

Does “the world's most relaxing song” have an effect on you?

Sandra Jaschke, Inken Jörgensen, Nele Karallus, Corinna Pfortner, Julian Thewes and Jonas Spieß

Department of Biological and Clinical Psychology

University of Trier

INTRODUCTION

Background

- recent research used positive effects of music to improve stress recovery (Annerstedt et al., 2013; Groarke & Hogan, 2019; Thoma et al., 2013)
- “adequate” music in this context turned out to be more effective than silence (Baltazar et al., 2019)
- “Weightless” by Marconi Union was designed to lower the heart rate and level of cortisol (Lo & Deng, 2019)

Idea

Replication of the findings with the song “Weightless”, to check whether it is “the most relaxing song”, as stated by several articles.

Hypotheses

subjects listening to “Weightless” after the stressor (TSST-VR) will show a significantly different stress response than the control group, regarding:

- (1) reduced cortisol level
- (2) reduced heart rate
- (3) reduced state rumination
- (4) reduced subjective stress level

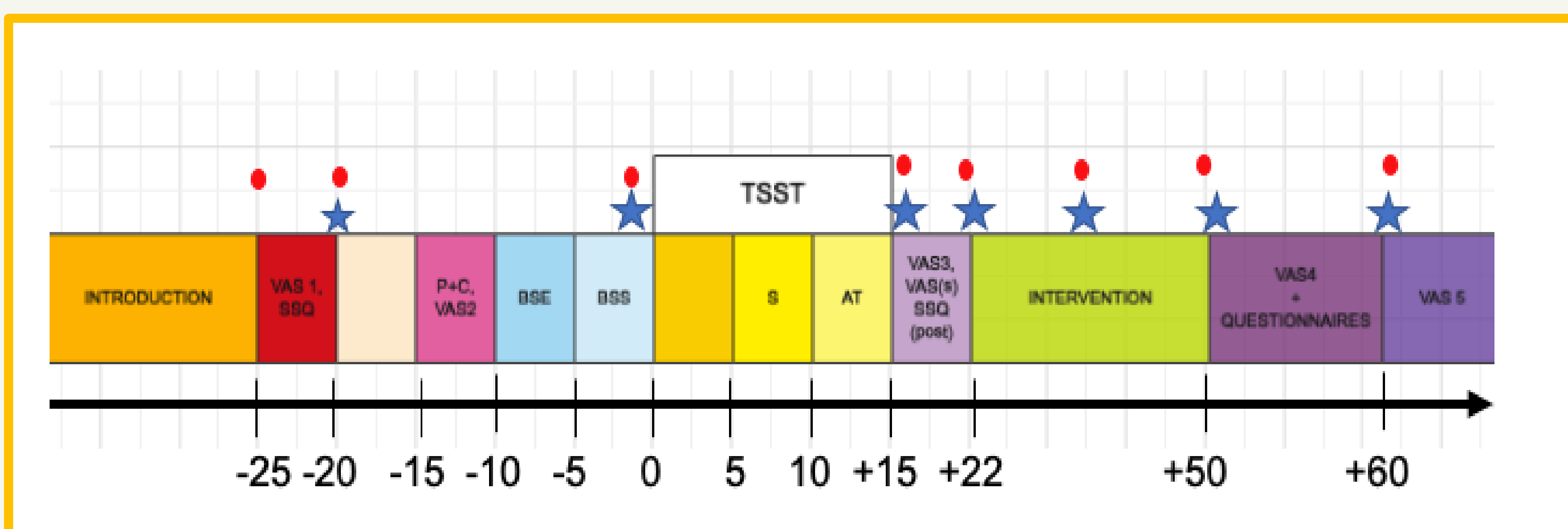


Figure 1. time table: dots = HR marker, stars = saliva samples, BSE = baseline seated, BSS = base line standing, S = speech, AT = arithmetic task

DISCUSSION

Even though groups were standardized and balanced and all manipulation checks were successful, the intended effects failed to reach significance. Nonetheless, they pointed in the suggested direction. This might be related to the relatively small sample size, which could have rendered the experimental design unable to detect significant differences. This limitation should be considered by future research. Does ‘the world's most relaxing song’ have an effect on you? – We can’t tell!

Does this make you feel insecure?



Figure 2. Typical committee in the TSST-VR session.

