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Physician you can heal yourself! Cognitive behavioural training reduces stress in GPs

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Background. High stress and low morale is a well accepted and studied phenomenon in general practice.

Objective. This study aimed to determine the benefits and mechanisms of stress management training in improving the psychological well-being and morale of GPs.

Methods. There were 85 GPs in the treatment group and 25 GPs in the control group, all from the Adelaide metropolitan region. The treatment group GPs were surveyed by questionnaire before and after a 15 h cognitive behavioural stress management training programme.

Results and Conclusion. The study found that following this training programme, GPs' quality of work life and morale improved while their work-related distress and general psychological distress decreased. These gains were maintained or further improved at 12 week follow-up. Furthermore, results suggested that the most robust long-term benefits came from developing a problem-focused style to cope with life and work events.

Keywords. Cognitive behavioural training, physicians, quality of life, stress, work.

Introduction

The nature and severity of stress in general practice have been well studied and are now an accepted, albeit highly undesirable, part of practising medicine.[1–4] As a result, GPs report stress-related illnesses such as depression, anxiety[2,3,5] and burnout.[6] It is also often reported, both anecdotally and empirically, that GPs have low work-related morale and are dissatisfied with their jobs (e.g. Schattner and Coman[3] and Bailie *et al.*[7]). In Australia, a recent government-funded report notes that low morale among GPs is a "major barrier to the practice of high quality general practice".[8] Since it seems likely that GP stress also has implications for patient care, it is essential that evidence-based interventions become available.

Although there are many stress management programmes on offer, there has been little evaluation of any kind of their effectiveness, particularly for GPs (however, see Reynolds *et al.*,[9] Sims[10] and Winefield *et al.*[11]). Also, no study to date has attempted to uncover the mechanism by which stress management programmes may improve the psychological well-being of GPs.

To address this gap in the literature and to help guide future interventions, we tested the effect of cognitive behavioural training on coping styles, and in turn the effect this had on GP stress outcomes: work-related distress, work-related morale, quality of work life and, ultimately, general psychological distress. Findings suggest that when individuals attempt to manage stressful work experiences using their emotional responses (emotion-focused coping), work-related distress increases. However, when individuals attempt to manage stressors by dealing with the problem (problem-focused coping), work-related morale improves.[12–14]

In summary, the current study is the first to adopt a quasi-experimental methodology to determine the benefits and mechanisms of stress management training in improving the psychological well-being and morale of GPs.

Methods

Participants

Participants in the treatment group were GPs from the Adelaide (South Australia) metropolitan area who elected to attend a 5 week (15 h) cognitive behavioural stress management course for which they received professional development points. Participants in the control group were sampled from GPs who attended

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other (similar length) professional development courses, which also attracted professional development points. Table 1 indicates that GPs in the control group were slightly older and somewhat more likely to work in solo practice than those in the treatment group. Table 2 shows that for measures of psychological well-being, there were no significant differences between the control and treatment groups before the intervention.

Procedures

All variables were assessed by self-administered questionnaire. Anonymous data (acquired using a coding system) were collected from the treatment and control groups prior to the intervention (on the first night of the course) and again after 4 weeks (on the last night of the course). GPs in the treatment group were also tested 12 weeks after the first stress management session. All participating GPs were given individual feedback, and the control group was given the opportunity to participate in future stress management courses.

Materials

Work-related distress and *work-related morale* are separate measures each consisting of seven items.[15] Participants were asked to rate the frequency of their feelings, such as happiness (for morale) and anxiety (for distress), whilst at work over the previous month. Feelings were rated on a 1–7 scale with a maximum score of 49 for both measures, indicating either high distress or high morale. Internal reliability was high for both measures, with Cronbach's alpha between 0.86 and 0.92. To determine clinical significance, a score representing the cut-off for the bottom one-third of respondents at pre-intervention was obtained. As such, respondents with a score of ⩾26 were deemed to be 'poor' in terms of work-related distress and a score of ⩽29 was deemed 'poor' in terms of work-related morale.

