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A Web-Based Approach to Managing Stress and Mood Disorders in the Workforce

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Abstract

Objective—To evaluate the effectiveness of a web-based multimedia health promotion program for the workplace, designed to help reduce stress and to prevent depression, anxiety, and substance abuse.

Methods—Using a randomized controlled trial design, 309 working adults were randomly assigned to the web-based condition or to a wait-list control condition. All participants were assessed on multiple self-reported outcomes at pretest and posttest.

Results—Relative to controls, the web-based group reduced their stress, increased their knowledge of depression and anxiety, developed more positive attitudes toward treatment, and adopted a more healthy approach to alcohol consumption.

Conclusions—We found that a brief and easily adaptable web-based stress management program can simultaneously reduce worker stress and address stigmatized behavioral health problems by embedding this prevention material into a more positive stress management framework.

The burden of stress and mental illness on the workplace is substantial, but not widely recognized.[1] Stressed employees have 46% higher health care costs than their nonstressed peers,[2] with total stress-related medical claims estimated to be $150 billion annually.[3] Businesses also face higher health insurance premiums and hundreds of billions of dollars in productivity losses due to mental illness.[4] Indeed, the direct cost of treating mental disorders is $82 billion annually, representing approximately 8% of total US health care spending.[1] Three mental health problems in particular account for a large majority of workplace costs.

Substance Abuse

Alcohol abuse leads to an estimated $185 billion in productivity losses in the United States alone.[5] When these costs are combined with other illicit drugs, the total is well over $300 billion annually. Higher levels of absenteeism, tardiness, staff turnover, injuries, and workplace conflict and aggression are the primary reasons for these losses.[6,7] Workers with substance abuse problems also have higher health care costs (over and above the cost of

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substance abuse treatment) and lower performance ratings than employees without such problems.[8]

Depression

The cost of depression in the United States is estimated to be 83.1 billion dollars per year.[9] Sixty-two percent of these costs (51.5 billion dollars) are borne by the workplace whereas only 31% are attributable to direct medical costs. Depression ranks third behind family crisis and stress among the top three workplace problems faced by employee assistance professionals.[10] Those who report feeling depressed have 70% higher health care expenditures than those without depression.[2] To put this in context, the health care costs associated with depression are double that of high blood glucose levels, three times higher than being overweight, five times higher than currently smoking, six times higher than high blood pressure, and seven times higher than leading a sedentary lifestyle.

Anxiety

Anxiety disorders are the most common type of mental illness, affecting approximately 40 million American adults each year. In 1990, the annual cost of anxiety disorders was over 42 billion dollars.[11] Of this, 4.1 billion was estimated to be workplace costs. The median number of days missed from work due to “anxiety, stress, and neurotic disorders” is 25; four times higher than days lost due to all other nonfatal injury and illness causes.[12] Indeed, workplace impairment is associated with each of the anxiety disorders except specific phobia.[11]

In response to these significant workplace losses, businesses and health care organizations have implemented a variety of interventions, with varying success. Workplace stress management programs have generally been quite successful.[13] On the other hand, workplace efforts to manage substance abuse, depression, and anxiety have met with mixed results. This may be due to the stigma attached to these problems.[14] In particular, Cook and his colleagues argue that addressing stigmatized behavioral health topics by imbedding them in nonthreatening programs is a powerful strategy for exposing individuals to needed education and referral mechanisms.[14] Stress management programs, in particular, seem to be a promising vehicle for disseminating information about such behavioral health issues. Consistent with this, working adults reduced their alcohol consumption after completing a 16-session course of stress management.[15]

The stigma associated with addressing mental health problems might be further reduced by delivering prevention programs through the Internet, where it can be accessed at anytime, with relative anonymity. Indeed, there is a developing literature to suggest that web-based interventions offer unique opportunities for disseminating behavioral health education and skills—and have been shown effective in enhancing the learning and retention of health-related materials.[16,17] Recent studies have also shown that computerized cognitive behavioral treatments for depression and anxiety are efficacious and cost-effective.[18,19]

Stress and Mood Management Intervention

Stress and Mood Management is a web-based, multimedia health promotion program designed to help working adults manage their stress, prevent mood problems, and seek early identification and treatment of depression and anxiety when appropriate. The program utilizes an array of cognitive-behavioral techniques such as goal setting, problem solving, identifying and testing negative thoughts, relaxation, and time management. Because stress is a highly prevalent, yet relatively nonstigmatized problem with clear connections to depression, anxiety, and substance use,[15] the program begins with the stress management module, and it serves as a gateway to the other more stigmatized content learning areas.