METHODS

Sample

20 participants (University of Trier, Hochschule Trier), 10 per group randomly assigned

Variables

IV: group [intervention (music) vs. control (silence)]

DV: heart rate, cortisol, alpha-amylase, subjective stress (all repeated measures)

Material

- questionnaires: FNE-K, SSQ (repeated), STAI (trait), thoughts questionnaire (state), VAS (repeated), VAS post, VR experience
- TSST-VR

Main experimental design

- 2 (group) x 7 (cortisol) one-way ANOVA with factor two being a repeated measure
- 2 (group) x 5 (VAS) one-way ANOVA with factor two being a repeated measure
- 2 (group) x 11 (heart rate) one-way ANOVA with factor two being a repeated measure



RESULTS

Psychometric measures

age, FNE-K score, simulator sickness, rumination, STAI

→ no statistically significant differences between groups (Table 1)

Table 1: Mean values (SD) for descriptive variables comparing the control and the intervention group.

	Control group	Intervention group	p-value
age	21.5 (2.01)	22.00 (1.936)	.589
FNE-K	34.3 (10.6)	37.1 (7.6)	.453
Simulator sickness*	438.71 (296.4)	603.112 (413.7)	.322
STAI	56.6 (9.0)	53.78 (5.8)	.45
rumination	2.480 (.77)	2.53 (.81)	.07

*total score

Stress response measures

Figure 4. VAS: subjective stress response

- no music*time interaction ($F = .670, p = .532$)
- main effect time ($F = 11.498, p < .001$)
- no main effect group ($F = .137, p = .716$)

