

EFFECTIVENESS OF A STRESS MANAGEMENT TRAINING ON MOTIVATION AND WELL-BEING

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ABSTRACT

This study investigated the immediate influence of a stress management training on teachers' and physicians' motivational (professional objective, intrinsic motivation, efficacy expectancies) and well-being related outcomes (positive well-being, emotional exhaustion, work distress, irrational beliefs) using meta-analytical techniques.

In an action-research perspective, the stress management training program was implemented in several groups of physicians and teachers, in Portugal and in Brazil ($n=144$).

It was found that, at all the samples where this intervention was implemented, an increase occurred on all motivational indicators and on positive well-being, and a decrease on negative well-being outcomes; nevertheless, not all obtained results are statistically significant. The largest impact of the implemented training program was at positive well-being at work, with a large effect size ($d+=.81$), and at the irrational beliefs, with a medium effect size ($d+=.61$). These results suggest the short-term benefits of this intervention on teachers' and physicians' motivation and well-being.

Keywords: Stress Management Intervention, Teachers, Physicians, Meta-analysis.

JEL Classification: I38

1. INTRODUCTION

Occupational stress is a significant problem throughout the modern world and a concern for many organizations (Flaxman & Bond, 2010). It has been shown that it does not affect in the same manner the numerous existing occupations (Michie & Williams, 2003). Previous research has revealed that human services occupations, including teaching and health-care providing, are prone to high stress levels (Bermejo-Toro & Prieto-Ursúa, 2010; Lens & Jesus, 1999; Lim, Bogossian, & Ahern, 2010; Moya-Albiol, Serrano, & Salvador, 2010; Skaalvik & Skaalvik, 2011). Occupational stress has implications in terms of its negative consequences for individuals (Mark & Smith, 2012) and, subsequently, for their organizations and societies in which they are embedded (Edwards & Burnard, 2003).

One way to prevent and surpass its negative consequences is to design and implement stress management interventions targeting different levels, including person-focused and organization-focused interventions, or both (Semmer, 2010). Additionally, these interventions can be used to improve and optimize employees' aspects that denote positivity such as motivation and well-being at work. In the light of the changing "lens" through which the individuals and organizations are studied, researchers and practitioners have given more attention to positivity in human resource management, also including the issue of occupational stress (Avey, Luthans, & Jensen, 2009). Consideration of positivity,

as a complement to the negative and deficiency oriented approach, can lead to an effective management regarding the occupational health issues, such as stress (Nelson & Simmons, 2003).

In a previous review of the occupational stress management programs (Jesus, 1996), it was found that these programs have some limitations such as a lack of their development on a strong theoretical background and their focus on using only one technique such as relaxation techniques (e.g. Bamford, Grange, & Jones, 1990), mindfulness strategies (e.g. Kabat-Zinn, 1982) or coping strategies (e.g. Esteve & Fracchia, 1986). In general, the results of occupational stress management interventions in health care workers show a limited influence on psychological variables. In the reviews conducted by Routsalainen, Serra, Marine and Verbeek (2008) on occupational stress management interventions in health care workers, limited evidence was found that person-directed intervention can reduce stress, emotional exhaustion, lack of personal accomplishment, and anxiety. Similarly, Van der Hek and Plomp (1997) conducted a review of the published effect sizes of the occupational stress management programs, providing evidence that there is an urgent need to acquire a better conceptualization and theoretical reflection on the analyzed interventions.

Concerning the need for a better conceptualization in this field, an integrative model of stress, motivation and well-being was formulated to serve as a theoretical background to design and implement further stress management interventions (Jesus, 1996; Jesus, 2003; Jesus & Lens, 2002; Jesus & Lens, 2005). This model was built on several theories of motivation: intrinsic motivation theory (Deci, 1975), self-efficacy theory (Bandura, 1977), social learning theory (Rotter, 1982), relational theory (Nuttin, 1984), and attributional theory (Weiner, 1986).

To measure the variables considered in this model, a self-report instrument was developed (Jesus, 1996). It included several scales measuring some psychological indicators of the employees' motivation (professional project, intrinsic motivation and efficacy expectancies) and positive and negative well-being (work distress, emotional exhaustion and irrational beliefs). Empirical studies have revealed that all its comprising scales had reliability higher than .70 (Jesus, 1996; Jesus & Conboy, 2001).