Program content is tailored to the individual user through an embedded assessment instrument within the stress management module screening for substance misuse, anxious mood, and dysphoria. Alcohol misuse is addressed as a type of maladaptive coping within the stress management section while users who endorse feelings of dysphoria or anxious mood are encouraged to review the depression or anxiety modules. These sections focus on descriptive psychopathology, training in a variety of mood management skills, and guidance on when to seek treatment. Issues related to treatment such as the diagnostic process, picking a mental health provider, and the different medication and psychotherapy options available to treat depression and anxiety are the focus of the final program module.

The entire program is audio-narrated, with ample use of video and graphics. Participants are encouraged to go through the program at their own pace and to explore the sections most relevant to their current circumstances (eg, if a participant reports no dysphoria, they are not directed to view the depression materials). Although a more intensive and highly structured program might lead to larger effect sizes, it is exactly these types of behavioral health programs that are the least likely to be adopted.[20] To facilitate dissemination, our goal was to develop a brief intervention that is broadly appealing and can be easily incorporated into a variety of workplace settings.

Hypotheses

It was hypothesized that users of the web-based program would reduce their stress and become more productive at work as compared to participants in the control group. Additionally, program participants were expected to reduce their use of alcohol and drugs to manage stress and adopt a healthier approach to alcohol use as compared to controls. Because the program is designed to prevent depression or anxiety, not treat these conditions, it was not expected that program participants would report any significant changes in mood. However, we did expect that relative to control group members, program users would increase their knowledge about anxiety and depression, develop skills to manage their mood, improve their attitudes toward seeking treatment for anxiety or depression, and gain confidence that they could find the most efficacious care if needed.

Materials and Methods

Design

Following completion of the baseline set of self-report questionnaires, participants were randomly assigned to either the web condition or a wait-list control condition. Participants in the web condition were given access to the program for 3 months, and were encouraged to review the sections of Stress and Mood Management most relevant to their health needs and interests. Following the 3-month period, all participants completed the same set of questionnaires they completed at baseline. Participants were paid $30 for each set of surveys and were entered into a raffle for a $500 prize.

Participant Recruitment

Participants were recruited from a major technology company in the Mid-Atlantic region via two mechanisms. First, all employees on a company list serve focusing on corporate health and activity promotion were sent an e-mail describing the current study. Second, employees attending a health fair were recruited at the worksite. A total of 309 employees agreed to participate.

Measures

Knowledge—A 22-item scale measuring knowledge about the early identification, prevention, and treatment of stress, anxiety, and mood disorders was constructed for this study. Each question was associated with three possible responses and participants were asked to choose the best answer.

Attitude Toward Psychological Help—Attitudes toward seeking professional psychological help were measured with a 10-item scale.[21] Sample items included “The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.” (reversed) and “I would want to get psychological help if I were worried or upset for a long period of time.” Participants responded on a 4-point Likert scale choosing from options that ranged from 1 (disagree) to 4 (agree) that best matched their current opinion (baseline internal consistency reliability = 0.82).

Mood Management Self-Efficacy—An 8-item scale measuring self-efficacy and confidence to manage feelings of anxiety and depression was constructed for this study. Items assessing confidence in preventing anxiety or depression (eg, “If I started having feelings of depression or anxiety, I have enough skills to overcome these feelings by myself.”) were summed with items assessing confidence in choosing the best treatment option (eg, “I could make an informed decision in choosing between the different medication options for anxiety or depression.”; baseline internal consistency reliability = 0.79). Participants responded on a 4-point Likert scale choosing from options that ranged from 1 (disagree) to 4 (agree) that best matched their current opinion.

Stress—The behavioral and physical aspects of stress were assessed with the Symptoms of Distress scale.[22] Four items assessing the behavioral signs of stress (eg, overeating, criticizing others) were summed with four items assessing the physical signs of stress (eg,

muscle tension, headache; baseline internal consistency reliability = 0.69). Participants responded on a 4-point Likert scale ranging from 1 (never) to 4 (nearly every day) as to how often they felt each stress symptom during the past 30 days.

Mood—Positive and negative mood were assessed with the Positive and Negative Affect Schedule,[23] which includes a 10-item positive affect scale (baseline internal consistency reliability = 0.86) and a 10-item negative affect scale (baseline internal consistency reliability = 0.87). Participants responded on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 4 (extremely) as to how often they felt each mood item during the past 30 days.

