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Increasing coping resources at work: a field experiment to increase social support, improve work team functioning, and enhance employee mental health

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Summary

Correlational studies have identified worksite coping resources such as social support and perceived control, and have suggested a positive role for such resources in employee stress processes. However, little experimental evidence has demonstrated the causal role of worksite coping resources in improving mental health, nor how worksite coping resources can be enhanced. This paper reports the results of a field experiment intended to provide such evidence. Human service workers participated in a theory-driven training program designed to increase individual and group psychosocial coping resources and individuals' abilities to use those resources when coping with job demands. The inclusion of selection variables in models used to estimate the impact of the intervention controlled for selection biases and also allowed for the assessment of the impact of the training on those workers identified as most prone to turnover and on those most likely to participate in such an intervention. Results indicated that the program enhanced the work team climate and reduced depressive symptoms and somatization in those most at risk for leaving their jobs. The program was also effective in increasing the amount of supervisor support received on the job and strengthening perceptions of coping abilities in those workers most likely to participate in the program.

Introduction

Employees are exposed to numerous potential sources of stress at the worksite. In the human services, these potential stressors include excessive workload, role conflict, interpersonal conflicts with staff and clients, and the lack of progress or improvement exhibited by clients (Shinn, Rosario, Morch and Chestnut, 1984). The effects that these stressors have on employees depend on the employees' cognitive and behavioral responses to them. Employee responses or coping behaviors are determined, in turn, by the amount and the quality of resources that the employee can draw upon when faced with a problem or potential stressor at work. Roskies and Lazarus (1980) used a bank account analogy to describe the relationship between coping behavior and coping resources: 'If coping . . . strategies are conceptualized as the currency expended in a specific

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stress transaction, coping resources constitute the bank account from which this currency is drawn' (p. 48).

Unfortunately, we do not know much about how this 'banking system' works. We know that a positive balance is associated with good mental health, employee productivity, and satisfaction. However, we know little about the nature of the account, how deposits can be made, and how funds are withdrawn. Although research has demonstrated that worksite coping resources are correlationally associated with positive mental health, little experimental evidence demonstrates the causal role of worksite coping resources in improving mental health, nor how worksite coping resources can be enhanced. This study attempts to provide this kind of evidence. We begin by briefly reviewing the evidence linking coping resources to mental health. We then describe a theory-based training program for human service workers, designed to improve worksite coping resources. Finally, we report results of a field experiment to demonstrate that the program enhanced both coping resources and mental health.

Coping resources

Coping resources may have either direct positive effects on mental health or may indirectly enhance mental health by facilitating effective coping behavior or broadening the range of potential coping behaviors available to employees. Two coping resources that have received much attention are social support and perceived control.

Social support has been defined as emotional, instrumental, and informational aid exchanged through social interactions (House, 1981). Social support may directly enhance well-being through increasing self-esteem, bolstering morale, or simply providing a sense of being affiliated and cared for (Heller, Swindle and Dusenbury, 1986). Several worksite studies have reported this direct effect of social support (see e.g. Ganster, Fusilier and Mayes, 1986; House, 1981; Melamed, Kushnir and Meir, 1991).

Social support may indirectly enhance mental health by affecting employee coping behavior (Lazarus and Folkman, 1984). Thoits (1986) posits several possible ways in which social support can serve as a coping resource. Social support can help an employee exert situational control through the provision of instrumental aid or advice about how to modify a situation to make it less stressful. Social support can divert an employee's attention away from potent stressors and can also help an employee to reinterpret a stressful situation so that it seems less threatening. Lastly, by providing feedback that connotes caring, understanding or affirmation, supporters may decrease the distress employees suffer when faced with difficult situations. Thus, employee appraisals of the adequacy of their coping resources may depend on the availability of social support. The availability of support at the worksite, in turn, is determined by the quality of relationships maintained with one's coworkers and supervisors, people with whom one has contact during the day and with whom one shares a similarity of experience (Thoits, 1986). There is some correlational evidence for the effects of social support on worksite coping behavior (see e.g. Long, 1990; Newton and Keenan, 1985; Parkes, 1986).

Perceived control may also have both direct and indirect effects on mental health. Direct effects on mental health have been documented by laboratory studies showing that having control over aversive stimuli results in positive outcomes such as enhanced performance and well-being (Averill, 1973; Miller, 1979), and by epidemiological studies linking control over work processes with employee health and well-being (see e.g. Karasek and Theorell, 1990). The extent to which employees are able to exert control over their work may also affect mental health indirectly, with employee coping behaviors serving as the mediator. Those employees who perceive themselves to

have little control over stressful aspects of their jobs may be less likely to engage in coping strategies that aim to modify or ameliorate the stressor (Folkman, 1984; Latack, 1986).

One way in which an organization can enhance employee perceptions of control is by providing a structure and climate that facilitates meaningful employee participation in decision-making processes. If employees are able to influence decisions at the workplace, employees' perceptions of their abilities to exercise control over specific worksite stressors may be enhanced (Ganster, 1988). Participating in decision-making processes may enhance access to needed information, in addition to increasing the likelihood that one's own views will be heard. In addition, participating with others in decision-making may facilitate better understanding of the problems faced by others at work and of why certain worksite stressors exist. Sutton and Kahn (1987) have suggested that enhanced understanding may function as a potent antidote to worksite stress.