This integrated model of stress, motivation and well-being served as a foundation for the development of a stress management intervention training combining different person-focused interventions including relaxation, cognitive-behavioral skills training and several specific approaches (Jesus, 1998). It emphasized the acquisition of coping skills to ensure a better positive well-being and motivational outcomes, and to decrease the negative well-being related outcomes. Its sessions were organized during 30h and conducted around the following topics: (1). sharing of professional experiences; (2). management of professional stressors and symptoms; (3). coping strategies and resilience; (4). irrational beliefs management; (5). relaxation exercises; (6). time management; (7). team work; (8). assertiveness and conflict management; (9). healthy life styles and quality of life; and (10). perspectives for the implementation of the taught strategies in their personal and professional life. The description of the sessions was presented in previous papers (e.g. Jesus, 2011).

This stress management training was empirical and has been examined in several studies using a pre- and post-measurement research design (e.g. Jesus & Conboy, 2001). To evaluate the effectiveness of this intervention, it is necessary to meta-analytically integrate the results of the empirical studies that have examined it. As suggested by Giga, Noblet, Faragher and Cooper (2003), without having a greater clarity about the effectiveness of different types of job stress interventions, the "efforts to minimise the human and economic costs of stress will be limited by a lack of sound evidence on the effectiveness of stress management strategies" (pp. 158). Thus, this study aims to collect and meta-analytically integrate the results of the studies that have empirically examined the influence of this intervention on employees'

motivational and well-being related outcomes immediately after its implementation. It is expected that: (1). the stress management intervention training will have a positive impact on motivational outcomes including professional project, intrinsic motivation and efficacy expectancies (first hypothesis); (2). the stress management intervention training will increase the positive well-being (second hypothesis); and (3). the stress management intervention training will decrease the negative well-being including work distress, emotional exhaustion and irrational beliefs (third hypothesis).

2. METHODOLOGY

2.1. Sample of studies and selection criteria

The relevant studies for this meta-analysis were searched using two methods. First, a computerized search was performed in Web of Science®-with Conference Proceedings and PsychInfo® databases. This search was conducted using the following keywords: stress management program and motivational program. The search period was limited to studies published from 1996 until 31st December 2010. Second, the published and unpublished papers that have empirically examined this stress management training and were known by the first author of the present study were also considered.

To be included in the analysis, the studies had to meet the following criteria: (1) to be published in the English, Spanish or Portuguese language; (2) to examine the full version of this stress management program, in terms of sessions (10) and hours (30); (3) to collect data from employees working in the field of human services; (4) to include a measurement of at least one variable related to professional motivation (professional project, intrinsic motivation, and efficacy expectancies), positive well-being, and negative well-being (work distress, emotional exhaustion and irrational beliefs), before and shortly after the implementation of this intervention; and (5) to report an effect size or other statistics that could be transformed into a size effect. Cohen's *d* effect size in terms of the standard deviation of raw-scores was chosen for use.

Considering these criteria, five studies were selected. These are marked with an asterisk (*) in the references list. The number of the independent samples and participants extracted from these five studies varies for the outcome variables considered in the subsequent analysis.

2.2. Coding of characteristics

For each independent sample, the following information was coded: references of the study in terms of author(s) and year of publication, sample size, sample type (teachers, health professionals), means and standard deviations in the pre-test and post-test measurements and the value of the effect size. This coding was conducted independently by the two authors for each outcome variable. The inter-reliability between the coders was 100%. The results of this coding are presented in Table 1.

2.3. Analysis of the effect sizes

The meta-analytical procedures using the fixed-effect models were applied given that this paper aims to make inferences about the effect-size parameters in the set of studies that are observed (Hedges & Vevea, 1998). First, the differences between pre-test and post-test measurements in each sample were expressed using the standardized effect size Cohen's *d* (Cohen, 1988). Based on these individually studied effect sizes, in the case of each outcome variable, the unweighted average effect size (*d*) and weighted-mean effect size (*d₊*) were computed. The weighting variable is the reciprocal number of the sampling variance for each effect size estimate. The values of the weighted-mean effect sizes were compared with the

cut-off values proposed by Cohen (1988): a small (.20), medium (.50) and a large (.80) effect size. For each weighted-mean effect size, the confidence interval, 95% *CI*, was computed.

Next, the effect sizes across the sample of the studies were tested for homogeneity using: (1). Hunter and Schmidt's 75% rule (1990) in terms of the percentage of the observed variance explained by the error sampling variance and (2). *Q* test (Morris & DeShon, 2002).