Quality of work life was measured using a 6-item scale.[15] Participants were asked to rate statements, such as "I am satisfied with my work life", that described how they felt about the quality of their work life on a 1–7 scale with a maximum score of 42. Internal reliability was high, with Cronbach's alpha between 0.89 and 0.91. Again,

TABLE 1 *Demographic data for the treatment and control groups*

	Treatment (n = 85)	Control (n = 25)
Age (years)		
>40	18.4%	0%
40–49	39.5%	47.6%
50–59	32.9%	42.9%
⩾60	9.2%	9.5%
Years since graduating from medical school		
<10	11.8%	0%
10–19	23.5%	24%
20–29	37.6%	44%
⩾30	27.1%	32%
Years working as a GP		
<10	16.3%	0%
10–14	18.5%	12%
15–19	25.6%	28%
⩾20	39.5%	60%
Type of practice		
Solo	28.6%	44%
Multiple	71.4%	56%

TABLE 2 *Means (SD) and clinical significance for pre-intervention and post-intervention for the treatment and control group for stress outcomes*

Variable	Treatment group		Control Group		ANOVA	Clinical significance
	Pre-intervention (n = 86) Mean (SD)	Post-intervention (n = 77) Mean (SD)	Pre-intervention (n = 24) Mean (SD)	Post-intervention (n = 19) Mean (SD)		Reduction or increase for treatment versus control
Work-related distress	21.97 (7.52) 34% 'poor'	19.83 (6.78) 22% 'poor'	22.50 (6.99) 28% 'poor'	21.79 (7.05) 32% 'poor'	$F(1,94) = 2.99$, $P = 0.09$	35% reduction versus 14% increase
Work-related morale	31.83 (6.75) 32% 'poor'	34.62 (6.11) 14% 'poor'	31.42 (6.19) 28% 'poor'	32.21 (6.73) 20 % 'poor'	$F(1,94) = 2.1$, $P = 0.15$	56% reduction versus 29% reduction
Quality of work life	25.32 (6.64) 30% 'poor'	28.24 (6.35) 14% 'poor'	23.16 (5.86) 40% 'poor'	24.32 (6.36) 32% 'poor'	$F(1,93) = 2.01$, $P = 0.16$	53% reduction versus 20% reduction
General psychological distress (GHQ)	13.67 (4.84) 58% above threshold	9.68 (4.53) 29% above threshold	12.24 (4.81) 46% above threshold	12.68 (4.84) 58% above threshold	$F(1,94) = 11.9$, $P = 0.001$	50% reduction versus 13% increase

using a cut-off point based on the bottom one-third of scores at pre-intervention, a score of ≤22 was deemed 'poor' in terms of quality of work-life.

General psychological distress was measured using the General Health Questionnaire (GHQ), a self-administered screening test for minor psychiatric disorders developed by Goldberg and Williams.[16] It is widely used as a measure of the presumed effects of stress.[17] This study used the 12-item version of the questionnaire, which has been shown to possess good reliability and validity,[16] with Cronbach's alpha between 0.83 and 0.87. The maximum score was 36, indicating high stress. GPs who scored ≥12 were considered above the threshold for minor psychiatric disturbance (high stress).

Coping with work events was measured using a 28-item scale that yielded two dimensions each with three subscales: problem-focused coping—logical analysis, instrumental support, problem solving; and emotion-focused coping—emotional support, affective regulation and emotional distress.[15] Participants were asked to rate statements that described their use of various coping strategies on a 0–4 Likert scale (0 = not at all, 4 = very much). A high score indicated a high use of the particular strategy. Reliability was moderate to high for all subscales across all time periods.

