‘HypnoBox’ Evaluation Report

Effectiveness of the HypnoBox App Relating to Sleeping Problems

2020 Results Report

Structure

1 Management Summary

1 Management Summary

Results

The analysis of the questionnaires showed a significant improvement in **sleeping behaviour** (ISI - Insomnia Sleep Index, T = 1.385; p = 0.09), **sleep quality** (PSQI - Pittsburgh Sleep Quality Index, T =1.702; p = 0.05) and **everyday well-being** (MFI - Multidimensional Fatigue Inventory, T=2.138; p = 0.02) at the second measuring time (T1), thanks to the HypnoBox app.
This improvement also continued four weeks after the intervention. This means we can assume an effect of at least four weeks.

When analysing the Sleep Analyzer data, a significant improvement in **sleep assessment** (T=2.158; p = 0.02) was recorded within the Hypnosis Group. Furthermore, this improvement was linear by 0.5 points per night. The sleep assessment consists of the following variables: sleep duration, REM sleep duration, light sleep duration, deep sleep duration, duration of the awake phase and the number of night-time wakings.

Another interesting finding was the data from the test subjects who reported no subjective improvement based on the hypnosis. These eleven test subjects showed a clear and significant improvement in all areas, which often even exceeded the group's average.

1 Management Summary

After intervention

- The Hypnosis Group significantly improved its sleep and the everyday well-being resulting from this:
  - Multidimensional Fatigue Inventory
    T0 (1.58) - T1 (1.41); T = 2.138; p = 0.023
  - Insomnia Severity Index
    T0 (23.65) - T1(21.70); T = 1.385; p = 0.09
  - Pittsburgh Sleep Quality Index
    T0 (3.59) - T1 (3.38); T = 1.702; p = 0.05
- The Placebo Group showed significant improvement in its sleeping behaviour.
  - Insomnia Severity Index
    T0 (26.00) - T1(22.25); T = 2.946; p = 0.004
- The No Treatment Group remained unchanged in all areas.

The follow-up results confirm a medium-term effect of the hypnosis intervention over four weeks.

2 Starting Point and Methodology

2.1 Theoretical Background - Sleep
2.2 Input and Study Objective
2.3 Study Design
2.4 Methodology Profile
2.5 Format of Questionnaire (PSQI, ISI, MFI)
2.6 Withings Sleep Analyzer

2.1 Theoretical Background - Sleep

There are four consecutive sleep phases that repeat cyclically during the night:

Sleep Phase	Type of Sleep	Characteristics	Standard Duration
Phase 1 (N1)	Light sleep (NREM)	▸ Transition from waking state → sleep ▸ The body starts to relax ▸ Heart rate, breathing and brain waves slow down	1-5 mins
Phase 2 (N2)	Light sleep (NREM)	▸ The body continues to relax ▸ Eye movement stops ▸ The body temperature reduces ▸ Brain waves slow down	10-60 mins
Phase 3 (N3)	Deep sleep (NREM)	▸ The muscles are completely relaxed ▸ Heart rate, breathing and brain waves are the slowest compared with other phases	20-40 mins
Phase 4 (REM)	REM	▸ Eyes move quickly back and forth ▸ Breathing is quick and irregular ▸ Heart rate, blood pressure and brain waves are similar to being awake	10-60 mins

2.1 Theoretical Background - Sleep

- The deep sleep phase (N3) is particularly beneficial for the body's recovery, strengthening of the immune system and maintaining a healthy metabolism.
- Additionally, memories are consolidated and emotions processed during the deep sleep phase.
- During the REM sleep phase, it is most likely that dreams occur. This is also a time when memories are processed.
- Deep sleep and REM phases are most important for restful sleep. If we miss out on these, such as during insomnia or other sleep disorders, symptoms of sleep deprivation will be the result.
- Sleep deprivation has negative consequences on cognition, emotions and physical health.

2.2 Input and Study Objective

After a more in-depth target group classification from the previous study 'HypnoBox Target Group Exploration', the objective of the study was to initially prove the effectiveness/usefulness of the app using empirical research with scientific foundations.

Based on the division into categories of the HypnoBox app, the goal was to prove its effectiveness using the subject areas contained in the app. Sleep was chosen as the object of the study because there are relatively few indication obstacles and the topic was highly prioritised by the target group.

Furthermore, sleep disorders are very common and pose a problem for those affected. In a study conducted by R. Schlack, U. Hapke, U. Maske, M.A. Busch, S. Cohrs (2013), about a third of people questioned stated that they had suffered from clinically relevant problems falling asleep or sleeping through the night during the previous four weeks. About a fifth also reported having poor sleep quality. With additional consideration given to negative impact on daily life such as tiredness and/or fatigue, the prevalence rate of insomnia syndrome was 5.7%.

The goal was to determine the effectiveness of the HypnoBox app on sleep disorders using this empirical examination, and to evaluate this effectiveness. The factor of "efficiency" is recorded and analysed, i.e. the effectiveness of the hypnosis app in the actual surroundings of the test subjects. This is sometimes described as "everyday effectiveness" because this type of study does not take place in clinical surroundings.
"Efficacy" or "therapeutic effectiveness" was not examined. This would have to take place in optimised medical surroundings for specifically defined target groups.

2.2 Input and Study Objective

Research Questions

- Can a change in test subjects' sleep disorders be proven after they have used the HypnoBox app?
- Which effects can be noticed in the participants of the Hypnosis Group compared with the No Treatment Group, and how significant are these effects?
- Is there an improvement/deterioration/no difference in sleep within the Hypnosis Group compared with the No Treatment Group and/or the Placebo Group?
- Secondary Questions:
  - Does the Hypnosis Group significantly differ compared with the No Treatment Group and/or the Placebo Group when it comes to the duration of sleep?
  - Does the Hypnosis Group significantly differ compared with the No Treatment Group and/or the Placebo Group when it comes to disruptions in sleep?
  - Does the Hypnosis Group significantly differ compared with the No Treatment Group and/or the Placebo Group when it comes to durations of both sleeping and of being awake?

2.2 Hypotheses

Hypotheses

1. Sleep in the Hypnosis Group is improved after the intervention. The improvement is more pronounced than in the Placebo and No Treatment Groups.
2. Perceived everyday well-being increases more significantly based on the hypnosis intervention compared with the Placebo and No Treatment Groups.
3. Compared with the Placebo Group, hypnosis has a longer-lasting effect.

Secondary Hypotheses:

1. There is a significant difference in sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.
2. There is a significant difference in the number of wakings in the Hypnosis Group compared with the Placebo and No Treatment Groups.
3. There is a significant difference in REM sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.
4. There is a significant difference in deep sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.