Table 1 – Descriptive statistics of the studies included in the meta-analysis that examined the short-term influence of the stress management program on teachers' and physicians' motivational and well-being-related outcomes

Reference	Sample type	<i>N</i>	m_1	sd_1	m_2	sd_2	$m_2 - m_1$	<i>ES (d)</i>
1. Professional project								
Jesus (2002)	Teachers	26	4.02	1.66	4.09	1.66	.07	.04
Jesus (2006)	Teachers	28	4.08	1.90	4.19	1.90	.11	.06
Jesus & Costa (2004)	Physicians	50	3.10	1.41	3.30	1.41	.20	.14
Sampaio et al. (2008)	Teachers	15	5.17	1.66	5.58	1.66	.41	.25
2. Well-being at work								
Jesus (2002)	Teachers	26	3.50	1.23	4.86	.83	1.36*	1.11
Jesus (2006)	Teachers	28	3.95	.89	4.65	.93	.70*	.79
Jesus & Conboy (2001)	Teachers	25	4.20	1.57	5.47	.74	1.27*	.81
Jesus & Costa (2004)	Physicians	50	3.80	1.23	4.20	.83	.40*	.65
3. Intrinsic motivation								
Jesus (2002)	Teachers	26	19.64	4.95	21.00	4.13	1.36*	.27
Jesus (2006)	Teachers	28	21.10	4.46	22.79	4.20	1.69*	.38
Jesus & Conboy (2001)	Teachers	25	20.13	5.57	21.73	3.63	1.60*	.29
Sampaio et al. (2008)	Teachers	15	24.67	4.95	26.75	4.13	2.08*	.42
4. Efficacy expectancies								
Jesus (2002)	Teachers	26	30.36	4.82	31.00	4.18	.64	.13
Jesus (2006)	Teachers	28	31.25	3.70	31.36	3.97	.11	.03
Jesus & Conboy (2001)	Teachers	25	27.13	6.02	28.40	3.66	1.27	.21
Sampaio et al. (2008)	Teachers	15	35.50	4.82	34.42	4.18	1.08	-.22
5. Work distress								
Jesus (2002)	Teachers	26	19.02	11.23	18.36	10.57	-.66	-.06
Jesus (2006)	Teachers	28	19.68	9.73	19.02	10.10	-.66	-.07
Jesus & Conboy (2001)	Teachers	25	19.09	12.73	17.66	11.05	-1.43*	-.11
Sampaio et al. (2008)	Teachers	15	18.85	11.23	17.15	10.57	-1.70	-.15
6. Emotional exhaustion								
Jesus (2002)	Teachers	26	23.00	20.14	19.11	17.76	-3.89*	-.19
Jesus (2006)	Teachers	28	21.59	18.24	20.15	17.49	-1.44	-.08
Jesus & Conboy (2001)	Teachers	25	24.43	22.05	23.54	18.03	-.89	-.04
Jesus & Costa (2004)	Physicians	50	26.30	20.14	22.10	17.76	-4.20*	-.21
Sampaio et al. (2008)	Teachers	15	20.97	20.14	16.90	17.76	-4.07*	-.20
7. Irrational beliefs								
Jesus (2002)	Teachers	26	47.07	5.24	46.93	4.25	-.14	-.03
Jesus (2006)	Teachers	28	42.22	4.28	41.96	4.34	-.26	-.06
Jesus & Conboy (2001)	Teachers	25	45.20	6.20	40.53	4.16	-4.76*	-.75
Jesus & Costa (2004)	Physicians	50	47.20	5.24	39.30	4.25	-7.90*	-1.51
Sampaio et al. (2008)	Teachers	15	47.08	5.24	42.83	4.25	-4.25*	-.81

* $p < .05$

Note. *N*: the sample size. m_1 : the mean of the pretest measurement. sd_1 : the standard deviation of the pre-test measurement. m_2 : the mean of the post-test measurement. sd_2 : the standard deviation of the post-test measurement. *ES (d)*: the *d* effect size.

3. RESULTS

In the present study, five studies were considered in the subsequent analyses. Four of them have used teachers as participants to the stress management training, and one has used physicians. All these participants were included voluntarily in the training sessions without being selected on their level of outcome variables or on the basis of a diagnostic of clinical occupational stress. The studies included in this meta-analysis used a single sample pre- and post-test measurement design.

It was found that at all the samples where this intervention was implemented an increase occurred on all motivational indicators and on positive well-being, and a decrease on negative well-being outcomes; nevertheless, not all obtained results are statistically significant. For instance, it was found that this intervention does not significantly influence the employees' professional project and efficacy expectancies. Furthermore, the intervention increased employees' intrinsic motivation and their positive well-being at work, but the impact of this training on teachers' and physicians' positive well-being varies from a medium to a very large impact (from .65 to 1.11), while in the case of intrinsic motivation its impact is ranged from a small to a medium effect size (from .27 to .42).