Most studies of participation in decision-making have focused on the outcomes of satisfaction, motivation and productivity (see e.g. Cotton, Vollrath, Froggatt, Lengnick-Hall and Jennings, 1988; Miller and Monge, 1986). However, participation in decision-making has also been linked to fewer perceived stresses, the use of active problem-solving, and better mental health (Cherniss and Egnatios, 1978; Jackson, 1983; Morris, Steers and Koch, 1979; Spector, 1986).

Caregiver support program

In this paper, a field experiment assesses the effects of a worksite coping intervention for human service workers. This intervention, called the Caregiver Support Program (CSP), was intended to modify both individual skills and organizational processes. Specifically, the program was designed with two primary goals in mind: (1) to teach employees about the helping potential of support systems and to build skills in mobilizing available support from others at work, and (2) to teach employees about participatory problem-solving approaches and to build skills in implementing such approaches in work team meetings, thus creating an organizational context amenable to employees participating in and having influence over decision-making. It was expected that these changes in individual skills and organizational decision-making processes would enhance employee perceptions of their ability to cope and result in improved employee mental health.

A full description of the learning processes and the content of the CSP training sessions is available elsewhere (Heaney, Price, and Rafferty, 1995). A brief presentation of the major goals of the program is provided here. Based on the premise that individuals actively shape, mobilize, and maintain their social networks, the first goal of the CSP was to help employees develop the skills and concepts necessary for enhancing and making fuller use of their existing social relationships. In group sessions facilitated by trained instructors, participants explored how social support from others might help solve problems and reduce distress at work. Participants then mapped their own social networks and diagnosed the strengths and weaknesses of their networks. For example, they explored issues of network membership, the kinds of support provided by network members, and who provided what kind of support. Lastly, participants worked on refining the interpersonal skills associated with exchanging social support with others, including clarifying misunderstandings, providing constructive feedback, and asking for help from others. This latter skill was addressed because caregivers are known to feel uncomfortable in seeking aid for themselves (Cherniss, 1980), and beliefs about help-seeking are associated with increased support mobilization, independent of the number of potential supporters available (Eckenrode, 1983).

Research to date has not validated particular techniques for improving the exchange of social support at the worksite (Gottlieb, 1988). Therefore, although the skill areas were chosen on the basis of prior research, we decided that the actual strategies for improvement should be generated by the participants themselves in relation to problems they had experienced. Thus, participants

were not instructed how to behave; instead, with the guidance of the trainers, they gleaned suggestions for change from the stories of others' effective, supportive social interactions. In this way, the skill development process provided an example of how caregivers can benefit from the empathic understanding and similar experiences of other caregivers (Thoits, 1986).

The second primary goal of the CSP was to facilitate employee participation in decision-making. In order for a participation intervention to result in positive outcomes, Tjosvold (1986) has suggested that the organization must provide a setting that allows for cooperative problem-solving and productive controversy. In other words, managers and employees should be able to exchange information and ideas freely, and to work toward goals that are mutually beneficial. In addition, Kanter (1983) has suggested three necessary elements of a favorable participative situation: (1) employees want to be involved in the decision-making process, (2) employees have the requisite skills and knowledge, and (3) there be sufficient time for discussion of issues and concerns.

The CSP attempted to build on these suggestions by having the caregivers discuss the pros and cons of encouraging all workers in the home to participate in important policy and client decisions. The trainers highlighted the advantages of such a process for both supervisors and subordinates, and then presented a group problem-solving process that could be used in staff meetings (Johnson and Johnson, 1991). Next, caregivers practiced using this group process to prioritize problems and to develop action plans for resolving the problems. Finally, they discussed how these procedures might be adapted for use in staff meetings at their worksites. Since interventions to increase participation in decision-making have been more successful if implemented over the long-term (Cotton *et al.*, 1988), caregivers were encouraged to incorporate these new procedures into their staff meetings on an ongoing basis.

Figure 1 presents the conceptual framework for the CSP. The intervention was designed to improve two worksite coping resources: social support and an organizational climate that facilitated employee participation and influence in decision-making processes. If the intervention was successful, these increased coping resources should (1) improve workers' perceptions of their abilities to cope with work stressors and (2) enhance employee mental health. To test these hypotheses, we conducted a field experiment. Below, we describe the specific methods of the experiment, as well as its results.

Methods

Sample, recruitment, and data collection

Participants in the study are direct care staff and home managers who worked in group homes that provided residential care for developmentally disabled or mentally ill adults in 11 counties of Michigan. These group homes cared for six to 12 clients, utilizing an average of 8.6 FTEs (*S.D.* = 2.2) for staffing. A multi-stage recruitment procedure was used to recruit employees into the study. First, administrators from 73 nonprofit corporations who operated group homes in the 11 counties were invited to one of four face-to-face orientation sessions. During these presentations, project objectives were outlined; the advantages of participating were detailed; assurances of confidentiality were provided; the importance of evaluating training was emphasized; and the necessity of random assignment to experimental condition was discussed. Fifty-five of the 73 agencies agreed to participate and to recruit staff members working in their eligible group homes.