Results

Effects of the intervention on stress outcomes

Pre- and post-intervention changes for treatment and control groups. To assess the effects of the intervention on stress outcomes, mixed model ANOVAs were used to compare pre-intervention mean scores with post-intervention mean scores for the treatment and control groups, with group (treatment versus control) a between-subject factor and time (pre-intervention versus post-intervention) a within-subject factor. The interaction between group and time indicates the treatment effect. The interaction effects shown in Table 2 indicate that overall, GPs in the treatment group showed greater improvements at post-intervention measurement compared with GPs in the control group.

As predicted, following the intervention, the GPs in the treatment group were significantly lower in general psychological distress (GHQ), with a 50% reduction in the number of GPs in the treatment group who scored above the threshold for minor psychological morbidity (score of ≥12) compared with a 13% increase in the control group. The other three stress outcome measures did not show statistical significance from pre-intervention to post-intervention. However, for quality of work life, there was a 53% reduction in the number of GPs in the treatment group designated 'poor' compared with a 20% reduction in the control group. For work-related distress, there was a 35% reduction in the number of GPs in the treatment group designated 'poor' in terms of distress compared with a 14% increase in the control group. For work-related morale, there was a 56% reduction in the number of GPs in the treatment group with 'poor' morale compared with a 29% reduction in the control group.

Analyses were conducted to determine if there were any differences between those who dropped out from the control group compared with the treatment group (i.e. condition). These analyses revealed that, irrespective of condition, those who dropped out had, on average, slightly better quality of work life and morale and less work-related and general psychological distress. In summary, irrespective of condition, those who dropped out tended to be more 'healthy'.

TABLE 3 *Means (SD) and clinical significance for pre-intervention, post-intervention and 12 week follow-up for stress outcomes for the treatment group*

Variable	Treatment group			ANOVA	Clinical significance
	Pre-intervention (n = 86) Mean (SD)	Post-intervention (n = 77) Mean (SD)	12 week follow-up (n = 62) Mean (SD)		Change from pre-intervention to follow-up
Work-related distress	21.54 (7.47) 34% 'poor'	19.22 (6.49) 22% 'poor'	17.92 (6.39) 9% 'poor'	$F(1.7,101.5) = 9.8$, $P = 0.000$	74% reduction
Work-related morale	31.87 (6.82) 32% 'poor'	34.51 (6.17) 14% 'poor'	35.70 (6.01) 12% 'poor'	$F(2,120) = 12.6$, $P = 0.000$	63% reduction
Quality of work life	25.38 (6.64) 30% 'poor'	28.54 (6.14) 14% 'poor'	28.62 (6.13) 11% 'poor'	$F(2,120) = 14.0$, $P = 0.000$	64% reduction
General psychological distress (GHQ)	13.43 (4.80) 58% above threshold	9.29 (4.00) 29% above threshold	8.72 (4.48) 24% above threshold	$F(1.7,102.7) = 28.2$, $P = 0.000$	59% reduction

Pre-, post- and 12 week changes for GPs in the treatment group. Since a 12 week follow-up was instigated only in the treatment group, analyses (one-way repeated measures ANOVAs, with repeated contrasts) were used to assess longer term changes in the stress outcomes. Significant effects from pre-intervention to post-intervention were obtained on all four stress outcomes (see Table 3). Furthermore, by 12 week follow-up, there was between 59 and 74% reduction in those GPs classified as 'poor' in terms of their work-related distress/morale, quality of work life and general psychological distress (GHQ).

Moreover, further improvement was shown on all four measures of stress outcomes between post-intervention and 12 week follow-up, although the only further significant improvement was for work-related distress [$F(1,60) = 4.0$, $P = 0.049$]. Overall, the data show a consistent improvement on all stress outcomes as a result of the intervention, which is maintained or further improved at 12 week follow-up. Figure 1 shows the changes over time in the four stress outcome measures. Confidence intervals (95%) are based on within-subjects data and are calculated according to the recommendations of Loftus and Masson.[18]

Effect of the intervention on coping styles

The same analytical strategy used to test stress outcomes was applied to analyse the effects of the intervention on the following coping styles: logical analysis, instrumental support, problem solving, emotional support, affective regulation and emotional distress. However, the primary purpose of including coping styles in the study was to determine the role they play in stress outcomes, rather than measuring any direct effect of the intervention. Table 4 provides means and SDs for pre-intervention, post-intervention and 12 week follow-up.

