on research supported by the National Institute of Mental Health Grant P50MH38330.

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facing job seekers, generating critical information relevant to the problems, suggesting appropriate coping courses of action, selecting the actions personally suitable for them, and role playing to practice the implementation of the selected action plans. Using the same active learning process, participants also engage in inoculation against setbacks (Meichenbaum, 1985). They learn to anticipate barriers to the job-search efforts, imagine possible setbacks, then plan alternative or preventive courses of action aimed to overcome the barriers and setbacks, and finally, practice the implementation of the preventive actions. Specifically, the active learning process was intended to (a) enhance participants' confidence in their ability to successfully perform job-search activities (i.e., increase their job-search self-efficacy; Bandura, 1986), (b) increase internal locus of control (Rotter, 1966), and consequently (c) increase self esteem (Rosenberg, 1965), and (d) provide inoculation against setbacks. We hypothesized that, for unemployed job seekers, the first three outcomes are components of a generalized sense of mastery over their life (Pearlin, Menaghan, Lieberman, & Mullen, 1981).

Of these active ingredients, we measured directly only the components of sense of mastery in both experimental and control group respondents. We did not have direct measures of the other mediating constructs, such as actual job-search skills and inoculation against setbacks. Job-search skills are difficult to assess reliably using self-report measures. Inoculation against setbacks was available from the intervention participants only. However, in the absence of a direct follow-up measure of inoculation against setbacks, it was still possible to evaluate the impact of the intervention on this variable indirectly given the longitudinal nature of our design with two follow-ups conducted 2 and 6 months after the intervention. Specifically, some of the participants who got a job at an earlier stage of the study (within the first 2 months) lost it later (during the subsequent 4 months). Consequently, it was possible to observe the effect of this setback on the respondents in the experimental condition who had received the inoculation against setbacks and compare them with their counterparts in the control group, who had also gained, and then lost, a job but who had not received the inoculation treatment.

Because financial strain, that is, perceived economic hardship, has been demonstrated in epidemiologic and community studies to be the main mediator between job loss, unemployment, and depression (Kessler, Turner, & House, 1987), its mediating role also must be examined in the context of our intervention as well. Thus, our mediational analyses also include financial strain as a mediating variable. It is important to note that the intervention was not targeted at lowering financial strain directly. Instead, reduced financial strain was conceived of as both a direct and an indirect byproduct of the intervention. We hypothesize that the enhanced sense of mastery experienced by the intervention participants will have an impact on their financial strain. We also hypothesize that as the intervention improves reemployment, the financial gain from reemployment will further reduce the experience of financial strain in the intervention group compared to this experience in the control group.

Finally, as mediational analyses inform us about the role of specific mediators, they can also inform us about differential mediation effects in specific high-risk subgroups that later can be screened into the intervention to make it more effective (Em-

ery, 1991). In the past, we have demonstrated that the effects of the JOBS intervention on reemployment and depression outcomes were limited to primarily high-risk respondents (Price et al., 1992; Vinokur et al., 1995). These were respondents who, during the screening phase, manifested high levels of depressive symptoms and financial strain, and low levels of social assertiveness or social skills. At the same time, we also showed that the intervention equally enhanced the sense of mastery in the low- and high-risk groups. For this reason, our mediational hypotheses regarding the role of mastery were tested not only on the entire group but also examined by means of the differential mediating effects found by contrasting the high- and low-risk subgroups.

Method

Detailed description of the method is provided in an earlier article by Vinokur et al. (1995). A brief description of the method is included below.

Participants and Overview of the Design

An overview of the design of the study including the steps involved in screening and recruitment and in pretest and posttest data collections is displayed in Figure 1.

Method and procedures of recruitment. Using a short screening questionnaire to determine eligibility, 1,801 respondents were successfully recruited and participated in the JOBS II field study. They were recruited from four offices of the Michigan Employment Security Commission (MESC) in southeastern Michigan, the state agency that provides unemployment payments. Eligible respondents were those unemployed for less than 13 weeks, still seeking a job, and not expecting to retire within the next 2 years or to be recalled back to their former jobs. Because the intervention was conceived as a primary prevention program, we excluded from the field experiment 520 respondents (or 6.5%) who met the above criteria but had a very high score on the Depressive Symptoms scale indicative of a depression episode (Derogatis & Melisaratos, 1983).

The screening questionnaire. This included an 11-item index of depressive symptoms, a three-item index of financial strain, and a four-item index of social assertiveness. On the basis of the scores for the three indices, and using the regression weights reported in Price et al., (1992), a risk score for poor mental health was computed for each respondent. In addition, a risk status code (i.e., low = 1 and high = 2) was assigned to each respondent based on the risk score. Respondents who scored higher on depressive symptoms and financial strain and lower on assertiveness were shown to be at higher risk for experiencing depression in the future. To be classified in the high-risk category, respondents had to be above a cutpoint that included the 25% highest scoring respondents. Low-risk respondents were defined as those scoring below this cutpoint.

Randomization Procedures and Experimental Design

Following the classification to a high- or low-risk category, a computerized randomization procedure was used to allocate the low- and high-risk respondents to a control condition or an experimental condition. Those who were randomized to the experimental condition received an invitation to participate in the JOBS intervention program in a site chosen for its proximity to the office from which they were recruited.