In terms of negative well-being related outcomes such as work distress, emotional exhaustion and irrational beliefs, the studies found that this training decreased the intensity of these negative consequences of the occupational stress; nevertheless, it was not significant in all the studies. The influence seems to be higher on the decrease of irrational beliefs, but the results vary from almost no impact to a very large impact (from -.03 to -1.51).

The results of the meta-analysis for each outcome variable are presented in Table 2.

Table 2 – Overall results of the meta-analysis that examined the short-term influence of the stress management training on teachers' and physicians' motivational and well-being-related outcomes

Outcome variable	<i>N</i>	<i>k</i>	<i>d</i>	<i>d</i> ₊	95% <i>CI</i>	% variance	<i>Q</i>	Fail safe <i>N</i>
1. Professional project	119	4	.12	.11	[-.18; .39]	19.71	.20	0
2. Well-being at work	129	4	.84	.81	[.26; 1.36]	12.20	.33	6
3. Intrinsic motivation	94	4	.34	.33	[-.07; .72]	48.86	.08	1
4. Efficacy expectancies	94	4	.04	.06	[-.26; .38]	5.73	.70	0
5. Work distress	94	4	-.10	-.09	[-.40; .22]	88.63	.05	0
6. Emotional exhaustion	144	5	-.14	-.14	[-.41; .13]	18.50	.27	0
7. Irrational beliefs	144	5	-.63	-.61	[-.63; .05]	.75	6.63	0

Note: *N* = the total number of the participants in the *k* samples; *k* = the number of independent samples; *d* = the averaged observed effect size; *d*₊ = the mean observed weighted effect size; 95% *CI* = 95% confidence interval of the *d*₊ effect size; % variance = theoretical variance due to sampling error/ observed variance of the effect size; *Q* = the value of the *Q* test; Fail-safe *N*s = the number of additional studies with null results needed to reduce mean size effect to a small effect of .20.

The results reveal that the stress management intervention training has no influence on employees' professional project immediately after its implementation (*d*₊ = .11). Also, this lack of a significant influence is reflected by the limits of the confidence interval of the

weighted effect size d (95% $CI = [-.18; .19]$). Hunter and Schmidt's rule ($19.71 > .75$) and the value of the Q test ($Q(3) = .20, p > .05$) indicate that there is no heterogeneity of the effect sizes across the sample of the studies included in the analysis. Also, the influence of this training on teachers' and physicians' intrinsic motivation ($d_+ = .33$) is not statistically relevant as shown by the 95% CI that includes the null value (95% $CI = [-.07; .72]$). The two heterogeneity tests indicate that the effect sizes across the sample of the studies included in the analysis are not heterogeneous ($48.86 > .75$ and $Q(3) = .08, p > .05$). Also, based on data driven from four independent samples that comprised 94 participants in total, it was found that this training had no influence on efficacy expectancies ($d_+ = .06$ and 95% $CI = [-.26; .38]$). As is the case of the previous two motivational outcomes, the results of the homogeneity tests suggest that the effect sizes across the sample of the studies included in the analysis are not heterogeneous ($5.73 > .75$ and $Q(3) = .70, p > .05$).

On the other hand, the data driven from four independent samples (129 participants) reveal that the stress management training has a significant, large influence on employees' positive well-being ($d_+ = .81, 95\% CI = [.26; 1.36]$). Also, the homogeneity tests indicate that effect sizes across the sample of the studies included in the analysis are homogenous ($12.20 > .75; Q(3) = .33, p > .05$).

In terms of the negative well-being, it was found that this training does not significantly reduce the teachers' and physicians' work distress ($d_+ = -.09, 95\% CI = [-.40; .22]$) and emotional exhaustion ($d_+ = -.14, 95\% CI = [-.41; .13]$). Also, in the case of these negative well-being related outcomes, the results of the two heterogeneity tests indicate that the effect sizes are homogenous across the studies included in each set of the studies ($88.63 > .75, Q(3) = .05, p > .05$ and $18.50 > .75, Q(4) = .27, p > .05$, respectively). Furthermore, the employees' irrational beliefs are not significantly modified at the end of this training ($d_+ = -.61, 95\% CI = [-.63; .05]$). The percentage of the observed variance explained by the error sampling variance suggests some heterogeneity across the effect sizes of the studies included in the analysis (.75).