The analyses revealed no significant difference between the treatment and control groups in the changes in coping style scores for any of the six measures. The one-way repeated measures analyses, on the GPs in the treatment group only, revealed significant (or near significant) improvement from pre-intervention to post-intervention in logical analysis [$F(1,60) = 5.1$, $P = 0.027$] and emotional distress [$F(1,60) = 3.5$, $P = 0.07$]. Moreover, significant (or near significant) improvement was found between pre-intervention and 12 week follow-up on logical analysis [$F(1,60) = 9.9$, $P = 0.003$], problem solving [$F(1,60) = 3.7$, $P = 0.06$], affective regulation [$F(1,60) = 5.2$, $P = 0.026$] and emotional distress [$F(1,60) = 4.7$, $P = 0.034$].

Associations between changes in coping styles and changes in stress outcomes

To investigate if there is any preliminary evidence that coping styles mediate the treatment effects (i.e. that the intervention will benefit stress outcomes by improving the use of effective coping styles and reducing the use of ineffective coping styles), changes in coping style usage were correlated with changes in stress for those GPs who received the intervention. The correlations between change in coping styles and change in stress are shown in Table 5, separated to demonstrate change during the programme (pre-intervention to post-intervention) and after the programme (post-intervention to 12 week follow-up).

The correlations in Table 5 show that over the course of the programme, an increase in the use of logical analysis accounted for 6% of the variance in reduced general psychological distress and 8% of the variation in