Depression—Depression was measured with the Center for Epidemiologic Studies Depression Scale—Revised.[24] The original 20-item Center for Epidemiologic Studies Depression Scale[25] was revised to reflect the current understanding of depression as articulated in the Diagnostic and Statistical Manual, 4th revision.[26] Participants reported how often they felt each depression symptom on a 5-point Likert scale ranging from "not at all or less than 1 day"[1] to "nearly everyday for 2 weeks."[5]

Anxiety—Anxiety was measured with the Beck Anxiety Inventory (BAI).[27] The 21-item BAI is a widely used measure of anxiety symptoms for adults and adolescents. Participants reported how often they felt each anxiety symptom for the past 30 days (baseline internal consistency reliability = 0.89). These ratings were made on a 4-point Likert scale ranging from 1 (not at all) to 4 (severely I could barely stand it).

Negative Coping—Alcohol or other drug used in response to stress was measured with the Stress Relief Strategies questionnaire.[13,28] This 14-item scale assesses how often one uses alcohol, drugs, or social support (reversed) to help relieve stress. Participants responded on a 5-point Likert scale ranging from 1 (never) to 4 (always) as to how often they used each coping strategy during the past 30 days (baseline internal consistency reliability = 0.74).

Binge Drinking Stage of Change—Binge drinking was defined as five or more drinks in a row for men and four or more drinks in a row for women. Participants were asked to select from one of six responses that best match their drinking experiences for the past 30 days.[29] If a participant indicated binge drinking within the last 30 days they were asked if they planned to stop within 6 months, within 1 month, or never planned to stop. If a participant indicated no binge drinking within the last 30 days, they were asked if they had binged within the last 6 months, had not binged within the last 6 months, or never binged.

Work Productivity—Work productivity was measured with the Work Limitations Questionnaire.[30] The Work Limitations Questionnaire contains four separate scales: a 5-item scale assessing difficulty meeting time and scheduling demands (baseline internal consistency reliability = 0.83), a 6-item scale measuring a person's ability to perform job tasks involving strength, endurance, and flexibility (baseline internal consistency reliability = 0.96), a 9-item scale assessing difficulty managing cognitive and interpersonal job demands (baseline internal consistency reliability = 0.92), and a 5-item scale measuring a person's ability to keep up with the quality and quantity demands of their job (baseline

internal consistency reliability = 0.89). We modified the instructions for the current administration asking participants to consider how much their "stress or emotional problems" made it difficult to perform certain parts of their job during the past 30 days. All ratings were made on a 5-point Likert scale ranging from 1 (difficult none of the time, 0%) to 5 (difficult all of the time, 100%).

Program Usage—Web program participants estimated the number of times they visited the four sections within Stress and Mood Management: stress management, depression, anxiety, and treatment.

Program Evaluation—Web program participants were asked to rate the web-based program across seven dimensions: clarity, comprehensiveness, informative, usefulness, interesting, motivating, and appealing. These ratings were made on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely).

Results

Sample Demographics

The sample was predominantly young, female, highly educated, and half reported an annual income of over $100,000 (see Table 1). Compared to the 2000 labor force Census data,[31] Whites, Hispanics, and blacks were underrepresented, whereas Asians were over-represented.

Baseline Stress and Mood

As expected, participants were functioning quite well, reporting very little mood disturbance. Fourteen participants (5%) reported moderate levels of anxiety (≥22). Of those 14, only 2 exhibited significant anxiety (≥36). Similarly, over 70% reported no depression (<15) with only 13% falling into the probable Major Depression range (≥22). On average, participants described experiencing the behavioral or physical manifestations of stress "once or twice" in the last month and reported "a little" negative mood over the same period. Positive mood, on the other hand, was described as "moderate" in the month previous to the study.

Equivalence of Groups and Attrition

To determine the degree to which the randomization procedures produced like samples at baseline, the experimental and control groups were compared on demographics and all pretest dependent measures. We contrasted the two groups on demographics—race, ethnicity, gender, education, marital status and income—using χ^2 analyses. No significant differences were found ($P < 0.05$). One-way analysis of variances were also conducted on all dependent measures with group (experimental vs control) serving as the independent variable. No significant differences were found (all *P*s >0.05).

There was a moderate amount of attrition from pretest to posttest, as 64 subjects (21%) who completed the pretest did not complete the post-test. We contrasted the dropouts with those who completed the study on demographics—race, ethnicity, gender, education, marital

status and income—using χ^2 analyses. No significant differences were found (all *P*s >0.05). One-way analysis of variances were also conducted on all dependent measures with group (experimental vs control) serving as the independent variable. One significant difference emerged. Those subjects who possessed more knowledge about managing their stress and mood at baseline were more likely to complete the study as compared to those participants who dropped out (F = 4.06, $P < 0.05$).