Half of the group homes within each participating agency were then randomly assigned to

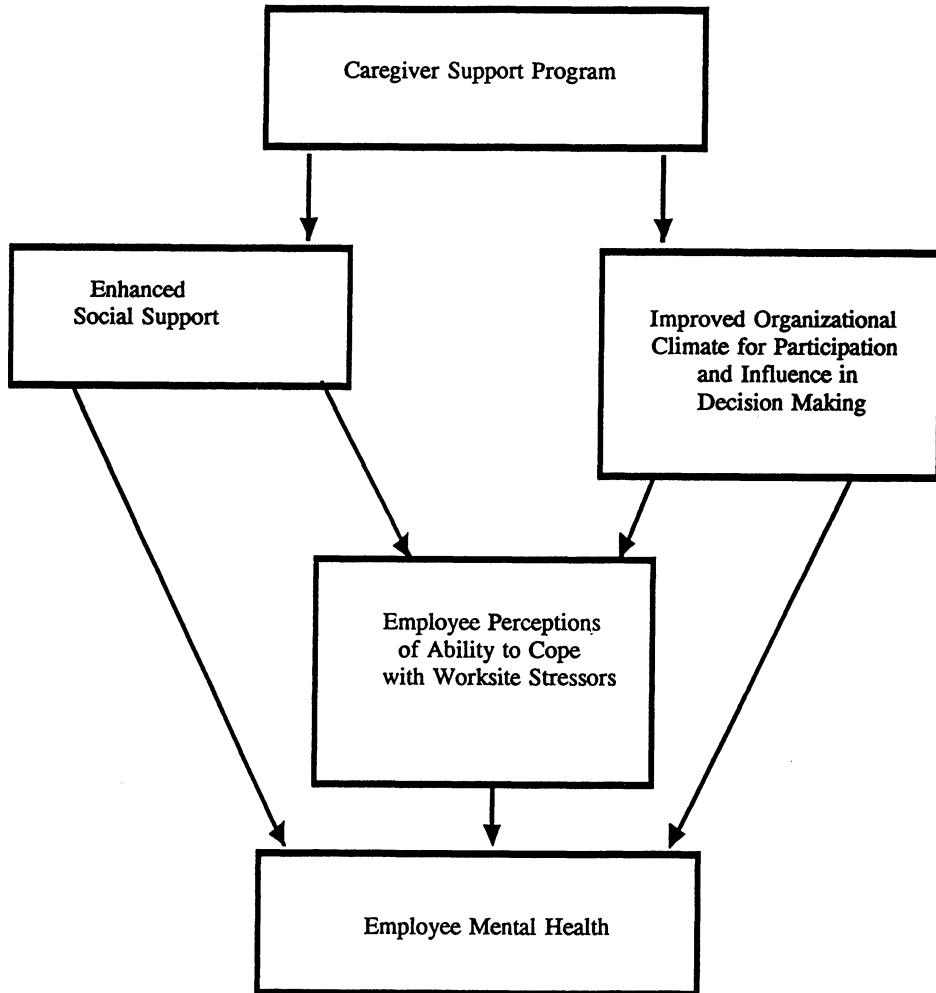


Figure 1. Hypothesized effects of the Caregiver Support Program

receive the CSP (the experimental group), and the other half did not (the control group). If an agency had an odd number of homes, the extra home was assigned to the experimental group. Managers in all of the homes were invited to participate in the study and asked to recruit their staff to participate. Managers in the experimental homes were invited to participate in the CSP training and to invite one person from their direct care staff to attend as well.

Data were collected from all of the employees in the group homes using self-administered surveys. A survey was sent to each staff member at the group home where he or she was employed. Five dollars were enclosed with each survey as remuneration for the time needed to fill it out. Data were collected from both control and experimental group members one month prior to the beginning of the training program and five weeks after training ended. Thus, the time interval between data collection points was approximately 4 months.

Figure 2 presents the sample sizes, response rates and quit rates for both the experimental and control groups. Response rates and turnover rates did not significantly differ between the two

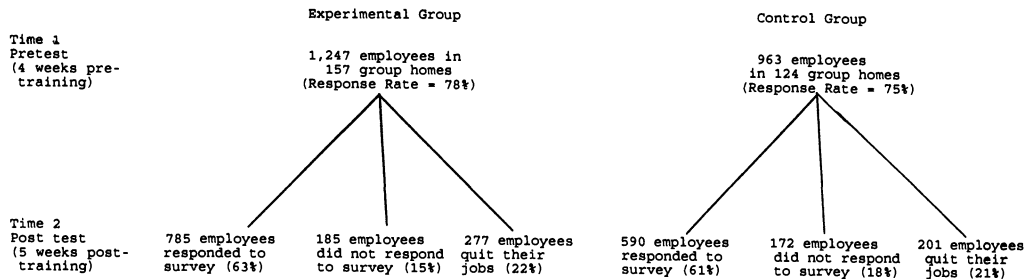


Figure 2. Sample size, response rates, and quit rates for the experimental group and control group

groups. For this study, employees who responded to the survey at both time 1 and 2 are included in the analyses ($N = 1375$). The mean age for this sample was 31.5 years ($S.D. = 10.1$), with employees ranging from 18 to 79 years old. Eighty-one per cent of the employees were female and 80 per cent were White. Average tenure in the job was 1 year and 4 months. Employees earned an average hourly wage of \$5.69, with some employees earning minimum wage (\$3.35) and others earning as much as \$11.00 an hour. Forty-one per cent of the sample had never married and 39 per cent were currently married.