2.3 Methodology: Overview

Methodology Profile

- Method: Randomised controlled pilot study into the effectiveness of the HypnoBox app relating to sleep disorders/problems sleeping
- A combination of self-evaluation report (online questionnaire) and electronic sleep tracking at home using Withings Sleep Analyzer
- Target group: People interested in hypnosis and self-hypnosis who suffer from insomnia
- Sample size: N = 60 (after two test subjects quit: 58)
- Distribution and recruitment: separate panel, Facebook ad, eBay classified ads, public flyers
- Measurements: Pre-test, post-test and follow-up measurement
- Compensation: Participants can keep their Withings Sleep Analyzer

2.4 Study Design

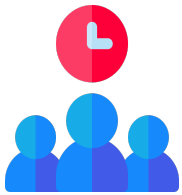
Groups:

Hypnosis Group

N = 19

Placebo Group

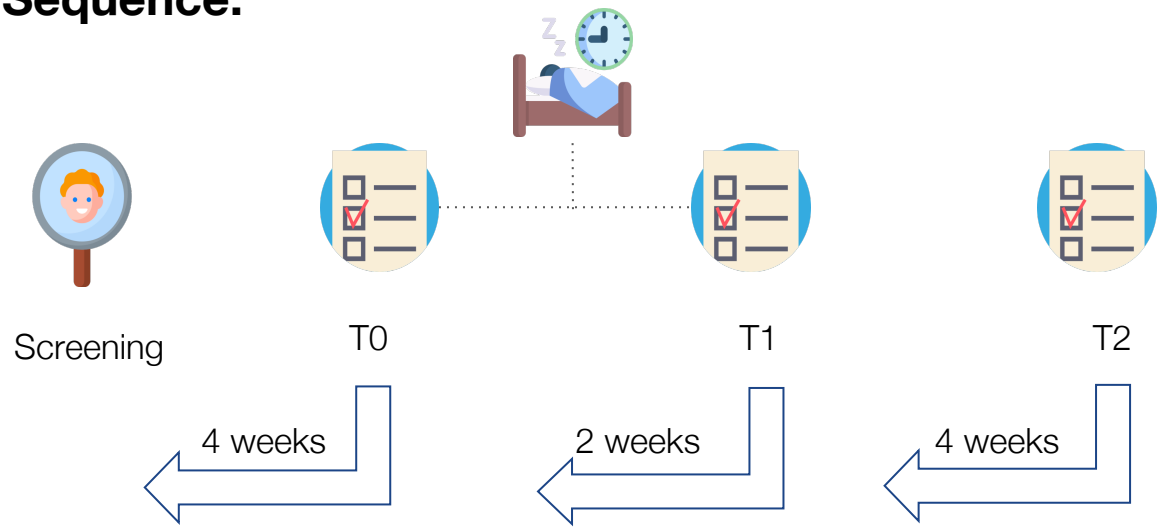
N = 20



No Treatment Group

N = 19

Sequence:



2.5 Format of Questionnaire

This method of data collection used is economical in both time and effort. Those questioned are assured of anonymity and therefore feel more confident to voice their opinion and to adhere to the time frame. There can, however, be a number of undesired effects.

Unsuitable phrasing and compilation of the items or inappropriate stipulation of a certain answer format (open vs closed; single choice vs multiple choice vs rating scale; answer obligatory or not) can trigger certain answer tendencies in the test subject – this must be avoided at all costs!

When designing a questionnaire, it is also important that the individual answers build on each other. If this is not the case, the participants have to put more effort into their answers and may respond negatively. The questions must not trigger any answer trends. This is vital for a valid result. Important psychological effects with questionnaires are the sequence effect, a tendency to say ‘yes’ and to choose the middle.

2.5 Setup of Questionnaires

- The questioning at times T0, T1 and T2 consists of a combination of three validated questionnaire tools: Pittsburgh Sleep Quality Index (PSQI), Insomnia Severity Index (ISI), Multidimensional Fatigue Inventory (MFI)
- Additional variables (third & control variables) ask about health, BMI (T0), stress levels, holiday/jetlag as well as substances and habits that may influence sleeping behaviour
- Times of questioning:
  - T0 refers to the time before the study and asks about sleeping behaviour and experience during the previous four weeks
  - T1 refers to the time during data collection (two weeks)
  - T2 refers to the time after finishing the data collection (four weeks)
- Some items and instructions were adapted to suit these times.

2.5 Pittsburgh Sleep Quality Index (PSQI)

- Internationally known, validated questionnaire to record sleep quality
- Retrospective for a period of four weeks
- Asks about the frequency of events that disturb sleep, assessment of sleep quality, usual sleep times, latency of falling asleep, sleep duration, consumption of sleep medication, tiredness during the day
- 18 items (five of those were selected, 13 sub-questions were left out because further specification of the problems was not relevant to the purpose of the study in some cases)
- Higher scores correspond to reduced sleep quality
- Does not provide differentiated diagnostics

2.5 Insomnia Severity Index (ISI)

- Internationally known, validated screening tool to record how pronounced a sleep disorder is
- Retrospective for a period of two weeks
- Asks about the perception of how pronounced problems falling asleep and sleeping through the night are, waking up early in the morning, satisfaction with current sleep, impairment of everyday functions that can be attributed to sleep disorders, extent of stress or worries triggered by the sleep disorder
- Seven items
- Higher scores correspond to more pronounced insomnia symptoms
- Does not provide differentiated diagnostics
- Interpretation:
  - Maximum value here: 35
  - 0 - 8 points: Clinically unremarkable
  - 9 - 17 points: Underlying insomnia
  - 18 - 26 points: Mild to moderate insomnia
  - 27 - 35 points: Severe insomnia

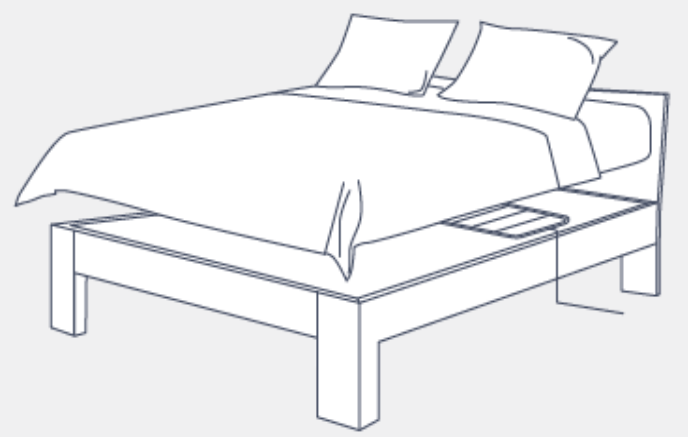
2.5 Multidimensional Fatigue Inventory (MFI)

- Internationally known, validated questionnaire to record tiredness and fatigue
- Asks about the state of health “recently”
- 20 items
- 5 sub-scales: General fatigue, physical fatigue, mental fatigue, reduced activity and reduced motivation
- Higher scores correspond to more pronounced fatigue
- Does not provide differentiated diagnostics

2.6 Withings Sleep Analyzer

- Sleep sensor to record objective sleep data
- Medically substantiated
- Placed under the mattress
- Sends sleep data via the ‘Health Mate’ app to the user’s smartphone

2.6 Installation of the Withings Sleep Analyzer



Please note

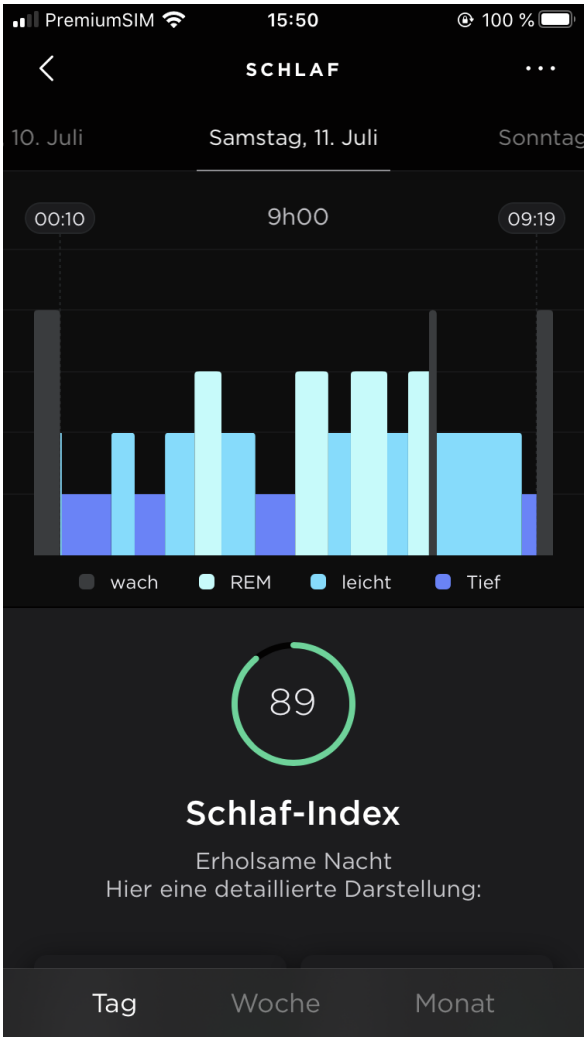
- Stable internet and Bluetooth connection needed
- Withings Sleep Analyzer needs 10 minutes to adapt to the mattress height. Do not touch the mattress during this time.
- The Sleep Analyzer is powered from a socket during the night.
- The mat is installed horizontally at heart level.