Analytic Plan and Program Evaluation

Statistical Analysis—To examine change from baseline, we conducted a series of analysis of covariances. The dependent variable in the following analyses was the posttest measure (eg, BAI at posttest) with the pretest measure serving as the covariate (eg, BAI at pretest). Group (experimental vs control) served as the independent variable. Nine experimental participants were excluded because they indicated that they did not use the program.

Program Usage and Evaluation—Although participants had 3 months to review the web-based program, most accessed each topical area only once. Indeed, 65% of participants reported reviewing the stress management materials only once, with 97% of participants accessing this material less than four times. This trend was even more pronounced in the other topical areas where 79%, 85%, and 87% of participants reported reviewing the depression, anxiety, and treatment material only once, respectively.

This infrequent utilization did not dampen enthusiasm for the program. Indeed, participants rated the program as very clear (M = 4.01, SD = 0.83) and comprehensive (M = 3.95, SD = 0.77), informative (M = 3.69, SD = 0.99), and useful in their lives (M = 3.55, SD = 1.06). Similarly, they found it interesting (M = 3.47, SD = 1.01), appealing (M = 3.34, SD = 1.02), and motivating (M = 3.21, SD = 1.12).

Main Outcome Measures

Knowledge, Attitude, and Self-Efficacy—As predicted, participants who used the web-based program improved their knowledge about the early warning signs, prevention, and treatment of stress, anxiety, and depression compared to controls (F = 4.24, $P < 0.05$; see Table 2). Similarly, the experimental group gained a more positive attitude toward seeking psychological help as compared to the control group (F = 5.28, $P < 0.05$). Finally, as compared to the control group, the experimental group reported a marginal increase in their confidence that they could manage their stress or mood if it ever became problematic (F = 3.27, $P < 0.10$).

Stress and Mood—Despite reporting very low levels of stress at baseline, participants using the web-based program experienced a significant reduction in stress compared to controls (F = 5.23, $P < 0.05$; see Table 3). There were no other significant group differences in depression, anxiety, or mood (all ps >0.05).

Healthy Drinking—As predicted, web participants adopted a more healthy approach to drinking as compared to control, showing positive movement on the binge drinking stage of

change measure (F = 7.57, $P < 0.01$). There was also a trend for experimental participants to report a reduction in drug and alcohol use to manage stress as compared to controls (F = 3.03, $P < 0.10$; see Table 4).

Work Productivity—As expected, there were indications that participants who used the program were better able to perform certain parts of their job, although statistically the effects were marginal. Specifically, participants who viewed the program appeared to improve their ability to handle the time and scheduling demands of their job as compared to controls, (F = 3.85, $P < 0.10$; see Table 5). In addition, there was a trend toward improvement in the quantity and quality of completed work (F = 3.19, $P < 0.10$). There were no significant differences in managing the physical or mental demands of work (both >0.05).

Discussion

Results of this study suggest that a stress and mood management program delivered via the Internet had significant positive effects on stress and related behavioral health problems. Compared to controls, participants who used the web-based program showed reductions on measures of stress and binge drinking. In addition, experimental participants increased their understanding of the signs and symptoms of anxiety and depression. They also increased their understanding of how to prevent early symptoms from getting worse, when outside help is required, and what treatment options are available. Importantly, they also gained a more positive attitude toward seeking outside help and gained confidence that they could successfully seek out that help if they ever needed it. As such, these findings indicate that imbedding segments on depression and anxiety within a web-based stress management program will not only lead to a reduction in stress and substance use, but also improve skills and knowledge about how to handle problems of depression and anxiety.

The program was not intended to treat depression or anxiety, and the results from the mood measures bore out this belief. However, greater knowledge, increased self-efficacy, and improved skills can be important precursors to effective workplace prevention of depression or anxiety. Furthermore, an increased acceptance of mental health treatment should improve treatment prognosis and decrease costs. Future studies should examine longitudinally whether participants who incorporate these preventative factors are less likely to develop workplace problems and are more likely to seek treatment at an earlier stage. The results also suggested that a web-based stress and mood management program might improve participants' ability to manage the time and scheduling demands of their job, thereby improving the quantity and quality of their work.