Training program

Implementation

The CSP consisted of six training sessions, each lasting approximately four to five hours. The first three sessions were held one week apart, and the last three were held every two weeks. Training sessions were conducted in groups, and facilitated by a pair of trainers. Ten group homes were recruited for each training group. The house manager and one direct care staff person from each of the 10 homes constituted the training group. A total of 12 such groups were formed.

Although only two people from each group home attended the sessions, it was hypothesized that *all* of the employees in the experimental group homes would benefit from the CSP. The two employees that attended the sessions were expected to provide training to the rest of the staff. Thus, the CSP utilized a ‘train the trainer’ approach. Employees that attended the sessions learned the new skills themselves and were then helped to develop training activities for use back in their worksites. In addition, the attenders were asked to implement the group problem-solving process suggested by the CSP at their group home staff meetings.

Observers attended many of the CSP sessions and observed whether the activities in the protocol were completed as planned. After each session that they attended, the observers completed questionnaires including closed-ended rating questions and open-ended qualitative questions. The data from these questionnaires indicated that there was very little variation in the implementation and quality of the learning activities across training groups.

Participation in the training program

Due to the ‘train the trainer’ approach of the CSP, participation in the program can be conceptualized in a number of different ways. First, in order for a group home to be defined as participating, at least one employee from the home had to attend at least one of the CSP training sessions. Of the

785 employees in the experimental group at time 2, 617 (79 per cent) worked in homes that met this criteria. The rest of the experimental group worked in 'no show' homes, i.e. no one from the home attended any sessions of the CSP. Thus, 21 per cent of the employees who were randomized into the experimental group had no exposure to the CSP.

Among those employees who attended CSP sessions, participation can be quantified according to the number of sessions attended. Of those attenders in the time 1–time 2 panel, 72 per cent attended five or six sessions; 17 per cent attended three or four sessions; and 10 per cent attended only one or two sessions. Among non-attenders, or those employees who did not attend the CSP sessions but who worked in a home that had an employee attend, participation can be defined as 'indirect' exposure to the program. In a global sense, indirect exposure can be measured by the total number of person-sessions attended by employees from a home. Ten per cent of the non-attenders had an indirect exposure of 1–4 person-sessions; 22 per cent had 5–8 person-sessions; and 68 per cent had nine or more person-sessions.

Indirect exposure to the CSP could have occurred through a number of routes: (1) attenders could simply discuss the training with their coworkers, (2) attenders could model behavior learned at the CSP sessions, and (3) attenders could hold formal training activities in their group homes. At the last session of the CSP, one-third of the attenders stated that they had not conducted any training activities up to that point. Only 10 per cent of the attenders reported having conducted five or more training activities in the group home.

Measures

The Caregiver Support Program was hypothesized to affect four domains of outcomes: (1) social support, (2) organizational climate for participation and influence in decision-making, (3) employees' confidence in their ability to cope with common work problems, and (4) psychological well-being. In all cases, outcome measures consist of multi-item indexes constructed on the basis of factor analyses, resulting in measures with high levels of internal consistency¹.

Social support

Two outcome measures of social support were assessed. *Supervisor support* was measured by a five-item Likert scale asking how much (1 = none, 5 = a great deal) the respondent received useful information; care and concern; help in thinking through problems; help in getting materials, supplies, and services; and praise and appreciation from his or her immediate supervisor in the last four weeks. The measure was based on an index developed by Abbey, Abramis and Caplan (1985) and had a Cronbach alpha = 0.89. *Supportive feedback* was measured using a two-item scale that asked how often (1 = never, 7 = almost always) the respondent had been told they 'did a good job on a task' and 'received feedback that was helpful and constructive' during the last four weeks. This index was also based on Abbey *et al.* (1985) and had a Cronbach alpha = 0.74.

Organizational climate for participation and influence in decision-making

The measure of *positive work team functioning* assessed respondents' evaluations of how well problems and disagreements were handled in the group home. The four-item index asked respondents whether they agreed (1 = strongly disagree, 5 = strongly agree) that disagreements and other problems (respectively) were resolved in ways that were upsetting and unpleasant (reverse coded), and that resolution of problems and disagreements left people feeling good about themselves (Cronbach alpha = 0.80). *Positive work team climate* was measured using a five-item index which

¹ Measures of internal consistency were computed for both survey waves and were nearly identical at both waves. Internal consistency reliability coefficients for the pretest data are reported.

asked respondents to report their agreement (1 = strongly disagree, 5 = strongly agree) with statements reflecting staff perceptions of psychological climate. Specific items asked whether staff who offered new ideas were likely to get 'clobbered', whether staff were afraid to express their real views, whether staff members have respect for each other, the degree to which participation is encouraged, and the degree to which there is constant bickering in the group home (Cronbach alpha = 0.81).