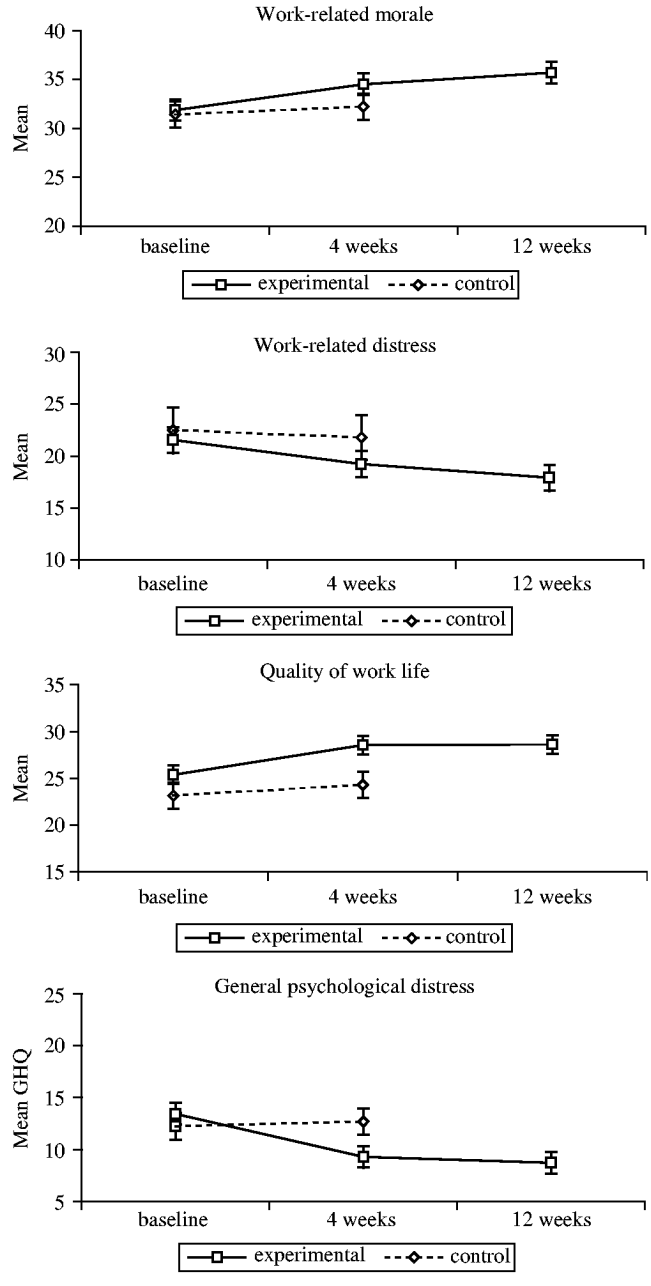

FIGURE 1 *Stress outcomes for the treatment and control groups*

TABLE 4 *Means (SD) for pre-intervention, post-intervention and 12 week follow-up for coping style: logical analysis, instrumental support, problem solving, emotional support, affective regulation and emotional distress*

Variable	Treatment group			Control group	
	Pre-intervention (n = 86) Mean (SD)	Post-intervention (n = 77) Mean (SD)	12 week follow-up (n = 62) Mean (SD)	Pre-intervention (n = 24) Mean (SD)	Post-intervention (n = 19) Mean (SD)
Problem-focused coping					
Logical analysis[ab]	10.62 (3.88)	11.66 (3.60)	12.13 (3.25)	11.47 (3.06)	11.63 (2.27)
Instrumental support	3.05 (2.47)	3.06 (2.18)	3.08 (2.40)	3.05 (2.34)	3.21 (2.51)
Problem solving[b]	12.47 (4.21)	12.81 (3.66)	13.46 (3.54)	12.21 (3.08)	12.37 (2.79)
Emotion-focused coping					
Emotional support	4.23 (2.83)	3.73 (2.84)	3.98 (2.72)	5.16 (2.36)	4.53 (2.34)
Affective regulation[b]	10.34 (5.27)	11.12 (5.50)	11.65 (4.54)	11.33 (5.59)	10.68 (4.74)
Emotional distress[a]	3.77 (3.29)	3.18 (2.93)	2.84 (2.63)	4.32 (4.04)	3.47 (2.95)

[a] Pre-intervention to post-intervention improvement for the treatment group, $P < 0.05$.
[b] Pre-intervention to 12 week follow-up improvement for the treatment group, $P < 0.05$.

TABLE 5 *Pearson product–moment correlation coefficients between change in coping style usage and change in stress for GPs receiving the intervention (treatment condition) over treatment and follow-up phases*

Change in coping style use	Change in stress			
	General psychological distress	Work distress	Quality of work life	Work morale
Pre-intervention to post-intervention				
Logical analysis (n = 77)	−0.24* (0.44 to −0.02)	−0.09	−0.05	0.28* (0.06 to 0.47)
Instrumental support (n = 77)	−0.22	0.02	−0.02	0.15
Problem solving (n = 77)	0.10	−0.01	−0.19	0.03
Emotional support (n = 75)	0.01	0.04	−0.19	0.01
Affective regulation (n = 76)	0.07	0.15	−0.13	−0.12
Emotional discharge (n = 77)	0.32** (0.10 to 0.51)	0.36** (0.15 to 0.54)	−0.08	−0.27* (−0.47 to −0.05)
Post-intervention to follow-up				
Logical analysis (n = 61)	−0.23	−0.20	0.09	0.29* (0.04 to 0.61)
Instrumental support (n = 61)	−0.21	−0.02	−0.01	0.13
Problem solving (n = 60)	−0.36** (−0.56 to −0.12)	−0.40** (− 0.59 to −0.16)	0.22	0.42** (0.19 to 0.61)
Emotional support (n = 60)	−0.07	−0.13	−0.11	0.12
Affective regulation (n = 60)	−0.08	0.14	−0.01	0.20
Emotional discharge (n = 61)	−0.13	0.38** (0.14 to 0.58)	−0.07	−0.06

*$P < 0.05$, **$P < 0.01$.
Confidence intervals are shown in parentheses under significant correlations only.