To examine the likelihood of whether this meta-analysis may have overestimated the true size of the stress management training effects on employees' outcomes because of publication bias, a fail-safe N_s was computed using Orwin's (1983) formula, where the effect size criterion was chosen to be .20 and the value of the d_{fc} was set to zero. The number of studies with null findings that would be needed to obtain the mean effect of .2 for the well-being is 6. Given that the value of this number is larger than the number of the analyzed independent samples, it indicates that the results of the meta-analysis may be little influenced by the "file-drawer problem".

4. DISCUSSION

This study aimed to collect and to meta-analytically integrate the results of the empirical studies that have examined the influence of stress management training on teachers' and physicians' work motivation and positive and negative well-being related outcomes immediately after its implementation. It has been found that this type of training has significantly increased the employees' positive well-being at work; nevertheless, the influence on their motivational and negative well-being related outcomes is not significant.

A lack of significant effects of this stress management training on the motivational and the negative well-being related outcomes may be due to the fact that it is a multimodal one, comprising different intervention techniques or components. Using a multicomponent training makes it difficult to assess whether the specificity, mixture, number, or a combination of the training components is causing the intervention effect (Richardson and Rothstein,

2008). Thus, it is difficult to say which component of the examined stress management training had or did not have an influence on teachers' and physicians' motivational and well-being related outcomes. In terms of the effect of the multimodal stress management interventions, the existing literature provides inconsistent results. For example, Werneburg et al. (2011) verified the effectiveness of a 12-session multidisciplinary stress reduction program, incorporating group support, skill building and cognitive behavioral and relaxation techniques, on reducing perceived stress and improving health behaviors and quality of life. But other researches point out a different way. For instance, Richardson and Rothstein (2008) found that the multimodal stress management interventions had no significant influence on distress and other work-related outcomes including work motivation. The lack of significant effects of this multimodal stress management training can also be due to other factors that may mediate or moderate its influence (Biron, Cooper, & Bond, 2008). These factors can be intrinsic, external to participants training, or at the interface of the participants with the context in which the training was conducted, such as participants' appraisal of the stress management intervention (Nielsen, Randall, & Albertsen, 2007).

5. CONCLUSION

The present meta-analysis provides the first quantitative summaries of the effectiveness of this stress management training shortly after its implementation to the groups of teachers and physicians. Also, it contributes to the extension of the current knowledge of stress management interventions implemented with employees' from the human services field, such as teachers and physicians. As shown, this intervention can be used in the worksites to improve the employees' positive well-being. From a practical point of view, the results can be useful to specialists responsible for human resources management, particularly on occupational stress issues.

One limitation of the present study regards the nature of the data included in the analysis. In the case of all examined outcomes, the effect sizes were computed based on data collected through one single sample pre- and post-measurement design. Given the weaker causality nature of this type of design (Montero & León, 2007), it is difficult to infer that there were no intrinsic or extrinsic factors to this intervention that might influenced the employees' outcomes during its implementation. Nevertheless, a previous study observed an increase in intrinsic motivation and well-being at work for an experimental group of teachers, but any significant difference also occurred at an equivalent control group (Jesus, 2010); further studies are needed to evaluate the effectiveness of this multimodal stress management training in comparison to single techniques, in order to determine which is the most effective in different work settings. Qualitative data could also give additional information (Torsney, 2011). Furthermore, the inferences about the effectiveness of this stress management training are restricted to the employees' psychological outcomes. Future studies that will investigate the effects of this intervention can include different types of outcomes such as physiological (e.g. diastolic and systolic blood pressure) or organizational measures (e.g. absenteeism). Future studies also should combine the efficacy of the stress management program with some other personal variables, such as creativity and leadership (Quintas & Gonçalves, 2010; Sousa, Monteiro & Pellissier, 2009).

Furthermore, the effectiveness of this stress management intervention can be examined in studies that can include larger samples from the same population of teachers and physicians, as well as other specific profession from human services such as nurses or other social care provider professions (Almeida, Faísca & Jesus, 2009).

Considering that this study analyzed only the short-terms effects of this stress management training on motivational and well-being related outcomes, it can be complemented by a meta-analysis of the studies that have examined the long-term impact of the training program (e.g. Jesus, 2002; Jesus & Costa, 2004; Jesus & Rus, 2011). As suggested by Richardson and Rothstein (2008), little is known about the long-term effects of the stress management interventions, and this limits knowledge about how long their effects last.

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