Confidence in coping ability

A third domain hypothesized to be affected by the CSP includes individuals' perceptions of their abilities to cope with common difficulties in group home work teams. *Self-appraisal of coping behavior* was measured using a four-item scale that asked respondents to what extent they agreed (1 = strongly disagree, 5 = strongly agree) with statements that they had been trained with special methods to handle disagreements and overload at work, and that they were effective at using such methods (Cronbach alpha = 0.86). Items were adapted from Lazarus's (1966) measures of primary and secondary appraisal.

Psychological well-being

Symptoms were measured using items from subscales of the SCL-90-R (Derogatis, Rikels and Rock, 1976). *Depressive symptoms* were measured using a 10-item scale that asked to what degree the respondent was bothered by crying easily, feelings of being trapped, self-blame, loneliness, loss of interest, feeling blue, thoughts of ending one's life, feeling hopeless, feeling low, and loss of appetite (Cronbach alpha = 0.85). *Somatization* reflects psychological distress as indicated by perceptions of bodily dysfunction and was assessed using a three-item scale in which respondents reported the degree to which they had been bothered in the past seven days by pains in the heart or chest, trouble getting their breath, or heavy feelings in their arms or legs (Cronbach alpha = 0.65).

Analysis strategy

To assess the effects of the intervention, we conducted ordinary least squares regressions predicting our outcome measures. Each regression model included the following independent variables: time 1 measure of the dependent variable, a dummy variable specifying membership in the experimental or control group, and seven variables on which the experimental and control groups differed at time 1². Employees who were randomized into the experimental group but who had no exposure to the CSP were included in the analyses as members of the experimental group. Since approximately 20 per cent of the experimental group could not possibly benefit from the CSP because they had no exposure to it, these experimental-control comparisons are conservative estimates of the impact of the intervention. Although these estimates are likely to underestimate the impact of participating in the intervention, they may reflect the size of the worksite-wide effect that one should expect if the CSP were made available to employees on a voluntary basis.

Another approach to estimating the impact of an intervention is to compare only participating members of the experimental group with the control group. Unfortunately, this approach confounds the influences of selection with the effects of participation, and results in estimates that may be biased in either direction. If the non-participants were the employees most likely to improve without the aid of a training intervention, then leaving them out of the analysis would result in

² In order to test the effectiveness of the randomization process, the experimental and control groups were compared on all time 1 study variables. Seven of the 75 comparisons showed significant differences between the groups. These seven variables include role overload, coping with overload, support from provider agency, support from neighbors and the community, support from clients' families, group home coping style of bringing problems out in the open, and group home coping style of smoothing things over.

underestimating the effect of the intervention. However, if the non-participants were those most resistant to change, then leaving them out of the analysis would result in overestimating the effect (Bloom, 1984). Thus, this analytic approach was not used. Rather, we chose to try to estimate the impact of participating in the CSP using a method that maintains the benefits of randomization. This approach, based on a method for estimating selection effects (Heckman, 1976, 1979), is described below.

For years, sociologists have been using the Heckman method to address a common problem in longitudinal studies: some respondents in the sample at the start of the study select themselves out of the sample before the study's end. This creates a selection bias if the panel of respondents who stay in the study for its duration is not representative of the time 1 pool of respondents. In this study, there were two ways in which attrition from the panel could have occurred: (1) choosing not to respond to the time 2 survey, and (2) choosing to leave one's job between time 1 and time 2. A third choice point, deciding whether to participate in the CSP, was available only to the experimental group. Because these sources of selection could have been related to the outcomes of interest, we used the Heckman method to model these selection choices and incorporated them into our analyses of the intervention's impact.

The Heckman method entails using time 1 information to predict what selection decisions people will make at time 2. Using both individual level and home level time 1 measures of employee characteristics, beliefs, and attitudes, we estimated probit equations that predicted dichotomous selection variables (e.g. left job versus stayed in job, responded to time 2 survey versus did not respond, participated versus did not participate in the CSP). These probit equations were used to derive predicted probabilities of leaving one's job and of not responding to the time 2 survey for those employees who remained in the panel. Of course, all of the respondents in the panel *did* respond at time 2 and *did not* leave their jobs. However, including the predicted probabilities of not responding and of leaving in the analysis of the impact of the intervention adjusts for the fact that some of the variables that predicted non-response or leaving the job might also be related to the outcomes. Since the choice to participate in the training program was only given to group homes in the experimental condition, the probit equation for this selection point included only employees in those group homes. Participation was conservatively defined as having at least one person from the group home attend at least one CSP session. Using time 1 information, probabilities for participating in the CSP were derived. These probabilities were then assigned to the employees in all of the group homes in the study.

Table 1 lists the samples used for each probit equation, the sizes of those samples, the independent variables that were significant predictors, the chi-square statistics indicating goodness-of-fit, and the mean and variance of each selection variable created from the probit models. The selection variables were not highly correlated. The correlation between the participation variable and the leave variable was 0.10; 0.12 for the relationship between participation and non-response; and 0.32 for the relationship between the leave and non-response variables.