The JOBS workshop experimental condition. This consisted of five 4-hr sessions conducted during the morning hours of a 1-week period. The intervention workshops were delivered by three pairs of male and

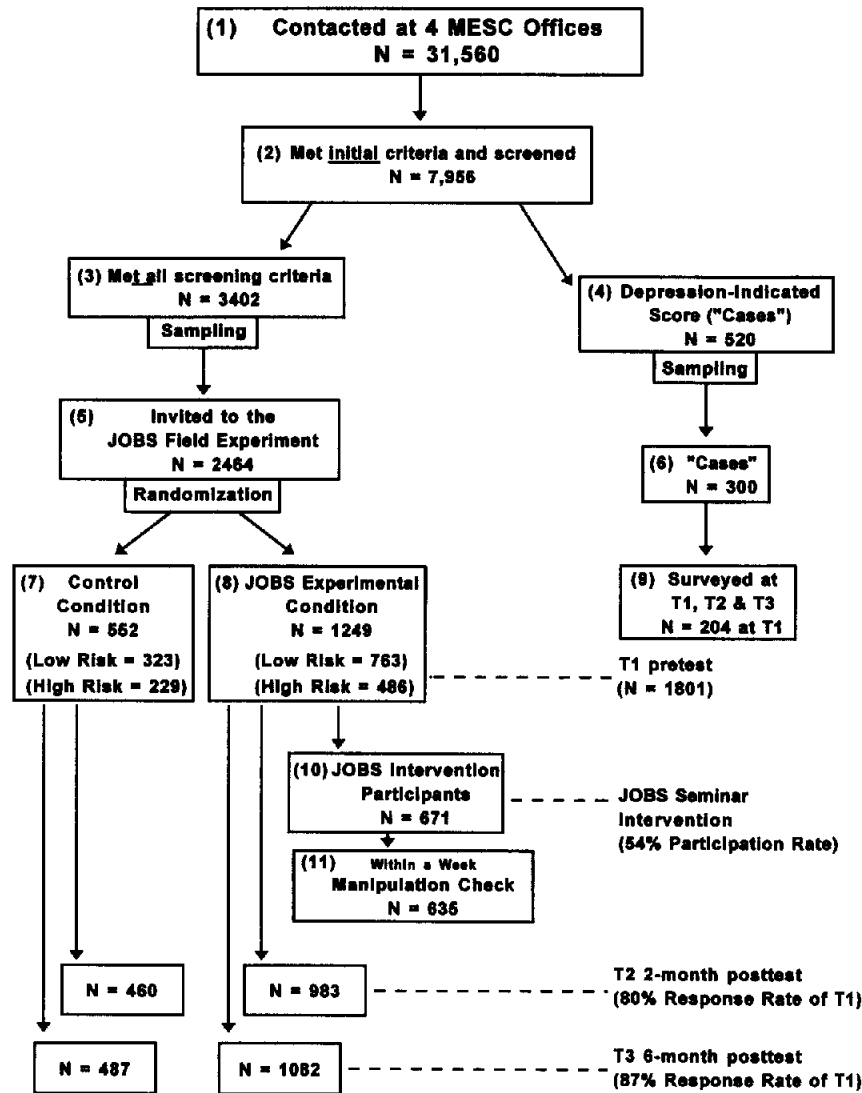


Figure 1. Research design of the JOBS II field study. From "Impact of the JOBS Intervention on Unemployed Workers Varying in Risk for Depression," by A. D. Vinokur, R. H. Price, & Y. Schul, 1995, *American Journal of Community Psychology*, 23, p. 45. Copyright 1995 by Plenum Press. Reprinted with permission. MESC = Michigan Employment Security Commission; T1 = Time 1; T2 = Time 2; T3 = Time 3.

female cotrainees to groups ranging in size from 12 to 22 participants ($M = 15.6$). In all, the intervention was delivered to 671 participants during 22 weeks, beginning March 1, 1991 and ending August 7, 1991.

Intervention dropouts and participants. Among those who were assigned to the experimental condition and became study participants by returning the Time 1 (T1) pretest questionnaire ($n = 1,249$; see Box 8 in Figure 1), 46% ($n = 578$) failed to show up for the intervention but continued to provide follow-up data at Time 2 (T2) and Time 3 (T3). Of those 671 who showed up (see Box 10 in Figure 1), 567, or 85%, showed up for at least four of the five sessions.

The control condition. This consisted of a booklet briefly describing job-search methods and tips equivalent to three single-spaced pages of text. This booklet was mailed to individuals after they were randomized into the control condition. The booklet contained useful information, but it was very brief in comparison, for example, with self-help books that are available on job-search methods.

Data Collection Procedures.

The screening questionnaire collected at the state employment offices was used to determine eligibility and to calculate the risk score for each respondent. Eligible respondents were randomized into the experimental conditions and were mailed the T1 pretest questionnaire.

The T1 pretest questionnaire was mailed weekly to cohorts of respondents who were recruited to the study during the months of February–July 1991. The questionnaires were mailed about 2 weeks before the invitation for the JOBS intervention workshop to which the respondents were randomized as experimental or control respondents. The Program Evaluation and Manipulation Check questionnaire was mailed to the respondents on completion of the intervention workshop, with a form to update their address so they could receive the \$20 payment for participation.

T2 and T3 follow-up questionnaires were mailed to the respondents

2 and 6 months, respectively, after the week of the intervention workshop for which they were randomized as experimental or control respondents.

Measures

All of the constructs in this study were assessed with multi-item indices, and most had a Cronbach coefficient alpha (Nunnally, 1978) in the .70s and .80s. Below, we present that subset of measures that were used for the analyses of this report. More details about the measures are provided by Vinokur et al. (1995).