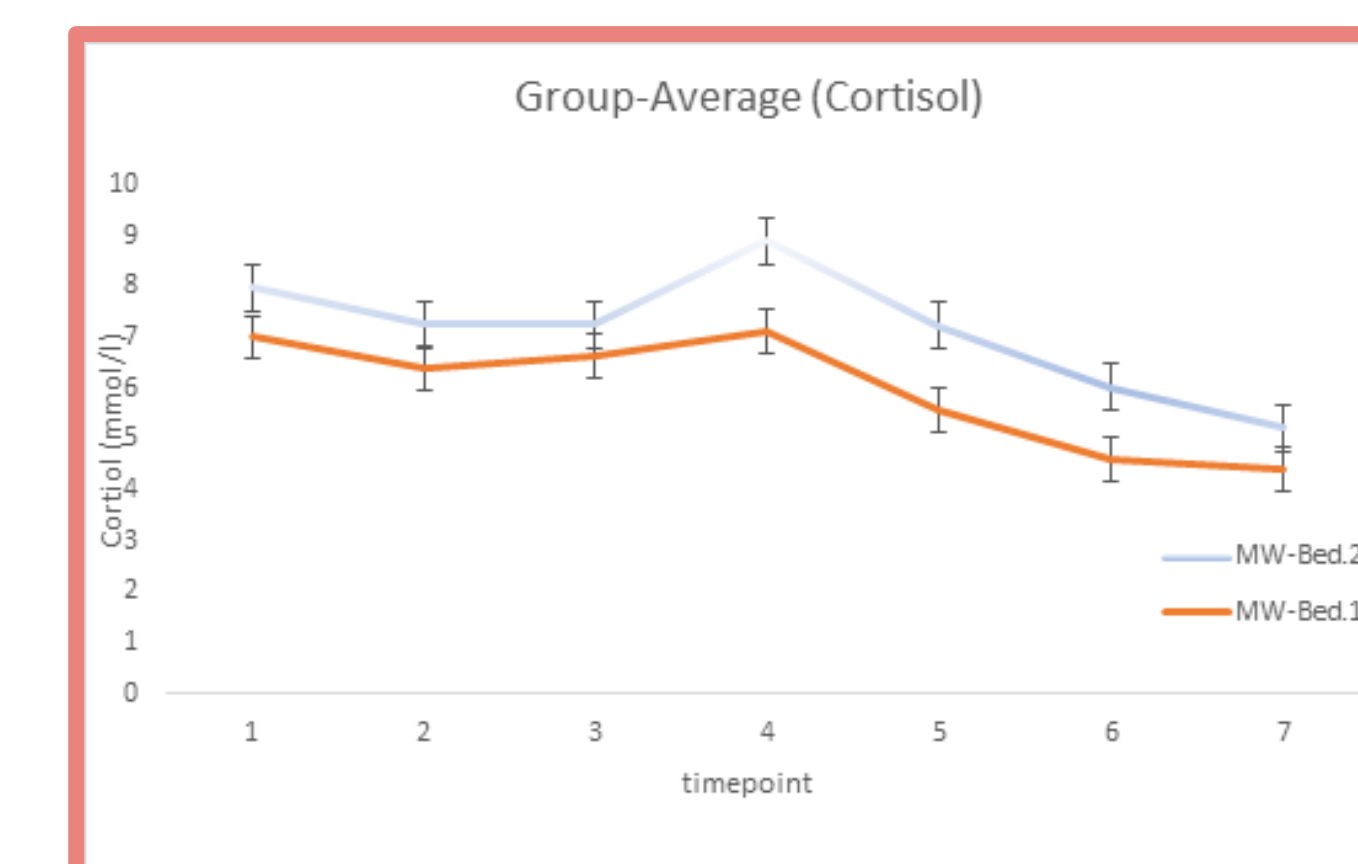
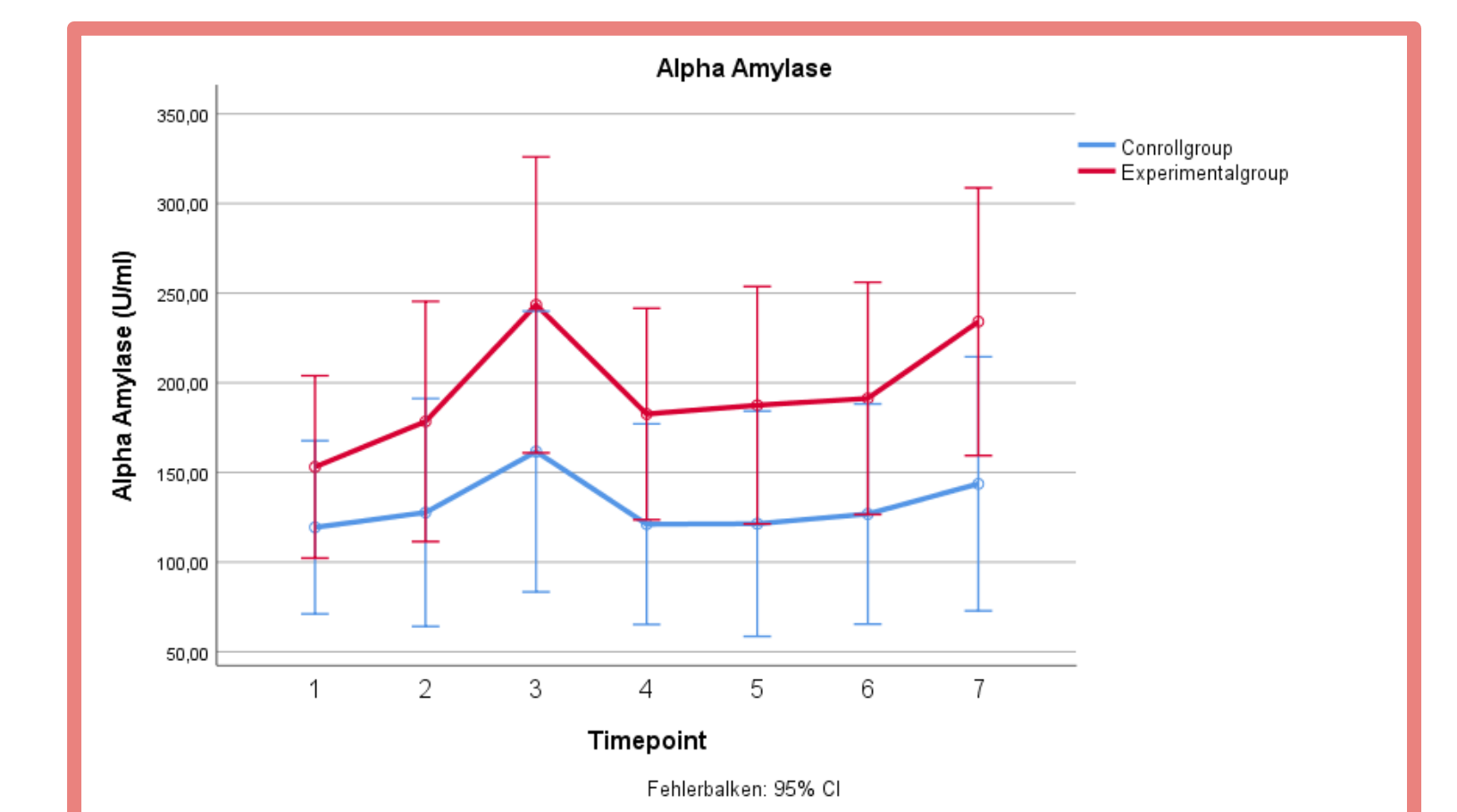


