

# Changes in Mental Health in Compliers and Non-Compliers with Physical Activity Recommendations in Patients with Stress-Related Exhaustion

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## 1 Purpose

There is a lack of research regarding the long-lasting effects of a more physically active lifestyle in patients with mental disorders (Gerber et al., 2013). In the present study, clinical data were analysed to examine if initially physically inactive patients, clinically diagnosed with stress-related exhaustion, taking part in 12-month multimodal treatment (MMT), differ at the 18-month follow-up regarding mental health, depending on whether they did or did not comply with the physical activity (PA) recommendations resembling those of the American College of Sports Medicine.

## 3 Results

Significant group differences in burnout and depression between non-compliers and compliers with PA recommendations occurred only after the 18-month follow-up (Table 1). This indicates that the emerging differences may mirror an effect of the increased level of PA, rather than being effects of the MTT as a whole, since all other regular treatment components apart from follow-up appointments ended at the 12-month follow-up.

Table 1. Group Differences Based on 1-way ANOVAs in Burnout, Depression and Anxiety at Baseline, 6, 12, and 18 Months of Follow-Up

	Non-compliers (n=26)		Mild compliers (n=22)		Strong compliers (n=21)		df	F	p	$\eta^2$
	M	SD	M	SD	M	SD				
<b>Burnout</b>										
Baseline	5.49	0.91	5.69	0.59	5.26	0.86	2,65	1.42	0.249	0.043
6 months	4.55	0.97	4.10	1.38	4.22	1.17	2,63	0.85	0.431	0.027
12 months	3.81	1.02	3.56	1.60	3.64	1.29	2,65	0.81	0.806	0.007
18 months	3.97	1.43	2.97	1.19	3.09	1.15	2,65	<b>4.36</b>	<b>0.017</b>	<b>0.121</b>
<b>Depression</b>										
Baseline	9.85	4.17	9.32	3.80	9.38	4.14	2,68	0.12	0.884	0.004
6 months	7.13	3.99	4.50	2.96	6.29	3.96	2,66	3.02	0.056	0.086
12 months	5.92	4.31	4.23	3.98	4.10	3.24	2,67	1.62	0.205	0.048
18 months	5.54	4.51	2.73	2.64	3.29	3.95	2,68	<b>3.68</b>	<b>0.031</b>	<b>0.100</b>
<b>Anxiety</b>										
Baseline	12.58	4.05	12.14	3.26	12.52	3.23	2,68	0.10	0.902	0.003
6 months	9.29	3.13	7.27	4.07	8.05	3.29	2,66	1.94	0.152	0.057
12 months	7.23	3.56	5.73	3.37	5.65	3.01	2,67	1.71	0.190	0.050

Note. Variations in number of cases dependent on missing values in different subscales.

Burnout was assessed with the Shirom-Melamed Burnout Questionnaire (SMBQ), Depression and Anxiety with the Hospital Anxiety and Depression Scale (HADS)



## 4 Conclusions

Compliance with PA recommendations after the end of MMT is associated with decreased levels of burnout in patients with stress-related exhaustion. Our findings support previous research on the relationship between PA and burnout showing that the most significant differences in burnout are found between people who are completely inactive compared to those who engage at least in some PA (Jonsdottir et al., 2010; Lindwall et al., 2012). Our findings also support that maintaining a physically active lifestyle after the end of a treatment may lead to more sustained effects among patients with mental health symptoms (Hoffman et al., 2011). Furthermore, our findings accord well with ACSM's position that people unable to meet the minimum standards can still benefit from some activity. Thus, the promotion of a more active lifestyle among patients with stress-related exhaustion should be implemented as a part of MMT, to achieve a more sustainable decrease of symptoms of burnout and depression.