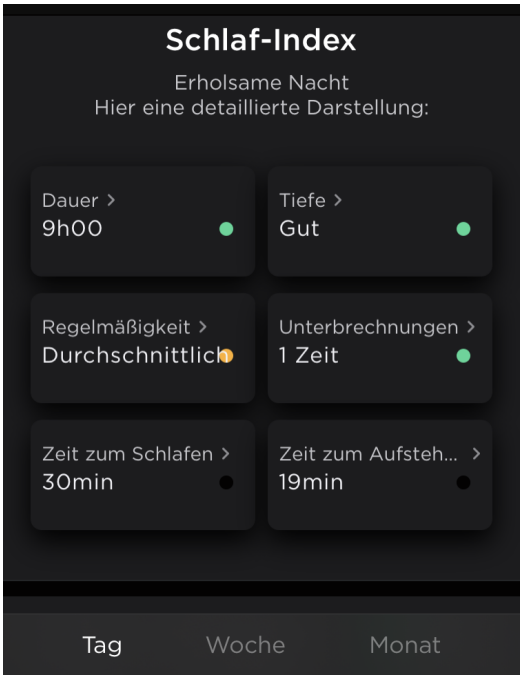
2.6 Variables Measured

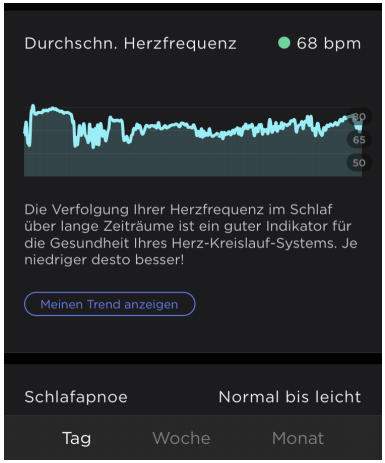
Relevant data displayed in the Health Mate app:

- Ratio of light sleep, deep sleep, REM
- Duration of awake phases
- Sleep Quality Index (sleep score)
  - Sleep duration
  - Depth of sleep (time in deep sleep and REM)
  - Regularity of bed-times and waking up times
  - Sleep disruptions
  - Time taken to fall asleep
  - Time taken to wake up
  - Score: 1-100
  - 1-49 = poor, 50-74 = moderate, 75-100 = good

2.6 Data Preparation in the App







2.6 Data Export

- Data was exported from the users' devices using a programmed API connection
- Data was exported daily and made available to BIFI
- Authentication using participant number

3 Classification of Sample:

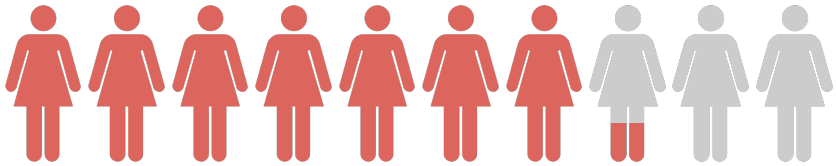
3.1 Participation Criteria
3.2 Gender
3.3 Age

3.1 Participation Criteria

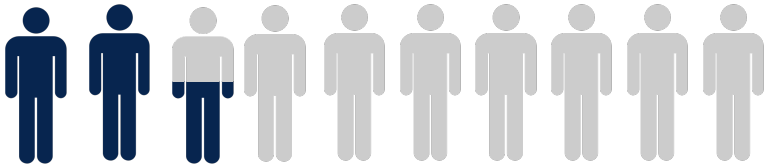
- According to guidelines (DSM-V), participants fulfil the criteria for a sleep disorder (insomnia)
- DSM-V:
  - At least one of three symptoms: Problems falling asleep, problems sleeping through the night, waking up early in the morning
  - At least three times per week for at least three months
  - No daytime sleepiness (hypersomnia)
  - No parasomnia
- Age: min. 18 years, max. 60 years
- No employment that requires night-shift work
- Must own a smartphone
- Opinions of hypnosis: between neutral and very interested
- No consumption of substances that influences sleeping behaviour
- None of the following conditions: depression, post-traumatic stress disorder, bipolar disorder, addiction, schizophrenia, dementia and similar, personality disorders, dissociative disorders

3.2 Gender

72.4%



25.9%



1.7%

The data set contains information from 58 test subjects. Of those 58, 42 were female, 15 male and 1 fluid.

3.3 Age

Overall average age: 38.2 years

Min.: 19 years

Max.: 60 years

Hypnosis Group (intervention group): 37.4 years

Placebo Group (story group): 36.5 years

No Treatment Group (control group): 40.8 years

4 Implementation of the Study

4.1 Timeline

4.1 Timeline

1. Planning and Prep

- Creating the screening questionnaire
- Recruiting participants
- Selecting measurement tools
- Programming data export
- Selecting the control stimulus

2. Pilot Pre-Study Brief

- Screening revision
- Sleep Analyzer test phase
- API connection test (data export)

3. Revision

- Evaluating pilot study
- Specifying timeline
- Preparing control stimulus (audio stories)

4. Start of recruitment

5. Preparation

- Evaluating the screening questionnaire
- Ordering the Sleep Analyzer
- Randomly organising participants into specific groups
- Sending the Sleep Analyzer to the test subjects
- Carrying out telephone briefings

4.1 Timeline

5. Pre-Test T0

- Questionnaire T0 (retrospective, four weeks)

6. Start of Sleep Measurement

- Export of sleep data
- Daily check of data export and dealing with problems, if applicable

7. Post-Test T1

- Questionnaire T1 (retrospective, two weeks)

8. Follow-up Measurement T2

- Questionnaire T2 (retrospective, four weeks)

9. Evaluation

- Data Cleansing
- Data Analysis
- Data Interpretation
- Results Report

10. Completion

- Sending the findings to participants
- Sending information letter with sleep tips and emergency addresses

5 Results

5.1 Questionnaires
5.2 Technical Measurements: Sleep Analyzer
5.3 Effectiveness of the Hypnosis & Paradoxical Effect
5.4 Distribution: Control and Third Variables
5.5 Limitations

5.0 Explanation

The following results are divided into:

1. Questionnaires - data from test subjects' input about the perception of their sleeping behaviour

1. Technical measurement - data from Sleep Analyzer recordings

As a methodical evaluation procedure, descriptive statistics, paired T-tests, independent T-tests, regressions and time series analyses were calculated.

The significance level of the analyses was set in advance at 10%, meaning a tolerable error probability of 10% is accepted.

The ISI (Insomnia Severity Index), MFI (Multidimensional Fatigue Inventory) and PSQI (Pittsburgh Sleep Quality Index) scales are reversed - low values stand for better sleep quality, while high values indicate worse sleep quality. This also means that a decrease in the average value should be seen as a positive. The polarity of the scales has no influence on the T-values.

5.0 Explanation - T-Test

The T-test is used to analyse average value differences in and between the groups. For this, the individual values of a group are determined for a variable and checked in how far they differ from the group's average. This deviation (spread/variation) is then depicted in a breakdown (T-breakdown), with 0 being the group's average.