The process of modelling the selection choice points is atheoretical. The goal is simply to create the best predictive model, using any and all information available. Those employees assigned high probabilities of making a certain selection choice are those employees who are most similar to employees who actually made those choices. For example, the employees with high predicted probabilities of leaving their jobs are those employees still employed at time 2 who were most similar to employees who left their jobs during the study. Similarly, the employees in the control group who were assigned high probabilities of participating are those employees most like the employees in the experimental group who actually participated when given the choice.

Within the context of a randomized field experiment, the Heckman method can serve a purpose beyond controlling for selection bias. Namely, it can be used to statistically identify comparable

Table 1. Description of probit models and the selection variables derived from the models

Sample used	Leaving one's job between time 1 and time 2		Selection choice		Participating in the intervention*
	Respondents who responded at time 1	Respondents who responded at time 2	Not responding to time 2 survey	Respondents who responded at time 1 and were present at time 2	
<i>N</i>	2210	1732	1247	1247	Experimental group members who responded at time 1†
χ^2 (<i>df</i>)	256.12 (14)§	150.57 (22)§	72.46	550.70 (9)§	
Mean‡	21.63	20.61	33.04	72.46	
Standard deviation	14.18	12.27		33.04	
Significant predictors	Marital status, age, months in job, intention to quit, mean level of coworker support in home, mean level of client family support, % of home staff who worked direct care, % of home staff with only high school education	Type of client cared for, sex, age, health status, mean level of supervisor undermining in the home, intention to quit, variation in staff commitment to group home, variation in coworker and agency support		Individual coping strategies, mean level of overload in the home, mean job tenure, mean level of task and social performance of staff, variation in how tasks coordinated in the home, % of staff who are direct care	

* Group homes were categorized as participating in the intervention if at least one employee from the group home attended at least one CSP session.

† Predicted probabilities were calculated based on experimental group homes, but then assigned to all group homes (experimental and control).

‡ Predicted probabilities were multiplied by 100.

§ $p < 0.001$.

groups within the experimental and control conditions. Randomization should ensure that the time 1 factors predicting selection in the experimental group do not differ from those predicting selection in the control group. Thus, by incorporating into our analyses the interactions of the selection variables by the Experimental/Control dummy variable, we are able to evaluate the effect of the CSP on a sub-group of the experimental group, *without losing the benefits of randomization*. For example, the interaction of the predicted probability of participation with being in the experimental group allows the assessment of the effect of the CSP among those caregivers most likely to be employed in homes that participated. Similarly, the interaction of the leave variable with being in the experimental group examines the effect of the CSP on caregivers with varying likelihoods of remaining in their jobs.

Results

Table 2 reports the standard experimental–control comparisons for all of the study outcomes, before controlling for selection effects. Table 3 reports the results of regression models that include the main effects and interactions of the selection variables³. The first column of Table 3 presents the effects of the intervention for those respondents with the lowest likelihoods of leaving their jobs and of participating in the intervention. The third column displays the coefficients that estimate the effect of the intervention on employees at higher levels of participation. The coefficients in the fifth column estimate intervention effects on those employees with high likelihoods of leaving their jobs. The results in these tables are discussed together and presented by outcome domain.

Social support

The standard experimental–control contrasts in Table 2 indicate that the CSP increased the amount of supportive feedback received on the job, but had no effect on supervisor support.

Table 2. Standardized regression coefficients for intervention effects*

Dependent variable	Intervention effect†	R ²	N
Supervisor support	0.02	0.29	1245
Supportive feedback	0.05§	0.29	1260
Self-appraisal of coping	0.07	0.32	1249
Positive work team functioning	0.04‡	0.31	1254
Work team climate	0.05§	0.35	1248
Depressive symptoms	-0.03	0.40	1180
Somatization	-0.04‡	0.32	1239

* Regression models include time 1 dependent variables and seven variables on which the experimental and control groups differed at time 1.

† Dummy variable coded 1 = experimental group, 0 = control group.

‡ $p < 0.10$; § $p < 0.05$; || $p < 0.01$.

³ Only substantively interesting independent variables are reported in Table 3. The effects of the non-response selection variable and the other control variables are not presented, but are available from the authors.

Table 3. Standardized regression coefficients for intervention effects controlling for selection effects*

Dependent variable	Intervention (E)†	Participate (P)	E * P	Leave (L)	E * L	R ²	N
Supervisor support	-0.13‡	-0.01	0.14§	-0.08§	0.06	0.30	1245
Supportive feedback	-0.05	-0.02	0.13‡	-0.01	0.01	0.29	1260
Self-appraisal of coping	0.00	0.00	0.13§	-0.09§	-0.03	0.33	1249
Positive work team functioning	0.02	0.03	0.01	-0.11"	0.03	0.32	1254
Work team climate	0.01	0.03	-0.04	-0.15¶	0.12§	0.36	1248
Depressive symptoms	-0.01	-0.04	0.06	0.13"	-0.11§	0.41	1180
Somatization	0.03	0.01	0.02	0.13"	-0.15"	0.32	1239

* Regression models include time 1 dependent variables, non-response selection variable, and seven variables on which the experimental and control groups differed at time 1.