## References

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## 2 Method

The study population consisted of 69 patients (65% women) who were referred to a stress clinic due to stress-related exhaustion. All patients received MMT. A major goal was to increase patients' PA levels. The patients received general comprehensive instructions including personal advice regarding the positive effects of PA on mental health and could self-select for an 18-week coached exercise program. Changes in mental health symptoms over an 18-month period were compared between non-compliers (n = 26), mild compliers (n = 22) and strong compliers (n = 21) with the PA recommendations included in the MMT.

Most importantly, the results of repeated measures ANOVA showed that patients with exhaustion disorder, who complied mildly or strongly with the PA recommended as a part of the MMT program, showed larger and more sustained improvements in burnout during the follow-up period than non-compliers (Group:  $F(2,61) = 2.67$ ,  $p = ns$ ,  $\eta^2 = .080$ ; Time:  $F(1,61) = 161.14$ ,  $p < .001$ ; Time x Group:  $F(2,61) = 4.59$ ,  $p < .05$ ,  $\eta^2 = .131$ ). Thus, patients who complied at least mildly in changing their PA habits continued to improve their mental health with respect to burnout over the 18-month follow-up period, which was not the case among non-compliers (Figure 1).

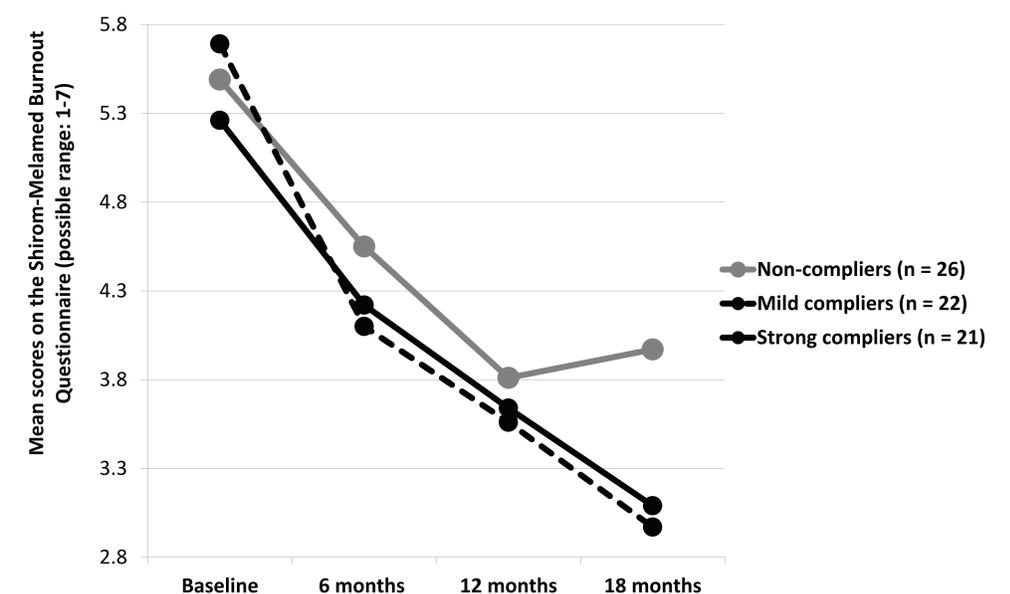


Figure 1. Changes in Symptoms of Burnout From Baseline to 18-Month Follow-Up Across Groups

If the clinical cut-off level for burnout was used as an indicator of mental health (SMBQ scores > 4.40), the data showed no significant differences at baseline,  $\text{Chi}^2(2,69) = 2.54$ ,  $p = 0.281$ , at the 6-month follow-up,  $\text{Chi}^2(2,69) = 0.56$ ,  $p = 0.754$ , and at the 12-month follow-up,  $\text{Chi}^2(2,69) = 0.57$ ,  $p = 0.750$ , while significant group differences occurred at the 18-month follow-up,  $\text{Chi}^2(2,69) = 6.15$ ,  $p = 0.046$ , showing that among the non-compliers a higher percentage of participants (n = 11; 42%) exceeded the cut-off score for clinically relevant burnout compared to the mild compliers (n = 3; 15%) and strong compliers (n = 3; 15%).