Although the negative impact of stigmatized health problems such as depression, anxiety, and substance abuse on the workplace are clear, effective ways to reach working adults before problems develop, or strategies to get these individuals into treatment early, remain elusive. Unfortunately, most working adults are wary of participating in these types of programs. Indeed, a survey of employees found that only 41% believed that they could acknowledge they have depression and still get ahead in their careers.[32] These fears are not unfounded. When employers were shown identical vignettes, except one prospective job candidate had diabetes whereas the other had depression, carrying the diagnosis of

depression significantly reduced the chances of being hired.[33] It should come as no surprise then that 60% of depressed employees do not seek treatment primarily due to stigma.[34] Other factors for delaying treatment include not recognizing the severity of the problem and a belief that treatments are ineffective.

These results suggest that a web-based program of this type might be a promising way to achieve these elusive goals. By enveloping the program within the prevalent yet acceptable topic of stress management, it is likely that the negative effects of stigma were largely curtailed. This focus still allowed substance abuse prevention to be delivered by interweaving this material into stress management techniques, a finding that parallels the results of previous studies of nonweb-based interventions.[28,35] In addition, depression and anxiety items were embedded within the stress assessment segment to identify users who could benefit from mood management training. In this way, users did not have to self-identify as “depressed” or “anxious” to seamlessly and privately receive depression and anxiety prevention information. Finally, treatment pessimism was addressed through information about the variety of effective treatments and through exercises designed to foster self-efficacy.

Web-based programs can also offer significant practical advantages over traditional approaches to improving worker health. Two of the primary concerns that businesses have when considering implementation of a workplace health promotion program are time and costs. Programs that require significant managerial time to implement or require substantial employee participation time will not be readily adopted. In addition, programs that require a number of costly elements such as a professional workplace health-promotion specialist, legal consultation and services, expert speakers, or distribution and printing costs of brochures are often viewed with skepticism. Internet-based programs address both of these concerns. First, there are a number of public domain programs that can be accessed at no cost. In the case of propriety programs, these also turn out to be relatively inexpensive to purchase. In addition, internet-based programs have features that facilitate health behavior change. Users can access the program with relative anonymity at virtually any time or place where a computer and internet access are available. The element of interactivity helps to engage the user and accelerates the acquisition of information.[36,37] Because computer-based programs are individualized and self-administered, scheduling of each learning session can be highly flexible and reduce the limitations commonly associated with a lack of time.[17] Finally, the multimedia nature of the newer web-based programs, with ample video, audio, and graphics (like the one tested), are likely to increase user appeal and motivation further enhancing the likelihood of health behavior change.

Limitations

The principal limitation of the study was the modest effect sizes. This may be due to the program’s lack of structured sessions and not integrating personal contact— characteristics of many web-based interventions. For example, Proudfoot and her colleagues[19] relied on nurses to ensure that patients successfully completed each of eight 50-minute web-based sessions for depression. Weekly phone calls have also been integrated into successful internet-based treatments for depression.[38] The same is true for anxiety disorders, where a

web-based intervention that included a modicum of therapist contact was shown to be as effective as traditional therapist-led cognitive behavior therapy for panic disorder.[18] Personalized contact via e-mail or on-line bulletin boards have also been successfully used in other web-based health promotion efforts such as weight control[39] and stress management.[40]

Although programs such as these have proven efficacious, widespread adoption into work settings has been slow.[22] To overcome this, this study was designed to investigate whether participants could benefit from a program that allowed users to examine only the content that was relevant to their own needs, at their own pace. Indeed, we found that most participants viewed the material only once during a 3-month period. Despite this, significant, though modest, effects were found across a variety of measures. The robust literature demonstrating the efficacy of bibliotherapy argues against the necessity of personalized contact.[41] Future studies should investigate the impact of adding additional components (eg, personal coaches) to Internet-based prevention programs. These investigations should examine the economic implications of these additions plus the influence of social marketing approaches[42,43] on the adoption of more intensive worksite preventive interventions.

Related to this, these results would have been strengthened if program exposure was assessed. Without these data, dosage analyses were not possible. A key concern for many workplaces is the amount of time spent by employees in workplace health promotion efforts. This concern is mitigated somewhat by the use of Internet-based interventions allowing individuals to access the health promotion material outside of working hours. In addition, previous studies[16] have demonstrated that brief exposure can lead to significant change.

A third limitation pertains to the generalizability of the findings. All participants were recruited from a technology company. They were highly educated and very well paid. Other studies suggest that web-based programs can be helpful to lower socioeconomic status groups who are less technology-savvy.[16,44] Future replications across a range of worksites are necessary.