Demographics were assessed using standard survey questions for reporting age, sex, education, marital status, occupation, family income, and ethnic-racial identification.

Depressive symptoms level was measured with a subscale of 11 items ($\alpha = .90$) based on Hopkins Symptom Checklist (Derogatis, Lipman, Rickles, Uhlenhuth, & Covi, 1974). The 11-item scale required respondents to indicate how much (1 = *not at all*, 5 = *extremely*) they had been bothered or distressed in the past 2 weeks by various depressive symptoms such as feeling blue, having thoughts of ending one's life, and crying easily.

We measured financial strain with a three-item index ($\alpha = .87$; Vinokur & Caplan, 1987). Using 5-point scales, the respondents rated their current and anticipated economic hardship such as difficulties living on their household income and reducing standard of living.

We assessed assertiveness using a short four-item index ($\alpha = .85$) based on published instruments on social reticence and shyness (Jones & Russell, 1982) and assertiveness (Galassi, Delo, Galassi & Bastien, 1974; Rathus, 1973).

We assessed job-search self-efficacy using a six-item index ($\alpha = .87$). Regardless of reemployment status, respondents were asked to rate on a 5-point scale the degree of their confidence in being able to successfully perform six essential job-search activities such as completing a job application or resume, using their social network to discover promising job openings, and getting their point across in a job interview.

Locus of control measure was based on a 10-item index ($\alpha = .68$) from Rotter's Locus of Control scale (1966). These items were demonstrated by Gurin, Gurin, and Morrison (1978) to best capture a personal, rather than ideological, orientation and are very similar to those used in another widely used self-mastery scale (Pearlin et al., 1981).

The self-esteem measure included ratings on eight items from Rosenberg's (1965) self-esteem scale. The ratings formed an index with an alpha of .83.

We constructed the mastery measure by computing the mean scores of job-search self-efficacy, locus of control, and self-esteem. This combined measure was constructed following a confirmatory factor analysis that tested whether the three constructs could be accounted for by a latent factor conceived of as personal mastery. Analysis with structural equation modeling (Bentler, 1995) provided a very good fit to the model as measured by several fit indexes including the Bentler and Bonnett (1980) normed fit index (NFI = .98), nonnormed fit index (NNFI = .97), and comparative fit index (CFI = .98).

Consistent with our earlier analyses, we classified respondents who worked less than 20 hr/week and those who worked 20 hr or more as unemployed and reemployed, respectively. Respondents who worked for at least 1 hr/week also provided information on their wage rate (i.e., pay per hour). On the basis of the reported wage, we constructed an additional variable that includes pay per hour for all the respondents, including those who did not work at all, and for whom "0" was assigned as the wage. In our structural modeling analysis, we used the number of hours working per week and pay per hour as the indicators for the reemployment latent factor.

Intervention Process

Additional measures were collected using a self-administered questionnaire that was mailed to all the intervention participants within one

week after the workshop. This questionnaire provided manipulation check data on mediators (e.g., job-search self-efficacy), as well as data on the integrity and strength of the intervention (Yeaton & Sechrest, 1981) in terms of trainers' and group members' behavior, their attractiveness to the participants, and social and group processes (e.g., feeling free to participate, willingness of the group to listen to what one had to say).

In addition, the questionnaire included a battery of 54 items that focused specifically on participants' experience in six central domains of job-search activities such as presenting marketable skills to employers and getting job leads through networking. The participants were asked to rate on a scale ranging from 1 (*not at all*) to 5 (*a great deal*) how much they felt comfortable, confident, or motivated about performing each of the six critical job-search activities, how much they engaged in behaviors such as helping others or being helped by others, or thinking about barriers and being confident of overcoming them. This battery of items was used to construct four multi-item indices with internal reliabilities ranging from .87 to .94. The four indices included measures of self-efficacy and motivation to search for a job, inoculation against setbacks and barriers, practice of job-search activities, and help received from group members.

Demographic Characteristics of the Sample of Respondents Enrolled in the Study

Our study's sample, which included those who were enrolled by returning the T1 pretest questionnaire ($N = 2,005$; see Boxes 7, 8, and 9 in Figure 1), was composed of workers who had recently lost a job and were unemployed for no longer than 13 weeks. Nevertheless, its characteristics closely resembled the U.S. unemployed population as reported by the U.S. Bureau of Labor Statistics (1992). For example, in our sample, the median age was 34.7 years ($M = 36.20$, $SD = 10.38$); and included 45% men, 21.5% African Americans, 76% Whites, 41% married individuals, and a mean of \$1,881 monthly income from the last job. The U.S. unemployed population during 1991 had a median age of 30.4 years and included 58% men, 20% African Americans, 76% Whites, 41% married individuals, and monthly earnings of \$1,834.

Response Rates, Attrition and Effectiveness of Randomization

Attrition from T0 (screening) to T1. There were no differences in attrition rates between the experimental and control condition or between low- and high-risk groups that formed our experimental design. Moreover, there were no interactions between attrition and experimental conditions on any of the variables available in the screening data including age, gender, number of weeks since job loss, depressive symptoms level, financial strain, or the risk score.

Attrition from T1 to T2 and T3. There was no significant difference in attrition between experimental and control condition nor were there any significant interactions between experimental conditions and risk status; consequently, the integrity of the randomization to experimental and control conditions was fully preserved (Hansen, Collins, Malotte, Johnson, & Fielding, 1985).

Results

Analytic Plan

Three types of analyses were conducted to investigate the mediating mechanisms of the intervention. First, we conducted internal analyses of data provided only from the participants of the intervention during the week after the intervention ended.