The T-value is generated using the breakdown and the number of people examined, for example. The T-value is read from a table (T-table) and depicts the difference compared with 0. The T-value shows whether a value X presents a significant change compared with value Y. The reading of the required T-value depends on the number of objects examined and can also be found in the T-table.

If there are 20 people, a directed hypothesis and a 10% significance level, a T-value from (+ or -) 1.32 is deemed as a significant change. T-values can be positive or negative. This is how the direction of the effect is shown.

5.0 Explanation - Scale Values

In order to get an overview of a construct, several individual items are combined to form a scale so that a score can be obtained that allows an overview of the entire construct. The scale values are formed as follows:

- The **MFI** (Multidimensional Fatigue Inventory) has dichotomous answer categories (Yes = 1, No = 2) and therefore a value between 1 and 2. A value closer to 1 can be seen as positive and a value closer to 2 as negative. The MFI scale value was formed as the average value of the individual items.

- The **PSQI** (Pittsburgh Sleep Quality Index) is represented with 5 out of 18 items and has a scale from 1-4. A value closer to 1 can be seen as positive and a value closer to 4 as negative. The PSQI scale value was formed as the average value of the individual items.

- The **ISI** (Insomnia Severity Index) has a scale from 0-4. A value closer to 0 can be seen as positive and a value closer to 4 as negative. The ISI scale value was formed as the total value of the individual items.

5.1 Questionnaires: Group Averages

	Gr. 1 - Hypnosis	Gr. 2 - Placebo	Gr. 3 - No Treatment
Scale	M (SD)	M (SD)	M (SD)
MFI_T0	**1.5875** (0.217)	**1.555** (0.083)	**1.5184** (0.079)
MFI_T1	**1.4175** (0.275)	**1.5325** (0.075)	**1.5368** (0.109)
ISI_T0	**23.65** (4.487)	**26.00** (3.584)	**21.5789** (4.800)
ISI_T1	**21.70** (4.510)	**22.25** (4.447)	**20.9474** (4.365)
PSQI_T0	**3.5913** (0.374)	**3.4525** (0.389)	**3.4632** (0.379)
PSQI_T1	**3.3875** (0.402)	**3.375** (0.329)	**3.5132** (0.421)

The above depicts an overview of the group's averages between the times T0 and T1. T0 is the value of a group before the treatment and T1 once treatment has been completed. The averages show the descriptive development between the measuring times and scales.

** Low values = better sleep quality; higher values = poorer sleep quality*

5.1 Questionnaires: Group Averages

Hypnosis: Before - After	Hypnosis vs Placebo	Hypnosis vs No Treatment
Fatigue (MFI): Improvement of 17%	Fatigue (MFI): Hypnosis is 11.5% better	Fatigue (MFI): Improvement of 11.93%
Severity (ISI): Improvement of 5.6%	Severity (ISI): Hypnosis value is 1.6% better	Severity (ISI): Increased improvement of 3.77%
Sleep Quality (PSQI): Improvement of 5.1%	Sleep Quality (PSQI): Increased improvement of 3.16%	Sleep Quality (PSQI): Improvement of 3.14%

5.1 Questionnaires: Within subject

	Gr. 1 - Hypnosis		Gr. 2 - Placebo		Gr. 3 - No Treatment	
Scale	Mean (SD)	T-value (p-value)	Mean (SD)	T-value (p-value)	Mean (SD)	T-value (p-value)
MFI_T0	1.5875 (0.217)	**2.138* (0.023)**	1.555 (0.083)	0.963 (0.17)	1.5184 (0.079)	-0.79 (0.22)
MFI_T1	1.4175 (0.275)		1.5325 (0.075)		1.5368 (0.109)	
ISI_T0	23.65 (4.487)	**1.385* (0.09)**	26 (3.584)	**2.946** (0.004)**	21.5789 (4.800)	0.407 (0.35)
ISI_T1	21.7 (4.510)		22.25 (4.447)		20.9474 (4.365)	
PSQI_T0	3.5913 (0.374)	**1.702* (0.05)**	3.4525 (0.389)	0.758 (0.28)	3.4632 (0.379)	-0.415 (0.34)
PSQI_T1	3.3875 (0.402)		3.375 (0.329)		3.5132 (0.421)	

The average value differences were determined using paired T-tests. The Hypnosis Group shows a significant improvement on all three scales between the first measuring time (T0) and the second (T1). The Placebo Group only shows significant improvement on the ISI. The No Treatment Group does not show any significant changes.

The following applies: A T-value from (+ or -) 1.32 represents a significant change.

5.1

Questionnaires: Item level

		Gr. 1	Gr. 2	Gr. 3
No.	**Items**	**T-value**	**T-value**	**T-value**
1	ISI: Problems falling asleep	**1.641***	**1.857***	0.515
2	ISI: Problems sleeping through the night	**1.748***	**1.82***	0.712
3	ISI: Waking up early	0.694	**2.429****	0.414
4	ISI: Satisfaction with sleep	**1.584***	**2.775****	0.878
5	PSQI: Poor sleep	**2.99****	**2.032***	1.000
6	PSQI: Sleep Quality	**3.249****	**4.067****	0.834
7	PSQI: Consumption of sleep medication	0.438	**1.371***	0.145
8	MFI: Performance level	**2.629***	1.285	0.215
9	MFI: Fitness	**1.831***	0	0.163
10	MFI: Motivation to be active	**2.349****	0	0.716
11	MFI: Tiredness	**2.666****	1.000	0.331
12	MFI: Fear of tasks	**2.333****	-0.900	0.325
13	MFI: Fitness II	0.567	**-2.032***	-1.287
14	MFI: Daily plans	-0.567	**-1.371***	1.000
15	MFI: Physical health	**1.831***	-1.000	0.268