A final limitation was the exclusive reliance on self-report measures over a relatively short-time frame. Future studies should investigate the durability of these effects over longer periods, including behavioral measures such as health care utilization and supervisor evaluations.

Overall, the results of this study indicate a web-based stress management program can reduce worker stress, and that stigmatized behavioral health problems can be addressed by embedding prevention material into the more positive stress management framework. By delivering the program over the Internet, user privacy was further increased while allowing for greater flexibility, potentially lower costs, and ease of adoption for the workplace. Future research examining other stigmatized health behaviors embedded into different behavioral health promotion programs promises to further help working adults maintain optimal physical and mental health.

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TABLE 1

Demographics of Baseline Participants

Variable	*N*	Percent
Gender		
Male	91	29.4
Female	218	70.6
Age*		
20–29	75	24.4
30–39	157	51.1
40–49	62	20.2
50–59	10	3.3
60–69	3	1.0
Education		
Less than a 4 yr degree	46	14.9
4 yr college degree	134	43.4
Some graduate School	33	10.7
Graduate degree	96	31.1
Annual Income†		
15,000–44,999	13	4.2
45,000–74,999	65	21.0
75,000–99,999	56	18.1
100,000 or higher	153	49.5
Race‡		
White	195	63.1 (78.7)
African American	21	6.8 (10.1)
Asian	69	22.3 (3.8)
Native Alaskan/Pacific Islander	5	1.6 (0.8)
Other	12	3.9 (4.5)
Ethnicity§		
Hispanic	11	3.6 (10.3)
Non-Hispanic	285	92.2 (89.7)

The percentages enclosed in parentheses represent employment status of the civilian labor force ages 20 to 64 from the 2000 census.[1]

*2 participants (0.6%) did not provide an answer.

†22 participants (7.1%) did not provide an answer.

‡7 participants (2.3%) did not provide an answer.

§13 participants (4.2%) did not provide an answer.

TABLE 2

Posttest Change in Knowledge, Attitude, and Self Efficacy

	Control M (SD)		Experimental M (SD)			
Measure	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**F**	***P***
Knowledge	11.27 (2.84)	11.42 (3.43)	11.44 (3.29)	12.30 (3.35)	4.24	0.041
Attitudes towards psychological help	19.40 (6.48)	19.01 (5.82)	20.17 (5.61)	20.81 (5.64)	5.28	0.023
Self-efficacy	22.11 (4.95)	22.14 (4.20)	22.56 (4.94)	23.20 (4.50)	3.27	0.072

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TABLE 3

Posttest Change in Stress and Mood

	Control M (SD)		Experimental M (SD)			
Measure	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**F**	***P***
Stress	16.81 (3.78)	16.50 (4.35)	17.52 (4.53)	16.03 (4.18)	5.23	0.023
Positive mood	34.51 (7.21)	34.08 (7.64)	32.63 (8.14)	33.78 (7.93)	0.56	0.454
Negative mood	22.77 (7.59)	20.88 (7.58)	22.84 (7.15)	21.20 (7.79)	0.11	0.738
Depression	32.14 (10.08)	31.57 (10.56)	33.77 (13.46)	31.60 (13.33)	0.51	0.476
Anxiety	27.98 (7.43)	27.30 (6.19)	28.87 (7.82)	27.54 (7.53)	0.07	0.799

TABLE 4

Posttest Change in Healthy Drinking

Measure	Control M (SD)		Experimental M (SD)		F	*P*
	Pretest	Posttest	Pretest	Posttest		
Negative coping	17.34 (3.74)	17.52 (3.98)	17.18 (4.78)	16.78 (4.11)	3.03	0.083
Binge drinking	4.59 (1.65)	4.51 (1.77)	4.54 (1.91)	4.89 (1.72)	7.57	0.006

TABLE 5

Posttest Change in Work Productivity

	Control M (SD)		Experimental M (SD)			
Measure	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**F**	***P***
Time and scheduling demands	9.36 (3.90)	9.45 (3.84)	9.61 (4.34)	8.68 (4.07)	3.85	0.051
Physical demands	14.62 (9.60)	14.94 (9.64)	13.67 (9.01)	14.25 (9.55)	0.17	0.680
Mental/interpersonal demands	16.42 (5.72)	15.88 (6.12)	16.82 (6.06)	15.05 (5.89)	2.46	0.118
Output demands	8.61 (3.21)	8.51 (3.64)	9.11 (4.26)	7.92 (3.37)	3.19	0.076