These data focused primarily on the intervention process and, therefore, were not collected from the control group or those who did not show up for the intervention. Because these data were provided from only the actual intervention participants, the results on the basis of these data are merely suggestive rather than conclusive. They provide initial background regarding the integrity of the intervention in the context of the strength of the experimental manipulation.

Second, we provided mediational analyses that were based on the full experimental design. Here we used the T2 data that were obtained within 2 months of the intervention from the entire sample as indicative of the proximal mediating outcomes that were produced by the intervention in predicting the longer term outcomes at T3, 6 months after the intervention. Obviously, because the analyses are based on data obtained 2 months after the intervention rather than immediately thereafter, the results are somewhat conservative assuming that the strong effects of the intervention were weakened during the 2 months that followed. However, this second series of analyses preserves the integrity of the original design because it includes data on all the respondents according to their initial randomization status as control or experimental group respondents.

The third type of analysis is also based on the full experimental design but focuses on the effects of inoculation against setbacks. These effects are examined by comparing individuals in the control and intervention groups who regained a job at T2 follow-up and then lost it again by T3 follow-up (i.e., suffered a setback) with those who did not experience such a setback (i.e., those who held on to their regained jobs) or those who had never regained a job.

Integrity and Strength of the Intervention and Manipulation Check

As reported earlier in Vinokur et al. (1995), of those invited, 671 (54%) participated in the intervention. Eighty-five percent of the participants attended at least four of the five sessions with 4.27 as the mean number of sessions attended. Within 1 week of the last session, 635 (95%) of the intervention participants provided information on their experiences in the workshop and their evaluation of its impact on them. Their evaluations provided uniformly strong evidence of the integrity and strength of the intervention and its immediate impact. On a series of 5-point scales ranging from 1 (not at all) to 5 (a great deal), participants provided ratings indicating that they found the workshop relevant to their needs ($M = 4.51$, $SD = 0.46$), that the group process was highly positive ($M = 4.59$, $SD = 0.43$), and that their job-search optimism and their confidence in overcoming setbacks (i.e., being inoculated against setbacks) was high ($M_s = 4.40$ and 4.15 , respectively; $SD_s = 0.52$ and 0.68 , respectively). They also rated the trainers and their fellow group members on warmth, expertise, and helpfulness on 7-point scales ranging from 1 (e.g., cold) to 7 (e.g., warm). Again, these ratings indicated positive evaluations for the trainers and the group members with mean scores of 6.77 ($SD = 0.63$) and 6.73 ($SD = 0.69$), respectively.

Finally, comparison of measures that were available at pretest T1 with the same measures collected within a week after the intervention workshop were used to check the effectiveness of

the experimental manipulation. The comparison demonstrated sizable increases in self-esteem ($M_s = 4.40$ vs. 4.09), $t(631) = 12.86$, $p < .001$, Cohen's effect size $d = .51$; job-search self-efficacy ($M_s = 4.37$ vs. 3.61), $t(631) = 22.91$, $p < .001$, $d = 1.27$; and confidence in being prepared to handle setbacks ($M_s = 4.11$ vs. 3.54), $t(631) = 17.02$, $p < .001$, $d = .86$. These findings suggest that the intervention provided the participants with the intended positive and socially supportive group process as well as raising self-esteem, job-search self-efficacy, and inoculation against setbacks.

Next, we examine the question of whether our four measures based on the participants' specific experiences with the domains of job search covered in the intervention are predictive of lower levels of depressive symptoms and reemployment at T2 and T3. To examine this question we conducted a series of multiple regression analyses. In each analysis, we entered in the regression our hypothesized key predictor (e.g., self-efficacy and motivation) and a series of control variables that include demographics, depressive symptoms score at screening, current level of reemployment (i.e., hours of work per week) and, when available, the T1 predictor measure (i.e., self-efficacy, inoculation against setbacks). The demographics variables included age, sex, education, marital status (married vs. not married), race (Whites vs. non-Whites), and family income at T1.

To avoid unreliable results that are obtained from a high degree of multicollinearity among predictors, as was the case in our data, we included each predictor by itself in the respective multiple regression analysis. In every multiple regression analysis, each of the four key predictor measures was a statistically significant predictor of reduction in T2 and T3 levels of depressive symptoms (e.g., for T3; $t_s(509) = -2.75$, -2.93 , -2.00 , and -1.99 for self-efficacy and motivation for job search, inoculation against setbacks and barriers, practice of various job-search tasks, and perceived help received from the group, respectively). However, none of these variables was found as a significant predictor of reemployment at T2 or T3. It seems that reemployment is an outcome that is determined by additional factors that do not appear in our regression models (e.g., actual job-search skills, market forces).

In conclusion, our manipulation check analyses document the positive effects of the intervention process on proximal outcomes and mediators and their effects on reducing depressive symptoms at follow-up assessments. However, the absence of comparable data from the control group (i.e., data collected within a week after the intervention) do not permit us to make a conclusive inference that the increase in these positive outcomes is due to participation in the intervention and not to other factors. We, therefore, turn now to analyses that were based on the full experimental design, which include the complete data from both experimental and control group respondents.

