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Improvement in School Teachers' Mental Health by a Manual-Based Psychological Group Program

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Teachers in Germany [1–3] and in several other countries [4–7] are affected by stress-related health disorders such as depression, anxiety and somatoform disorders at especially high rates. Previous studies including some of our own have shown that coping with interpersonal processes or problems which teachers are continuously confronted with [8] is one of the primary factors influencing the health of teachers [9, 10]. We have found that teachers are in fact exposed to high rates of adverse events such as verbal aggression, threat of violence and violence [1]. It is well established that interpersonal conflicts, if irresolvable, negatively affect endocrine, immunological and neurobiological parameters [11–13].

Therefore, teachers' health prevention must aim at improving social and emotional competences. For this purpose, we have developed a manual-based program comprising 10 sessions. The program focuses on 5 topics dealing with stress biology, reflection and the management of interpersonal relationships. The aim of our study was to evaluate the effects of our psychological group program.

This randomized controlled trial was part of a project entitled Health Promotion for Teachers ('Lange Lehren') initiated and supervised by the Federal Institute for Occupational Safety and Health, an agency of the German Federal Ministry of Labor. Teachers (n = 2,484) of 2 school types, 'Hauptschule' (n = 70) and 'Gymnasium' (n = 19) in 3 neighboring school districts in southwest Germany received invitations to participate in our intervention program. All teachers declaring interest (n = 337) in the intervention program could be included. They were randomly assigned either to the intervention (n = 171) or to the control group (n = 166). The intervention group took part in a training program that lasted 1 year. The control group participated in the intervention trial during the following year. The randomization followed the CONSORT (Consolidated Standards of Reporting Trials) statement [14] and was carried out by independent experts.

We decided to focus on a comparison between the control group and all teachers who had participated in the intervention

program at least 5 of the 10 times (n = 92). Thus, the analyses of the effects of the intervention were based on the comparison between 92 participants and 117 control persons. Both groups did not differ significantly with regard to any of the inventories, except with regard to the values of 2 SCL (Symptom Checklist)-27 subscales (dysthymic symptoms and symptoms of mistrust), which were both slightly lower for the intervention group.

In order to describe the mental health state of the teacher sample and to detect eventual effects of the intervention, we used the General Health Questionnaire (GHQ)-12 and the SCL-27, a short version of the SCL-90-R, both in their German versions [15, 16]. Both the GHQ-12 and the SCL-27 are screening instruments for mental health problems. The inventories were applied both times before the intervention (pre) and 12 months after the intervention (post) at the end of the school year.

The intervention program consisted of 10 group sessions (1 session per month) of 90 min each. The group work was based on a published manual (in German; www.uniklinik-freiburg.de/psychosomatik/live/projekte/lehrergesundheit/Manual.pdf). All moderators undertook a short training to apply this manual. The manual is composed of 5 modules dealing with the following issues: (1) basic knowledge on stress physiology and the effects of interpersonal relationships on health parameters, and Jacobson's relaxation training; (2) mental attitudes with particular respect to aspects of authenticity (being congruent with oneself) and identification (with the professional role); (3) competence in handling relationships with pupils; (4) competence in handling relationships with parents; (5) strengthening collegiality and social support among the staff (detecting and fending off splitting tendencies).

In order to analyze the effects of our intervention program, we compared the intervention and control groups with respect to the changes that could be detected in the scales of our inventories (GHQ-12, SCL-27). We conducted several variance analyses with general linear model repeated measures using the statistical analysis program SPSS (version 15.0). To measure the size of the detected effects, we used the partial η^2 value. An η^2 value between 0.01 and 0.06 is regarded as a small-to-medium, between 0.06 and 0.14 as a medium-to-large, and above 0.14 as a large-to-very-large effect. We expected small-to-medium effects on health due to an intervention that was only work-related. However, effect sizes of ≥ 0.026 could be detected with satisfying statistical power (80%). The analysis was performed for different data sets. Intention to treat was realized by performing several missing imputations. Participants were defined as those who took part in at least 5 of the 10 group sessions (n = 92).