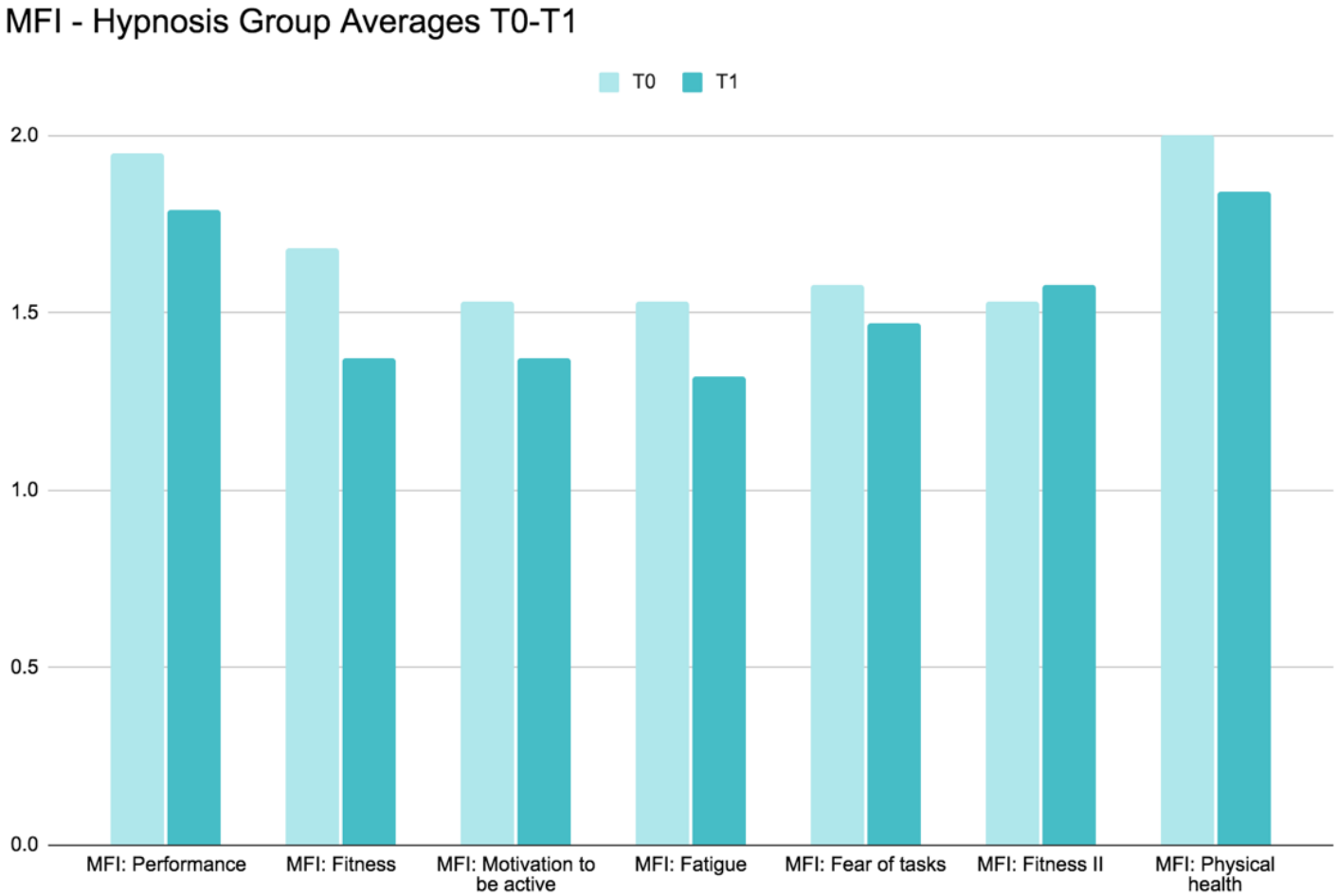
The significant differences in the relevant groups at individual item level are highlighted in bold. The description of the items can be found in the appendix.

5.1

Questionnaires: Average - ranking according to extent of difference when hypnosis took place

Rank	Item	Hypnosis T0	Hypnosis T1
1	ISI: Problems falling asleep	3.37	2.74
2	ISI: Problems sleeping through the night	3.84	3.21
3	PSQI: Poor sleep	3.05	2.53
4	ISI: Waking up early	3.16	2.74
5	ISI: Satisfaction with sleep	3.89	3.53
6	MFI: Fitness	1.68	1.37
7	MFI: Tiredness	1.53	1.32
8	PSQI: Sleep Quality	1.53	1.37
9	MFI: Performance level	1.95	1.79
10	MFI: Physical health	2	1.84
11	MFI: Motivation to be active	1.53	1.37
12	MFI: Fear of tasks	1.58	1.47

5.1 Questionnaires: Item level



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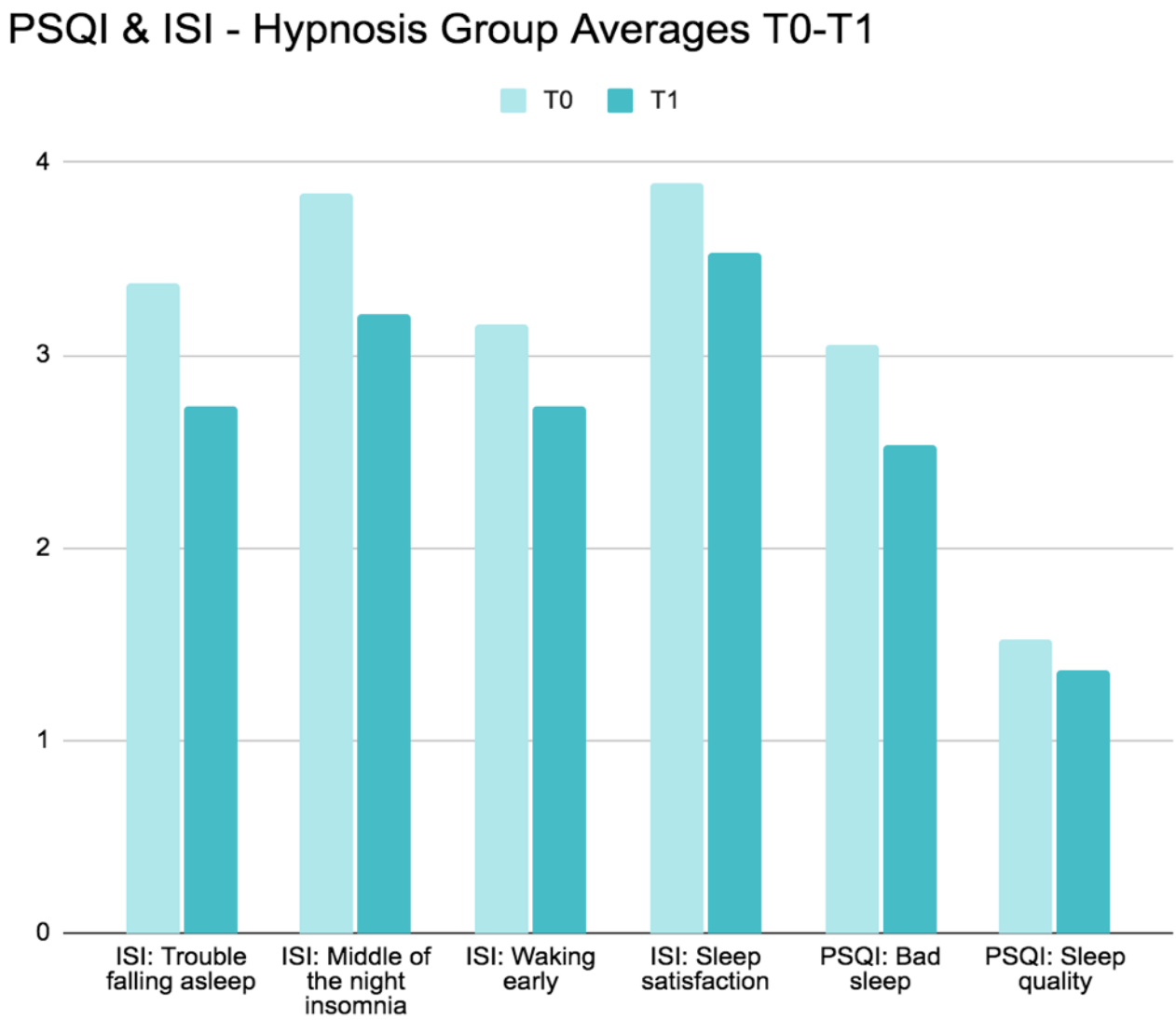