The Direct and Mediating Effects of Mastery, Reemployment, and Financial Strain on Level of Depressive Symptoms

Earlier, we reported the results of the JOBS intervention that were based on analysis of variance of the experimental design of the field study (Vinokur et al., 1995). These results demonstrated that the intervention increased the participants' sense of

mastery, increased their reemployment, and decreased depressive symptoms. Now we turn to the test of a mediational model that is based on our hypotheses regarding the mediating role of mastery, reemployment, and financial strain and their influence on mental health. The model was tested by a confirmatory latent variable structural analysis using the EQS program (Bentler, 1995). The analysis was conducted on the entire sample of 1,801 respondents who were randomized into the experimental and control group. We followed Raykov, Tomer, and Nesselrode's (1991) recommendation and reported the following goodness-of-fit measures: NFI, NNFI, and CFI. Fit indices that exceed .90 are considered to provide acceptable fit. All of the analyses were performed separately on listwise and pairwise covariance matrices. The results were virtually the same. We, therefore, present the results from the pairwise matrices which generated slightly better goodness-of-fit indices and are based on a larger portion of the original sample. Overall missing data rates amounted to 14% and therefore 86% ($N = 1,556$) of the original sample size was used as the actual N in the EQS procedure.

The tested mediational model is displayed in Figure 2, along with the significant standardized path coefficients. In this model, the indicators for the level of depressive symptoms include three subscales composed of randomly selected items from the 11-item depressive symptoms inventory. Financial strain is indicated by the three items of the scale, and reemployment is indicated by the standardized score of pay per hour and number of hours working for pay per week.

The starting point in this model is the direct effects of the experimental treatment on the hypothesized critical mediators, mastery, and reemployment. It also includes financial strain as a key mediator at each time period. The experimental condition and financial strain at time of screening are the exogenous variables in the model. The concurrent effects of reemployment on financial strain and of financial strain on depressive symptoms were estimated, along with the stability effect of each of these latent factors on their counterpart in the subsequent time period. In addition, the longitudinal effects of mastery on subsequent levels of financial strain and depressive symptoms at T3 were also included in the model.

Our estimated model also included the covariances between the measurement errors of the respective indicators across the two time periods as well as the covariances of the residuals of mastery at T1 pretest and depressive symptoms at time of screening. Factor loadings were constrained to be equal across the three time waves. The results of the measurement model showed a good fit to the data, with $\chi^2(244, N = 1556) = 577, p < .001^1$; NFI = .98, NNFI = .98, and CFI = .99. Then, as expected, the results of the structural model as shown in Figure 2 also provided a good fit to the data, $\chi^2(269, N = 1556) = 725, p < .001$; NFI = .97, NNFI = .98, and CFI = .98.

The experimental condition had a statistically significant impact on both reemployment and mastery ($\beta_s = .07$ and $.06$, respectively; both $p_s < .05$). At 6-month follow-up, the major contributor to each construct was its preceding baseline level (β_s for reemployment, financial strain, and depressive symptoms were .38, .42, and .48, respectively; all $p_s < .001$). In both follow-ups, reemployment reduced financial strain ($\beta_s = -.35$ and $-.42$, respectively; both $p_s < .001$), and in turn,

financial strain reduced depressive symptoms ($\beta_s = .21$ and $.32$, respectively; $p < .001$). Mastery had a strong beneficial impact on all three outcomes including reemployment ($\beta = .09, p < .05$), financial strain ($\beta = -.21, p < .001$), and depressive symptoms ($\beta = -.58, p < .001$). In addition, mastery had longitudinal effects reducing the level of both financial strain and depressive symptoms at 6-month follow-up ($\beta_s = -.07$ and $-.08$, respectively; both $p_s < .05$).

To explore further the mediating role of mastery, we estimated the model on the group of respondents who participated in the intervention, that is, those who attended at least one session. The results for this group showed a good fit to the data, $\chi^2(246, N = 618) = 417, p < .001$; NFI = .96, NNFI = .98, and CFI = .98. More importantly, all of the mediational paths were statistically significant and somewhat higher than the paths for the entire sample. For example, the betas of the paths from mastery to reemployment, and from mastery to depressive symptoms at T3 were for the participants, ($\beta_s = .14$ and $-.13$, respectively, $p < .05$), compared with these betas for the entire sample ($\beta_s = .09$ and $-.08, p < .05$; see Figure 2).

The Mediating Effects of Mastery for Low- Versus High-Risk Respondents

Our earlier reported results of this study (Vinokur et al., 1995) demonstrated that the effects of the intervention on both reemployment and depressive symptoms were essentially limited to the high-risk group. The question remains of whether these are direct effects on the outcomes or whether they represent a stronger mediational effect of mastery for the high-risk group, which, in turn, produces the better outcomes for this group. The focus of the next analysis is, therefore, to examine this question of whether the intervention outcomes were more strongly mediated, and consequently enhanced, by mastery. To examine this question, we tested first the fit of the data from the low- and the high-risk groups simultaneously to the same structural model that is portrayed in Figure 2. In other words, we tested whether exactly the same model with the same parameters (i.e., all the parameters were constrained to be equal across the groups) could provide adequate fit to the two risk groups. The results showed an acceptable good fit to the data, $\chi^2(564, N_s = 938$ for low risk, 619 for high risk) = 1183, $p < .001$; NFI = .94, NNFI = .96, and CFI = .97.

However, on the basis of Lagrange Multiplier (LM) test (Bentler, 1995), as well as our hypothesis regarding the mediating role of mastery, we retested the model after releasing the equality constraint between the groups regarding the path from mastery to reemployment. Although the original model provided good fit, the retested model proved to have statistically significant better fit, $\Delta\chi^2(1) = 4.00, p < .05$. Furthermore, whereas for

¹ Since even minute differences in a large sample tend to produce a statistically significant chi square, other measures such as the NFI, the NNFI, and CFI, are used as indicators of goodness of fit. For example, Hayduk (1987) suggested that the chi-square is instructive primarily for samples ranging from about 50 to 500 cases (p. 169). After adjusting for missing data, the size of the sample used for testing our model was 1,556 and therefore the statistical significance of the chi-square is ignored in favor of the other fit measures.