As shown in table 1, participation in the intervention resulted in a significant improvement in the GHQ score. With respect to the SCL-27, the values of the GSI (Global Severity Index) and of 3 subscales (those for depressive, dysthymic and mistrust symptoms), compared with the control group, improved significantly

Table 1. Effects of the intervention program for participants with at least 50% attendance

	Effect	F	d.f.	p	η^2	Group	Number	Pre mean score	Post mean score
<i>SCL-27</i>									
SCL-GSI	ti × gr	5.21	1	0.024	0.027	CG	108	0.709 (0.399)	0.476 (0.366)
	time	121.9	1	<0.001	0.395	IG	81	0.786 (0.464)	0.431 (0.392)
Depressive symptoms	ti × gr	8.40	1	0.004	0.042	CG	111	0.657 (0.530)	0.558 (0.681)
	time	26.61	1	<0.001	0.121	IG	84	0.735 (0.609)	0.382 (0.529)
Dysthymic symptoms	ti × gr	4.78	1	0.030	0.025	CG	110	1.159 (0.690)	0.886 (0.670)
	time	62.12	1	<0.001	0.247	IG	81	1.264 (0.661)	0.781 (0.657)
Vegetative symptoms	ti × gr	0.00	1	0.997	0.000	CG	112	0.508 (0.481)	0.353 (0.402)
	time	19.31	1	<0.001	0.091	IG	83	0.573 (0.612)	0.419 (0.521)
Agoraphobic symptoms	ti × gr	1.83	1	0.177	0.010	CG	108	0.298 (0.376)	0.111 (0.219)
	time	34.67	1	<0.001	0.156	IG	82	0.227 (0.340)	0.110 (0.231)
Social phobia symptoms	ti × gr	3.29	1	0.071	0.017	CG	107	0.810 (0.587)	0.467 (0.497)
	time	110.7	1	<0.001	0.374	IG	80	0.906 (0.650)	0.421 (0.496)
Symptom of mistrust	ti × gr	9.09	1	0.003	0.047	CG	107	0.992 (0.675)	0.605 (0.562)
	time	141.5	1	<0.001	0.433	IG	80	1.181 (0.635)	0.531 (0.585)
<i>GHQ-12</i>									
GHQ score	ti × gr	6.44	1	0.012	0.032	CG	112	3.26 (3.38)	3.04 (3.77)
	time	11.03	1	0.001	0.053	IG	87	3.74 (3.46)	2.07 (2.87)

Values in parentheses denote SD. GSI = Global Severity Index; ti × gr = time × group; IG = intervention group; CG = control group.

upon participation in the group program (table 1). However, as indicated by the η^2 values, the effects were small to moderate with respect to both the GHQ-12 and the SCL-27. Analyzing for effects of covariates, we did not find any effect on gender, age or preceding health impairment (scoring on the GHQ scale above the critical value of 4).

Although our data suggest a protective effect of such a short manual-based psychological intervention program on teachers' health, the following considerations must be taken into account. Several publications describe interventions for teachers aimed at relieving the teachers' stress or preserving their health. Surprisingly, however, our study appears to be the first one evaluating the effects of an intervention by standardized instruments or even as part of a randomized controlled trial. In addition, the sample sizes of other studies have been about a magnitude or less below our sample size. Only Wu et al. [17] evaluated the effectiveness of interventions on occupational stress among 459 Chinese teachers in a randomized controlled trial. However, they took the teachers' resources of coping with occupational stressors and the improvement in their work ability as measures. Their instruments were the Occupational Stress Inventory and the Work Ability Index. They did not capture health parameters and they did not declare any values of the intervention effects. Therefore, we see no opportunity to compare our effects with those of other studies.

An additional evaluation of the physical health status was beyond the scope of this study.

Another critical point was the number of dropouts. Seventy-four of the 166 teachers who started the program took part in less than 5 of the 10 group sessions. Significant improvements in health parameters could only be proven for those who participated in at least 5 of the 10 sessions. These effects partly remained when the data were subjected to a best-case intention-to-treat analysis; however, they disappeared when a worst-case scenario was assumed. While, e.g. in pharmacological studies, the intention-to-treat analysis serves as a valuable indicator of the potential risks or strains that are connected to certain treatments, we neither have evidence that our program exerted any negative effects nor that such effects were causative of the dropouts (primary reasons for the withdrawal of participants were lack of time, moves or changes of workplace). Therefore, the fact that the beneficial effects could only be proven for those who actually participated in the intervention program does not diminish the usefulness of our program in a real-world situation.

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