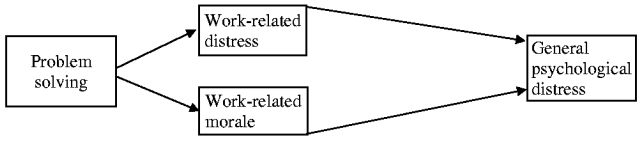

FIGURE 2 *The relationship between coping styles and stress outcomes*

increased work morale. Also, variance in decreased use of emotional discharge was associated with 10, 13 and 7% of the variance in the decrease in general psychological distress, the decrease in work distress and the increase in work morale, respectively.

Following treatment, further increase in the use of logical analysis was associated with 8% of the variance in the increase in work morale, whilst a further decrease in use of emotional discharge was associated with a further 14% of the variance in decrease in work stress. In addition, variation in the increase in the use of problem solving during follow-up was associated with variation in reductions in both general psychological (13%) and work distress (16%), as well as an improvement in work morale (18%).

Discussion

Overall, the data show a consistent improvement on all stress outcomes as a result of the intervention, which is maintained or further improved at 12 week follow-up. Moreover, for general psychological distress, the improvements can clearly be attributed to the intervention (comparatively with the control group). With the other three measures (quality of work life, work-related morale and work-related distress), the trends also indicate effectiveness of the treatment, but the results are not conclusive.

Results for the effect of the intervention on coping styles show that the intervention leads to some initial changes in some of the coping styles, namely logical analysis and emotional discharge. These coping styles then show further improvement in the longer term along with problem solving and affective regulation, for which improvements appear to take longer to manifest. The data are less convincing about whether these changes can be attributed directly to the intervention itself as no differences in improvement were found between the control and treatment groups. Although this can be attributed partly to low statistical power for that particular comparison, the findings are also a function of the intervention having a weaker effect on the coping styles than on the stress outcomes themselves. The role of coping styles as possible mediators between the intervention and improved stress outcomes provides a better understanding of these results.

The analysis of changes over time (which is a more powerful test than examining static values) provides stronger support for the argument that specific coping styles (namely improving logical analysis and problem solving, and decreasing emotional discharge) are the mechanisms by which the cognitive behavioural therapy may produce the improvements in work-related morale and quality of work life, and reductions in both work-related and general psychological distress. This claim is supported as only those coping styles shown to be changed by the treatment are significantly correlated with changes in stress outcomes. However, the coping styles seem to influence the distress measures, but not quality of work life. The coping style that seemed most powerful in the long term was problem solving. Figure 2 depicts the relationship between coping styles and stress outcomes.

Despite these results, however, it is important to bear in mind that the study does have some methodological limitations, namely the quasi-experimental design and low control group numbers. With respect to the lack of random allocation of participants, however, it should be noted that there were no significant differences in any of the stress outcome measures between the control and treatment groups before the intervention. This suggests that the treatment group were not more stressed than the control group. However, a full experimental design would be a more rigorous test of this assertion. Furthermore, the study warrants follow-up with larger treatment and control groups over a longer time period.

In conclusion, further research is needed to determine the role of short to medium term changes in coping styles and quality of life in achieving the longer term benefits to stress outcomes. However, this study provides much cause for optimism in the search to understand and provide practical solutions to GP distress and well-being. Future stress management programmes should focus on the problem-solving aspec of coping, knowing that preliminary evidence indicates that this is the most powerful way to reduce distress and improve psychological well-being among GPs.

Declaration

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Ethical Approval: Was granted by The Social and Behavioural Research Ethics Committee of Flinders University.

Conflicts of interest: This research was conducted as an independent project, proposed and designed by Flinders University. Over the three years that the Stress Management Training Program operated in Adelaide, it was sponsored on a number of occasions by various drug companies. They had no input whatsoever into the research, including study design, data collection, analysis and interpretations, or in the writing of the article and did not even know that a research study was being conducted.

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