† Dummy variable coded 1 = experimental group, 0 = control group.

‡ $p < 0.10$; § $p < 0.05$; " $p < 0.01$; ¶ $p < 0.001$.

However, the E * P column in Table 3 reveals intervention effects for both measures of social support for those experimental group employees who worked in homes that were likely to participate in the intervention. Among these individuals, the intervention yielded increased supervisor support and higher levels of supportive feedback in general.

Confidence in coping ability

A similar pattern of results appeared for employees' perceived ability to cope with worksite stresses. Table 2 shows that the CSP enhanced employees' confidence in their abilities to cope with work stress. This intervention effect was strongest for those caregivers employed in homes that were likely to participate in the CSP.

Work team climate and functioning

The CSP failed to significantly alter positive work team functioning, i.e. the degree to which problems and disputes were resolved in a constructive and pleasant manner. However, the intervention did improve work team climate by fostering feelings of mutual respect among staff members, increasing perceived opportunities for participation in decision-making, and increasing perceptions that employee contributions to the decision-making process would not be received harshly or negatively.

Employees in the control group who had a high likelihood of leaving their jobs experienced a decrement in work team climate between time 1 and time 2 (see column headed 'Leave' in Table 3). However, those in the experimental group did not, as evidenced by the significant E * L interaction for this outcome. Thus, the CSP prevented this worsening of work team climate among these employees.

Psychological well-being

Even though the standard experimental-control comparisons indicated little effect of the CSP on the mental health of all employees in the experimental group, the intervention did have constructive effects on the mental health of those employees most at risk for leaving their jobs. As can be seen in Table 3, these employees reported larger decrements in mental health between pretest and posttest than did those employees who were less likely to quit. The significant E * L interactions for both depressive symptoms and somatization show that the CSP prevented these decrements in mental health for these caregivers.

Subgroup analyses

As noted earlier, many of the caregivers who attended the CSP did not fully train the rest of their group home staff in CSP concepts and skills. Thus, some of the employees who did not attend CSP sessions but who worked in group homes that did have someone attend, may have had little opportunity to benefit from the CSP. The strongest effects of the intervention should be among those employees who attended. Table 4 reports the results of regression equations that include a set of dummy variables that allow the control group to be compared with three groups of employees in the experimental condition: those in 'no show' homes, those who did not personally attend the CSP but who worked in participating homes, and those who attended CSP sessions. For all of the hypothesized outcomes, employees who attended the CSP showed a significant improvement above that of the control group. The CSP did not have significant effects on the employees in the

Table 4. Standardized regression coefficients for comparisons of the control group with employees in no show homes, non-attenders in participating homes, and attenders*

Dependent variable	Employees in no show homes†	Non-attenders in participating homes†	Employees that attended the CSP†
Supervisor support	-0.02	0.04	0.12‡
Supportive feedback	-0.04	0.03	0.07§
Self-appraisal of coping	-0.01	0.04	0.19‡
Positive work team functioning	0.00	0.03	0.10‡
Work team climate	0.03	0.04	0.08‡
Depressive symptoms	-0.03	-0.02	-0.06"
Somatization	-0.04	-0.03	-0.05"

* Regression models include time 1 dependent variables, non-response selection variable, leave selection variable, and the seven variables on which the experimental and control groups differed at time 1.

† Group membership indicated by dummy variables (coded 0, 1). Omitted category is the control group.

‡ $p < 0.001$; § $p < 0.01$; " $p < 0.05$.

other groups. Note that the differences between groups in these regression models reflect both selection and intervention effects. Controlling for the time 1 level of the outcome variable diminishes the potential for selection effects, but other factors may come into play that make change in the outcome easier for one group than another.

Discussion

Field experiments that evaluate theory-driven coping interventions serve three purposes. First, they allow for unambiguous inferences to be made about causal direction of the relationships between variables in the stress process. Second, they allow a test of whether planned, programmatic changes in coping resources result in changes in stress levels and in mental health. Third, they enhance understanding of how best to influence employee coping resources. This third purpose is especially important at present because strategies for increasing employees' social and organizational coping resources are not well-developed.

Let us return to the bank account analogy presented earlier. The evaluation of the CSP suggests that deposits can be made into a worksite coping resource 'account' through individual skill building and modifications in team meeting processes. By teaching individuals about their social networks and how to maintain and mobilize those networks, and by teaching those same individuals about the benefits of and strategies for group problem solving, the CSP was able to increase the coping resources of social support and work team climate. How this increase in 'currency' is then expended in terms of coping behavior remains to be investigated.

The CSP also had constructive effects on the mental health of caregivers, especially those who had a high probability of leaving their jobs. These caregivers, perhaps because they were occupying roles that they preferred to leave (Pearlin, 1989), reported larger increases in depressive symptoms and somatization during the course of the study than did other caregivers. Participation in the CSP reduced the magnitude of these increases.

Why were positive mental health effects of the intervention less apparent among workers with low likelihoods of leaving their jobs? The absence of such effects is surprising in light of the growing body of longitudinal correlational evidence that psychosocial coping resources have both a direct impact on depressive symptoms and mediate the effects of stressors on psychological

distress (e.g. Ensel and Lin, 1991). There are three plausible explanations for the lack of more widespread mental health effects due to the CSP.