Figure 5. cortisol graphs

- main effect time ($F=7.542, p = 0.001$)
- no time*condition interaction ($F=0.123, p = 0.890$)

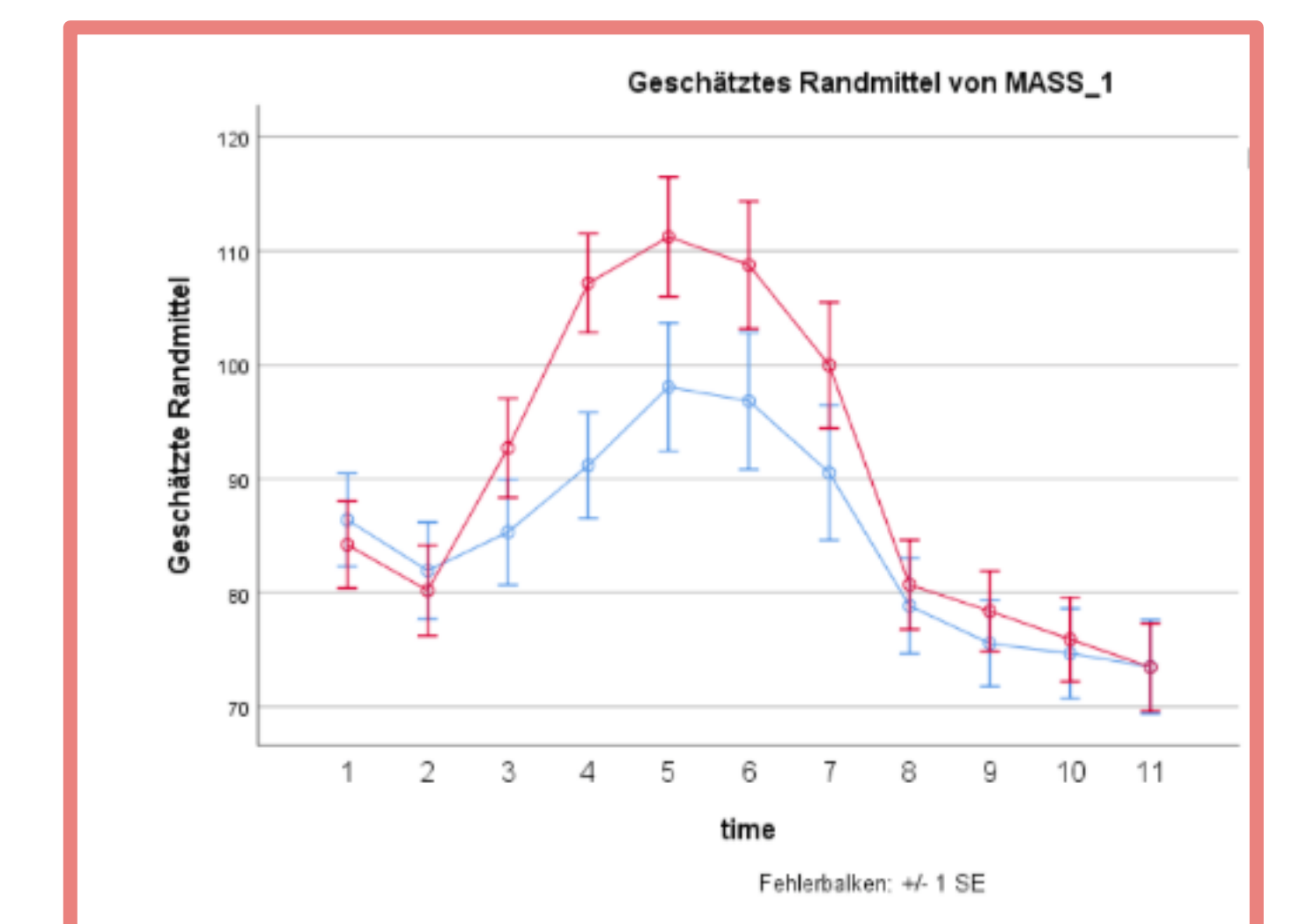


Figure 6. heartrate

- no group*time interaction ($F=3.808; p=0.39$)
- main effect group during preparation of TSST ($p= .03$)