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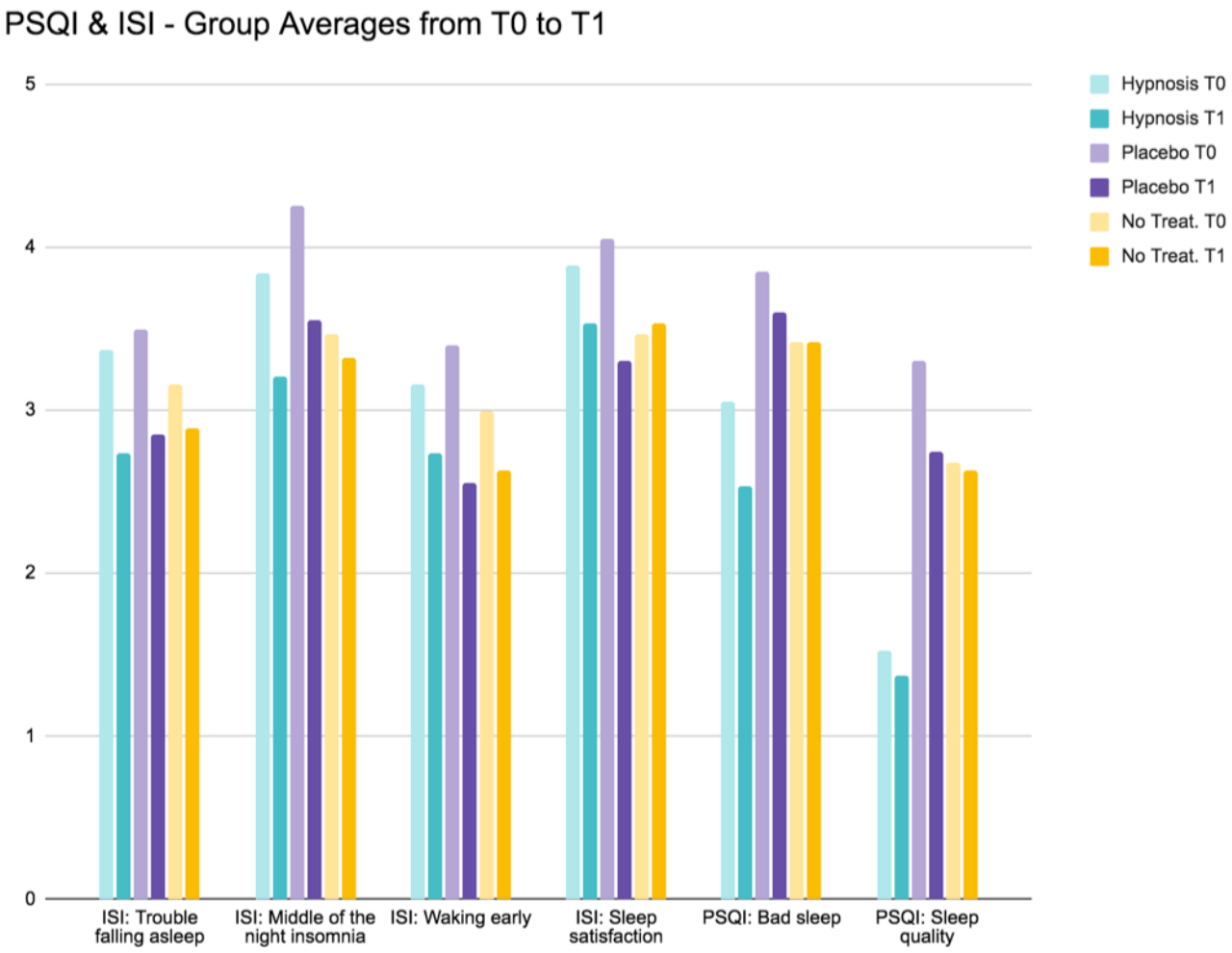


5.1 Questionnaires: Item level

5.1 Conclusion - Scales and Individual Items

Based on the evaluation of the scales and the individual items, the following results were proven:

Hypnosis had a positive effect on general everyday well-being and on symptoms of fatigue (Multidimensional Fatigue Inventory):

- Improvements were recorded in the areas of performance level, fitness, motivation to be active, tiredness, fear of tasks, feeling rested and physical health.

Hypnosis also had a significantly positive effect on the perceived level of severity of the test subjects' sleep disorders (Insomnia Severity Index):

- Improvements were recorded in the areas of satisfaction with sleep, problems falling asleep and sleeping through the night.
- The Placebo Group only showed a positive influence on sleeping behaviour on this scale.

Hypnosis also resulted in a positive change in sleep quality (Pittsburgh Sleep Quality Index (PSQI):

- The Placebo Group does not show significant improvement in the overall evaluation even though some items do show improvement.

The No Treatment Group showed no significant results.

5.1 Follow-up - Retrospective View T0 → T1

	Gr. 1 - Hypnosis		Gr. 2 - Placebo		Gr. 3 - No Treatment	
Scale	Mean (SD)	T-value (p-value)	Mean (SD)	T-value (p-value)	Mean (SD)	T-value (p-value)
MFI_T0	1.58 (0.217)	**2.138* (0.023)**	1.55 (0.083)	0.963 (0.17)	1.52 (0.079)	-0.79 (0.22)
MFI_T1	1.42 (0.275)		1.53 (0.075)		1.53 (0.109)	
ISI_T0	23.65 (4.487)	**1.385* (0.09)**	26 (3.584)	**2.946** (0.004)**	21.58 (4.800)	0.407 (0.35)
ISI_T1	21.7 (4.510)		22.25 (4.447)		20.95 (4.365)	
PSQI_T0	3.59 (0.374)	**1.702* (0.05)**	3.45 (0.389)	0.758 (0.28)	3.46 (0.379)	-0.415 (0.34)
PSQI_T1	3.38 (0.402)		3.37 (0.329)		3.51 (0.421)	

5.1 Follow-up - T1 → T2

	Gr. 1 - Hypnosis		Gr. 2 - Placebo	
Scale	**M**	**T-value (p-value)**	**M**	**T-value (p-value)**
MFI_T1	1.42	-0.614 (0.27)	1.53	**-1.324* (0.10)**
MFI_T2	1.51		1.57	
ISI_T1	21.58	0.868 (0.20)	22.25	0.098 (0.46)
ISI_T2	20.10		22.1	
PSQI_T1	3.38	0.063 (0.72)	3.4	-0.577 (0.29)
PSQI_T2	3.34		3.4875	

Even after four weeks, the Hypnosis Group showed no significant deterioration, meaning we can assume that hypnosis had a medium-term effect.
The everyday well-being significantly deteriorated for the Placebo Group (MFI).

5.1 Follow-up - T0 → T2

	Gr. 1 - Hypnosis		Gr. 2 - Placebo	
Scale	**M**	**T-value (p-value)**	**M**	**T-value (p-value)**
MFI_T0	1.58	**1.256* (0.10)**	1.555	-0.900 (0.37)
MFI_T2	1.51		1.57	
ISI_T0	23.65	**3.090** (0.003)**	26	**3.702** (0.001)**
ISI_T2	20.10		22.1	
PSQI_T0	3.59	**1.400* (0.09)**	3.4525	-0.300 (0.77)
PSQI_T2	3.34		3.4875	

After two weeks of treatment and four weeks follow-up, the Hypnosis Group achieved a significant improvement on all three scales and was able to maintain this. An effect of four weeks can therefore be assumed. Additionally, the ISI level significantly improved.

5.1 Follow-up - Conclusion

The significant improvement from hypnosis continued even four weeks after the intervention.

- This indicates at least a medium-term effect of hypnosis.

The Placebo Group's everyday well-being deteriorated after four weeks (MFI). On the ISI scale, the Placebo Group was able to maintain a significant improvement despite minimal deterioration. The PSQI showed no changes after the intervention nor after the follow-up.

- Generally speaking, this indicates a deterioration of the Placebo Group's everyday well-being. The ISI scale remained significant during follow-up despite a slight deterioration.

5.2 Technical Measurement: Sleep Analyzer

Individual Variables - Sleep:

The following sleep variables were examined between the three groups:

- REM sleep duration
- Deep sleep duration
- Overall sleep duration
- Number of wakings
- Sleep assessment

Hypnosis vs Placebo:

- The Hypnosis Group showed significantly **better values** for **deep sleep duration** ($T = 3.163$; $p = 0.001$) and in the **sleep assessment** ($T = 2.158$; $p = 0.015$).