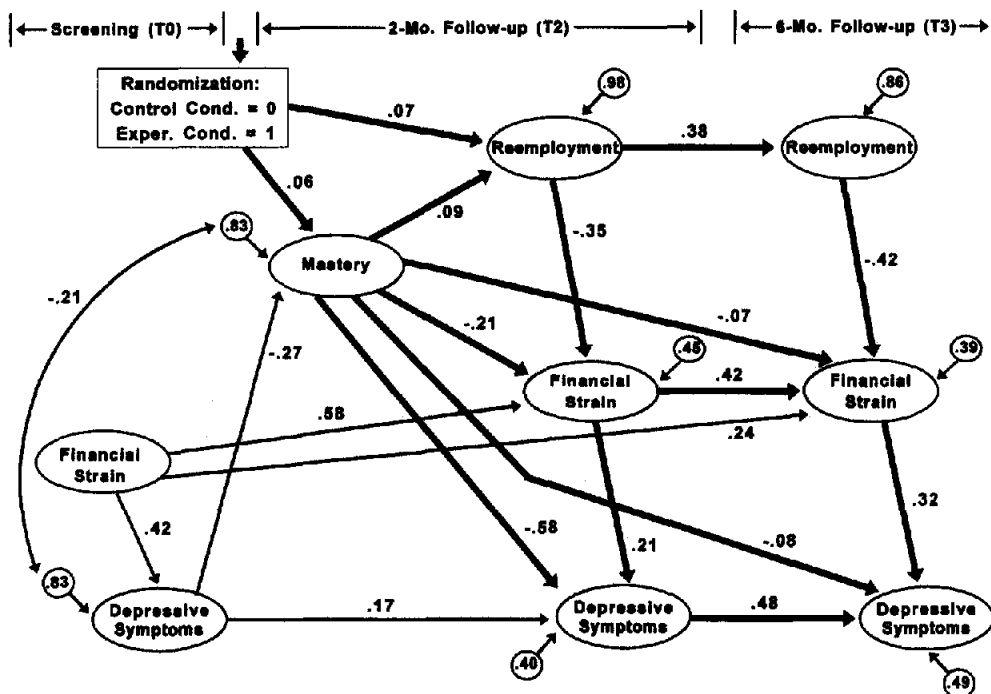


Figure 2. Structural equation modeling of direct and mediational effects in the JOBS II field study. Large ellipses represent latent constructs. Thicker lines represent possible mediational paths from the intervention to depressive symptoms. All of the paths are statistically significant at .05 or above. Numbers in small circles are residual variances. $\chi^2(269, N = 1556) = 725$, normed fit index = .97, nonnormed fit index = .98, comparative fit index = .98. T0 = baseline; Mo. = month; Control Cond. = control condition; Exper. Cond. = Experimental condition, which includes all the respondents who were assigned to the condition whether they attended the intervention or not.

the low-risk group the path from mastery to reemployment was .05 (*ns*), the path for the high-risk group was .21 ($p < .001$). Additional tests of the two-group model did not demonstrate significantly different paths from the experimental condition to mastery or from mastery to other constructs, except as mentioned above the path from mastery to reemployment.

Inoculation Against Setbacks: Time 3 Depressive Symptoms Among Those Who Regained a Job (by Time 2) and Then Lost It

We hypothesized that the reactions of those who actually experienced setbacks could provide important evidence regarding the effectiveness of the component of the intervention described as the inoculation against setback. Obviously, a most serious setback is the experience of losing a job again after regaining and holding one for a short period of time. A significant number of people who became reemployed by T2 experienced the setback of losing this job and becoming unemployed again by T3 (designated as the E-U subgroup). We were, therefore, able to compare the level of depressive symptoms at T3 of this subgroup (i.e., E-U) to the levels that were manifested by other subgroups who did not experience a setback. These subgroups included those who remained unemployed at both T2 and T3 (U-U), those who were still unemployed by T2 but

later regained employment by T3 (U-E), and those who were employed at both T2 and T3 (E-E). Most importantly, within each of these subgroups we were able to compare the respondents from the control and experimental groups. Figure 3 displays the mean depressive symptoms score at T3 for the respondents in the control and experimental conditions according to their pattern of reemployment at T2 and T3. The means displayed in Figure 3 were adjusted for level of depressive symptoms as measured at the screening phase.

The most striking, and the only statistically significant, difference between the experimental and the control group respondents is readily noticeable in the E-U; that is, participants who had a job at T2 but lost it at T3. These were the respondents who experienced the serious setback of losing the job they regained at T2. As hypothesized, the inoculation-against-setbacks component of the intervention protected those who participated from the devastating experience of the setback—a setback that produced the marked elevation in depressive symptoms in the same subgroup within the control condition.