First, correlational studies provide information about relationships between naturally-occurring coping resources and mental health. However, this information may not apply to planned intervention situations. When coping resources are increased through social intervention, correlates of those resources may not change accordingly. For example, levels of perceived social support have been correlated with self image and coping style (Sarason, Pierce and Sarason, 1990). These correlates may be crucial to the psychological mechanisms through which social support enhances well-being. Future research should investigate the extent to which changes in these correlates accompany intervention-induced changes in social support. In addition, we should investigate the magnitude of the increase in social support necessary for bringing about changes in these correlates and improving mental health.

A second possible explanation for the lack of more pervasive mental health effects is the timing of the data collection. Posttest data was collected about five weeks after the end of the training. The training itself occurred over eight weeks, during which time attenders were supposed to be holding training activities back in the group home. The optimal time frame for documenting positive mental health effects of worksite stress programs is not yet known (Frese, 1985). In this study, the second survey may have occurred during a time of role restructuring (Pearlin, 1989), during which employees in the experimental group were adjusting to changes in role expectations and to changes in relationships between various network members. Some employees may not yet have developed a degree of comfort with these changes that would facilitate improvement in well-being. One study of a worksite coping intervention has indeed found some 'sleeper' or delayed effects; these effects did not occur at the first posttest but were found at a 6-month follow-up (Kline and Snow, 1992). Multiple follow-up measures can help in documenting the duration of intervention effects, and can also shed light on the timing of the process through which employees experience and adapt to intervention-induced change. However, such follow-up measures are difficult to conduct in high turnover occupations such as community residential care.

A third explanation is that the effects of the CSP on the coping resources are relatively small, perhaps too small to bring about pervasive improvements in employee mental health. From the viewpoint of advancing theory about the determinants of coping resources, the size of the effects is not necessarily problematic. When adequate controls have been exercised in evaluating the effects of a randomized field experiment, even small effects provide evidence for the presence of a causal relationship. However, in addition to contributing to an understanding of how the stress process unfolds, studies of worksite coping interventions can also guide policy formulation and program development. From a practical viewpoint, it is important to address possible reasons for the small effects of the program.

The effects of the intervention, as documented here, were reduced by non-participation of some group homes and by incomplete implementation of the 'train the trainer' approach. The CSP provided training for the house manager and one direct care staff person from each group home who, in turn, were encouraged to conduct training sessions at their worksites. However, the burden of planning, scheduling, and facilitating training activities may have been too onerous for caregivers who already felt overworked. The results in Table 4 indicate that the impact of the CSP was largely limited to those who attended the CSP training sessions. This suggests that the impact of the program could have been strengthened if, rather than relying on a 'train the trainer' approach, all of the caregivers in the experimental group had been able to attend the training sessions.

In order to attribute the increases in coping resources and improvements in mental health described above to the content and processes of the CSP, alternative explanations must be ruled

out. Attrition from the sample due to caregivers choosing to leave their jobs and to not participate in the study is the greatest potential threat to the validity of the results. In this study, even when selection effects were taken into account, the results remained supportive of the causal hypotheses.

Another alternative explanation for our results is demand characteristics (Aronson and Carlsmith, 1968). When study participants know that certain behaviors or answers are expected of them and are motivated to comply with those expectations, they may respond in ways that support the study's hypotheses. In the CSP, it was necessary for the participants to understand the goals of the intervention and to respect and admire the trainers, thus making demand characteristics a potential threat to validity. However, the effects of demand characteristics were minimized by disassociating the training experience from the evaluation data collection. Surveys were administered by people other than the trainers, and were filled out at the group home rather than in the training context. In addition, the survey was portrayed as a study of work and well-being rather than as an evaluation of the CSP. The addition of non-self-report outcome measures would aid in determining if demand characteristics were affecting the results. However, since *perceived* social support seems to be more predictive of well-being than is the actual amount of support received (Wethington and Kessler, 1986), self-report measures of outcomes should not be replaced by behavioral measures; both should be collected.

Conclusion

The results of the field experiment reported here show that the worksite coping resources of social support and positive work team functioning can be enhanced through a programmatic change effort. In addition, they indicate that potential adverse effects on mental health can be prevented by such an intervention. Given the lack of published reports of worksite stress programs that attempt to intervene at the level of the interface between employee and organization (DeFrank and Cooper, 1987; Ivancevich, Matteson, Freedman and Phillips, 1990), the CSP is an important first step in the development of effective approaches for increasing worksite coping resources and reducing stress-related symptoms.

However, the acknowledged difficulties in implementing such interventions and the interplay of intervention and selection forces underscore the complexity of the stress and coping process. As Pearlin and Aneshensel (1986, p. 435) have noted, 'The real problem we face in developing effective [coping] interventions is not that we are in danger of overcomplicating the issues but that, in ignoring the complexities, we shall continue to be less effective than we should like to be'. These inherent complexities should not discourage the development of further field experiments, but rather stimulate creative approaches to understanding the factors that affect the coping process.

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