Hypnosis vs No Treatment Group:

- The Hypnosis Group showed significantly **better values** for **deep sleep duration** ($T = 1.658$; $p = 0.05$)

5.2 Technical Measurement: Averages

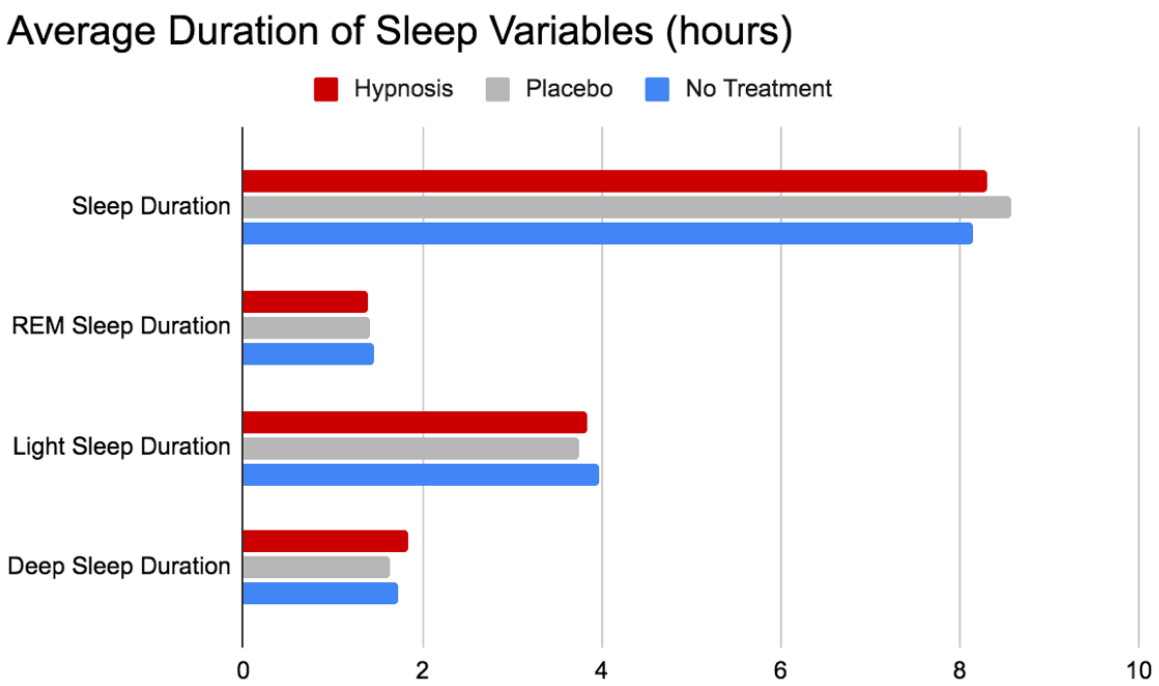
	Hypnosis	Placebo	No Treatment
Variables	**M**	**M**	**M**
Sleep duration	8.30	8.58	8.15
REM sleep duration	1.40	1.41	1.45
Light sleep duration	3.84	3.74	3.97
Deep sleep duration	1.85	1.65	1.74
Duration of awake phases	0.96	1.16	0.94
Number of wakings	2.43	2.59	1.95
Sleep assessment	69.85	65.48	71.98

The values above are the groups' averages of the sleep variables from the technical measurements.
The values are specified in hours.

5.2 Technical Measurement: Weekly Differences

	Week 1			Week 2		
	Hypnosis	*Placebo*	*No Treatment Group*	*Hypnosis*	*Placebo*	*No Treatment Group*
Sleep duration in hours	8.39	8.96	8.12	8.20	8.16	8.20
REM sleep in hours	1.36	1.44	1.42	1.43	1.34	1.49
LIGHT sleep in hours	3.82	3.71	4.00	3.85	3.83	3.96
DEEP sleep in hours	1.77	1.70	1.78	1.93	1.57	1.70
Duration of awake phases in hours	0.93	1.14	0.91	1.00	1.19	0.98
Sleep assessment	67.82	65.56	70.95	71.89	64.77	72.98
Number of wakings	2.30	2.60	1.94	2.56	2.61	1.98

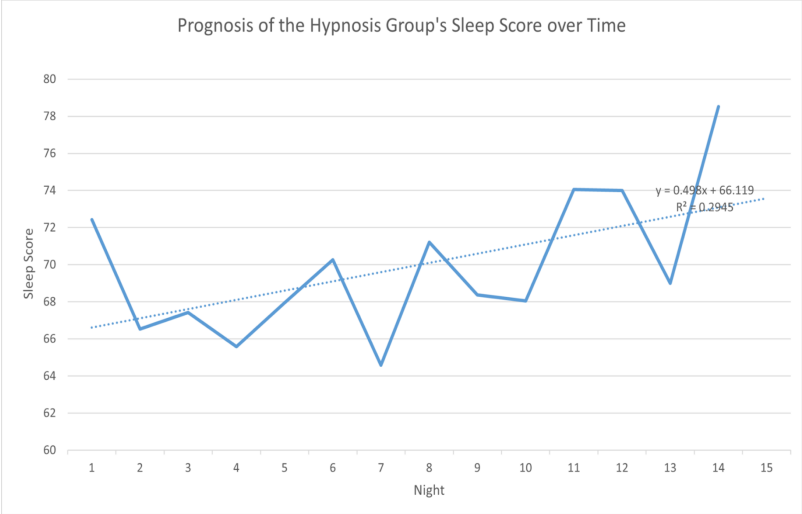
5.2 Technical Measurement: Averages

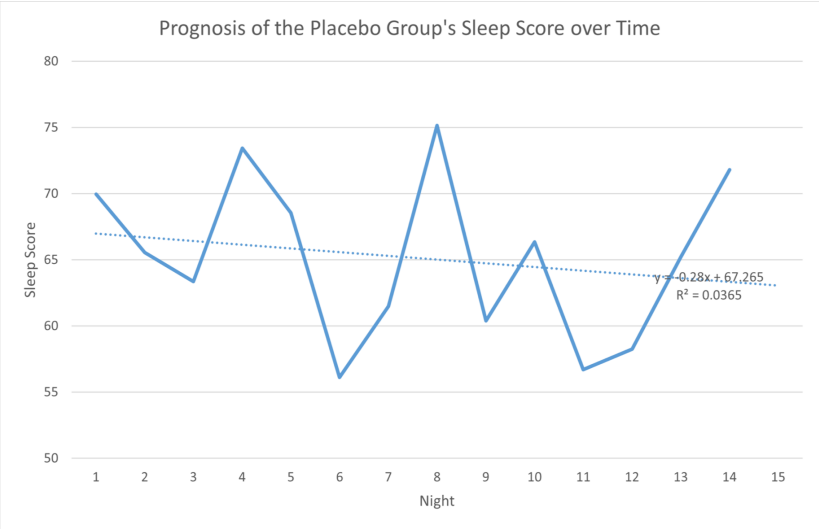


The averages for the sleep variables only differ to a minimal extent. For the variable “Deep sleep duration”, the Hypnosis Group shows a significant difference compared with the Placebo Group.