We conducted a two-way analysis of covariance (ANCOVA) using the depressive symptoms score at T3 as the dependent variable, and experimental condition and employment pattern as the independent variables. Depressive symptoms score at time of screening was included as a covariate in this analysis. Averaging over the experimental condition, change in the job status

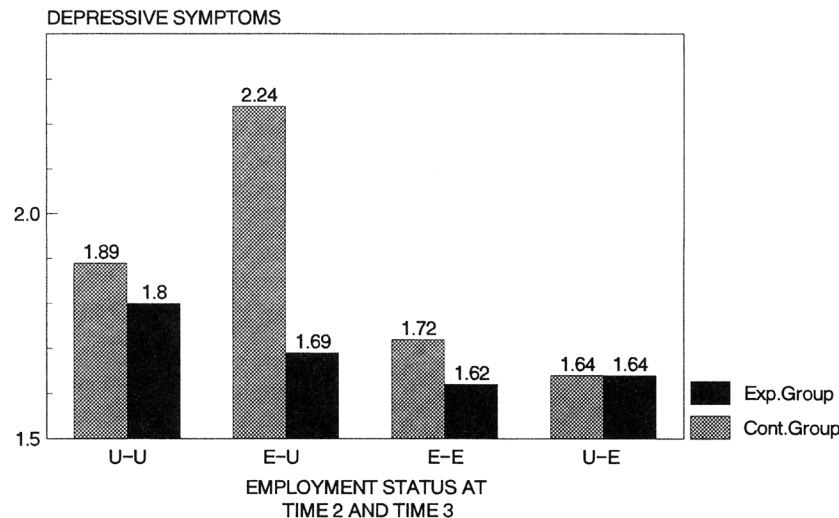


Figure 3. Time 3 mean depressive symptoms as a function of experimental condition and pattern of employment at Time 2 (2-month follow-up) and Time 3 (6-month follow-up). The means are adjusted for levels of depressive symptoms at screening. U-U = unemployed at both Time 2 and 3; E-U = employed at Time 2, unemployed at Time 3; E-E = employed at both Times 2 and 3; U-E = unemployed at Time 2, employed at Time 3. Exp. Group = experimental group; Cont. Group = control group.

influenced the respondents' T3 depressive symptoms, $F(3, 1237) = 10.73, p < .001$. As Figure 3 suggests, those who did not have a job at T3 were more depressed than those who did. However, among the former, those who had a job at T2, but lost it at T3, were depressed the most. More importantly, according to our hypothesis, the effect of employment pattern on depressive symptoms should be moderated by the experimental condition. This was, in fact, the case as indicated by a significant interaction effect between employment status and experimental condition, $F(3, 1237) = 4.07, p < .01$.

One way to interpret the interaction is to note that the beneficial effect of the experimental condition was significant for those who had a job at T2, but lost it at T3, in the E-U group, with $t(86) = 3.81, p < .01$. The intervention effect was not significant in the other three groups. Furthermore, the significant effect of condition in the E-U group remained unaffected by controlling for depressive symptoms at screening and age, sex, education, race, (Whites vs. non-Whites), and T1 family income. An alternative way of looking at this interaction between employment status and experimental condition is to note that employment status had a highly significant effect on depressive symptoms for respondents in the control group, $F(3, 396) = 7.61, p < .01$, but only marginal influence on the depressive symptoms of respondents in the intervention condition, $F(3, 840) = 2.56, p = .06$. Either way, it appears that the intervention helped to protect those respondents who were most susceptible to experiencing elevated depressive symptoms due the setback of a job loss.

Could Enhanced Sense of Mastery Account for the Effect of Inoculation Against Setbacks?

Our earlier analyses (Vinokur et al., 1995) have shown that the intervention increased the sense of mastery, and our present

structural analyses suggested that this increase contributed to the reduction in depressive symptoms. It is, therefore, important to examine whether the effects as shown in Figure 3 are the results of inoculation against setbacks as provided by the intervention or are produced or mediated by the enhancement of sense of mastery. To answer this question, we conducted two types of analyses. In the first analysis, we repeated the two-way ANCOVA described above but included sense of mastery at T3 as a covariate, in addition to depressive symptoms score at screening. The addition of mastery at T3 in this analysis is a strong test of the hypothesis regarding the distinct effect of inoculation, given that the depressive symptoms dependent variable is also measured at the same time period. The analysis produced the same statistically significant main effect of employment pattern, $F(3, 1235) = 6.67, p < .001$; condition, $F(1, 1235) = 8.69, p < .01$; and Employment Pattern \times Condition interaction, $F(3, 1235) = 3.87, p < .01$. Focusing more narrowly on the E-U group of those who suffered the setback, most of the gap in depressive symptoms level between control and experimental condition remained even after mastery was added as a covariate, dropping from .54 (as in Figure 3) to .45.

Our second analysis continued to focus on the respondents in the E-U subgroup. Using hierarchical multiple regression to predict depressive symptoms at T3 in this subgroup, we entered depressive symptoms at screening and mastery at T3 as predictors in the first step; we entered the experimental condition as the third predictor in the second step. The two predictors accounted for 31% of the variance. The addition of the experimental condition as a third predictor increased the amount of explained variance by 6%, which was statistically significant, $F(1, 84) = 9.04; p < .01$. Taken together, the two analyses demonstrate that the preventive effects of the intervention on those who suffered setbacks could not be accounted for by

demographics, baseline depressive symptoms, or sense of mastery. They, therefore, support the hypothesis that this effect is due to the inoculation-against-setbacks component of the intervention.

Discussion

This study demonstrated the mediating effects of a sense of mastery and inoculation against setbacks as active ingredients in an intervention for unemployed job seekers. Our findings showed that enhanced sense of mastery was a significant mediator of the effects of our job-search intervention on reemployment, financial strain, and reduction in depressive symptoms. Furthermore, the mediation effects of mastery on reemployment were particularly pronounced for the high-risk group, those initially screened for a high level of depressive symptoms, financial strain, and a low level of assertiveness. The results also showed that the intervention protected those who temporarily regained a job but then suffered the setback of losing it. They were protected from experiencing the high level of depressive symptoms that was exhibited by their counterparts in the control group.

As suggested in earlier epidemiological studies (e.g., Kessler et al., 1987), our structural modeling analysis also revealed that financial strain mediated the effects of reemployment on the reduction of depressive symptoms. The mediating role of financial strain suggests that future interventions for unemployed job seekers should incorporate active ingredients to reduce financial strain as an additional intervention target. As suggested by Pillow et al. (1991), an effective way to improve intervention outcomes is to target the intervention on mediating processes.

The mediating roles of sense of mastery and inoculation against setbacks deserve attention because these variables are said to be key to the success of a wide range of interventions that are intended to prevent poor mental health or achieve difficult cognitive and behavioral changes (Meichenbaum, 1985; Ozer & Bandura, 1990; Wood & Bandura, 1989). A growing body of literature documents the importance of sense of mastery and its components, locus of control and self-efficacy, in many types of interventions that are applicable to various tasks and life domains (Gist & Mitchell, 1992; Maddux, 1995; Schwarzer, 1992). For example, in another study that tested the efficacy of a job-search workshop, Eden and Aviram (1993) found that their intervention increased general self-efficacy, which, in turn, increased job-search activities. Their efficacy measure was conceptually similar to our index measuring sense of mastery.

The results of our structural analysis demonstrated that sense of mastery mediated the effects of the intervention on reemployment primarily for the high-risk group. This finding is consistent with the results reported earlier (Vinokur et al., 1995), which showed that the reemployment and mental health benefits of the intervention were obtained almost exclusively by the high-risk group. It does, however, raise questions regarding optimal deployment of intervention resources in the future. On the one hand, it may be suggested that the most effective use of such resources requires screening and delivering the intervention only to high-risk participants. On the other hand, it may be that high-risk respondents can benefit from the intervention process only in a heterogeneous group, one with participation of low-risk

job seekers who provide optimism and social support to the group. If the latter is the case, further efforts may need to focus on redesigning the intervention by bolstering the components that enhance mastery and job-search skills.

We hypothesized that the intervention delivery as an active learning process is the central mechanism that plays a critical role in the development of the sense of mastery because it provides the participants with all the sources of information stipulated by Bandura (1986, 1992) to enhance self-efficacy; that is, the active learning process is a procedure that exposes the participants to performance (i.e., enactive engagement), vicarious, emotional, and imaginal experiences through role playing, and to verbal persuasion through group problem solving and discussion. Furthermore, we also hypothesized that the acquisition of job-search skills, coupled with the inoculation against setbacks (including anticipating and overcoming barriers) are the first steps that lead to the enhancement of job-search self-efficacy and motivation and, in turn, to the increase in the other components of a sense of mastery that include locus of control and self-esteem. Further research is needed to identify and test the causal relationships among these intervention mediators and to link them more accurately to the specific mental health and reemployment outcomes. There is also a need to develop reliable measures of the active learning process and its components and to test their hypothesized causal effects on the acquisition of job-search skills, the development of self-efficacy, inoculation against setbacks, and mastery.

The limitations and weaknesses of this study must be described here because they shed additional light on the interpretations of the results and point out priorities for future research. Two of the limitations of the study suggest that the mediational analyses provided very conservative estimates. One of these limitations of the study is the absence of a full set of measures on mediators from all study respondents within a very short time after the end of the intervention. It is quite reasonable to assume that the effects of the intervention on the mediators are strongest shortly after the termination of the intervention, that is, within a week or two. In the absence of mediational data from both experimental and control respondents immediately after the intervention, our structural modeling analysis was based on measures of mediators that were collected 2 months after the intervention. Because these measures were not collected earlier, it is likely that our analysis provided very conservative estimates of mediational effects.

Another limitation of the analysis in providing more accurate estimates of the strength of the mediational effects is a consequence of partial participation in the intervention. Forty-six percent of the experimental group respondents did not show up for the workshops and, therefore, did not receive the intervention treatment. To preserve the integrity of the experimental design, we included these respondents in the analysis in the experimental group as suggested by Cook and Campbell (1979). Nevertheless, their inclusion in the experimental group may have diluted the strength of the mediational effects. Future statistical techniques may be devised to model effects of intervention on participants only without compromising the integrity or accuracy of experimental designs (Angrist, Imbens, & Rubin, in press).

Finally, in the absence of a reliable and validated measure for assessing actual job-search skills, it is difficult to estimate

the mediating role of this component and its independent contribution to various outcomes. Because the most important target of the intervention is the enhancement of job-search skills, the development of such a measure should be considered an important priority for future research. Currently, it is not clear whether the intervention effects on reemployment are mainly through mastery, the motivation to search for a job, and their effects on the intensity of job-seeking activities or through the enhancement in job-search skills as an additional mediational path that was not examined in our analyses; that is, it is possible that the actual enhancement in job-search skills increases the effectiveness of the job-search process leading to a higher reemployment rate. Obviously, assessing job-search skills may require observational methods such as those reported in a recent study by Stevens and Kristof (1995). Adaptation of these methods to the context of an intervention study are now being tested in our joint program of research with colleagues from George Washington University on couples coping with unemployment.

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Received July 21, 1996

Revision received February 7, 1997

Accepted March 5, 1997 ■