5.2 Technical Measurement: Time Series Analysis

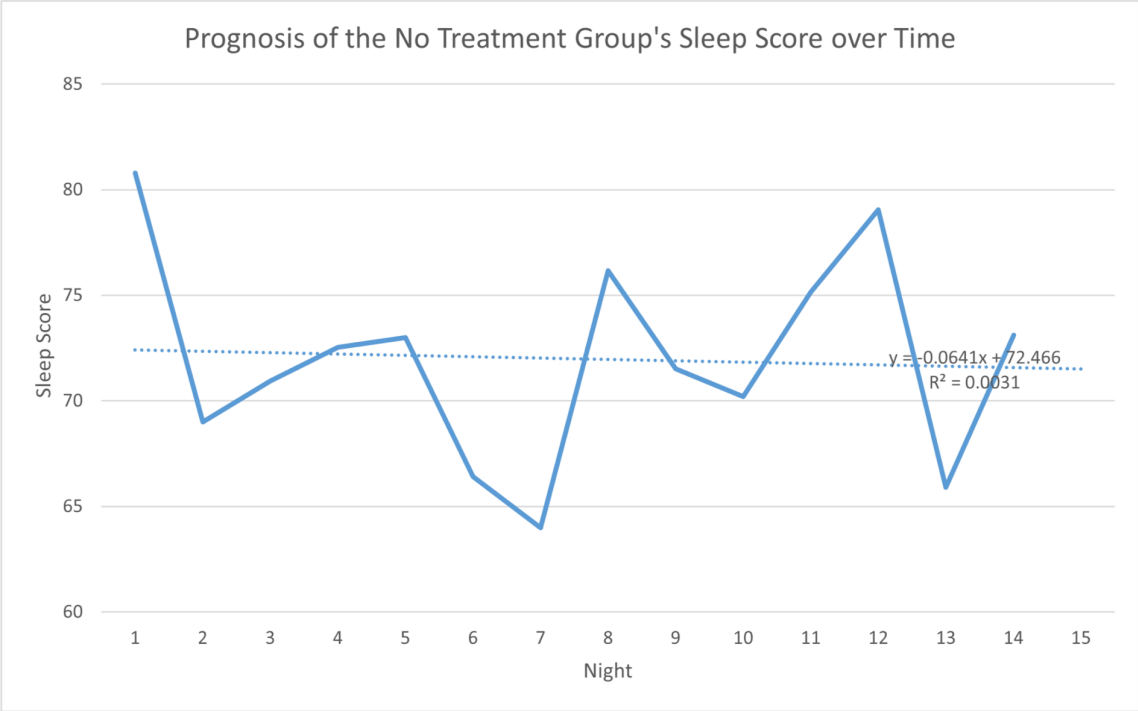
The time series analysis shows a linear improvement in sleep assessment. The regression coefficient shows that, each night, an improvement in the sleep assessment of about 0.5 points can be expected. This value can also be seen as a future prognosis for a period of 14 nights.





The time series analysis shows a linear deterioration in sleep assessment. The regression coefficient shows that, each night, a deterioration in the sleep assessment of about 0.3 points can be expected. This value can also be seen as a future prognosis for a period of 14 nights. R^2 shows a large share of unsystematic variance, which is related to problems with data quality.

5.2 Technical Measurement: Time Series Analysis

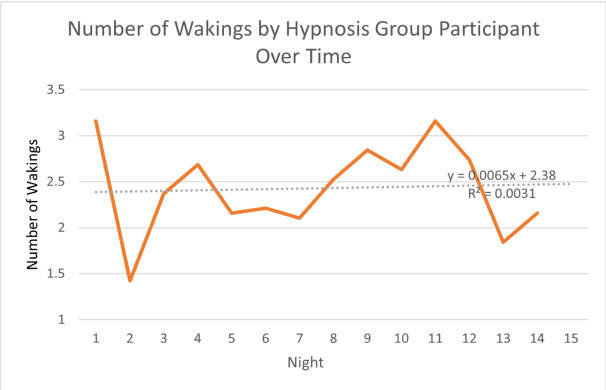


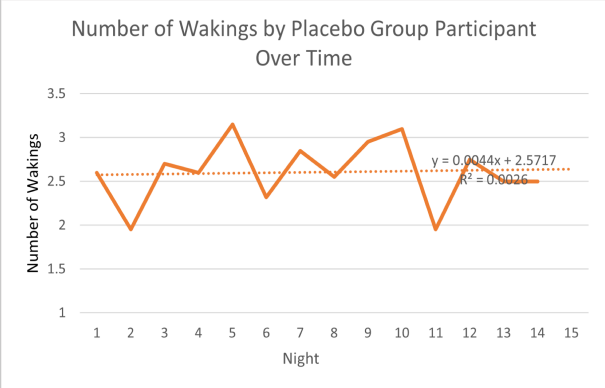
Summary of Results:
The Time Series Analysis is used to predict future trends and prognoses.

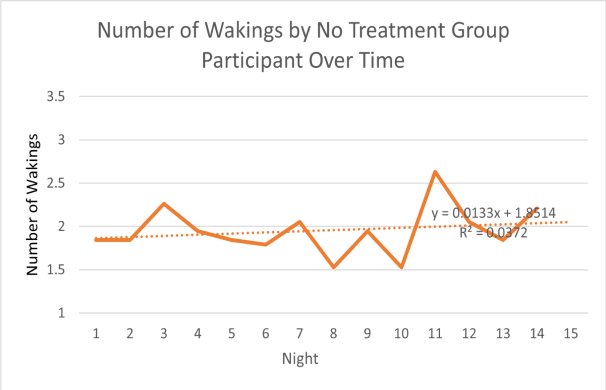
The evaluated data indicates that the hypnosis employed had a positive effect on the test subjects' sleep assessment. However, this effect is only conclusive to a limited extent because of the low significance and should be seen as a trend.

No effect was found in the No Treatment Group.

5.2 Technical Measurement: Time Series Analysis







Summary of Results:

Neither the Hypnosis Group nor the Placebo Group showed any effect on the frequency of waking up in the night. The No Treatment Group recorded no effect either.

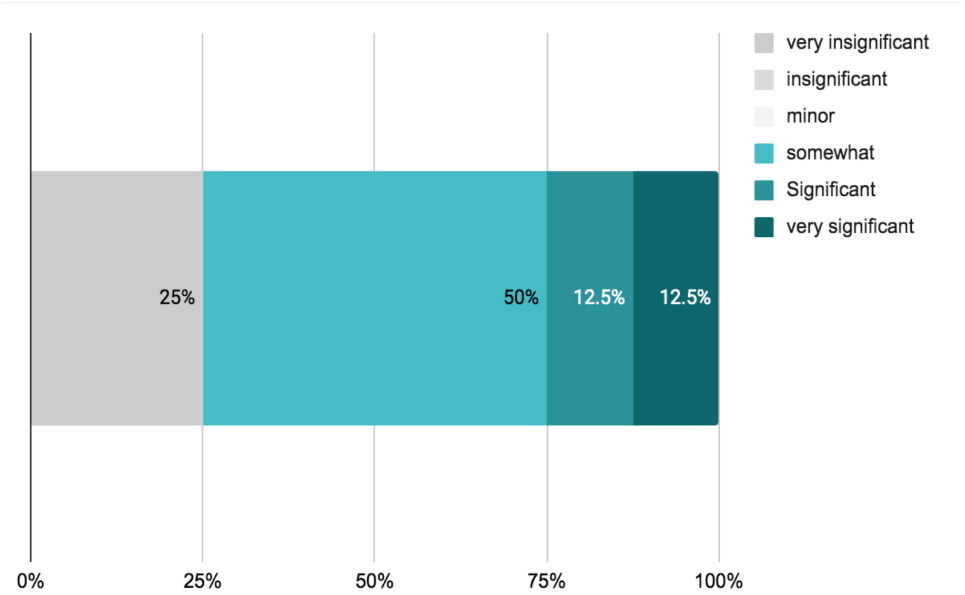
5.3 Effectiveness of the Hypnosis

Hypnosis Effect

Those questioned did not report in all cases that the hypnosis had an effect on them. Nevertheless, the questionnaires and technical measurements showed significant changes.

Extent of the Effect

The test subjects who reported a noticeable effect were also asked about the extent of this effect.
25% reported a significant as well as a very significant effect. 50% of those questioned noticed a somewhat significant effect. 25% of those questioned reported an insignificant effect.

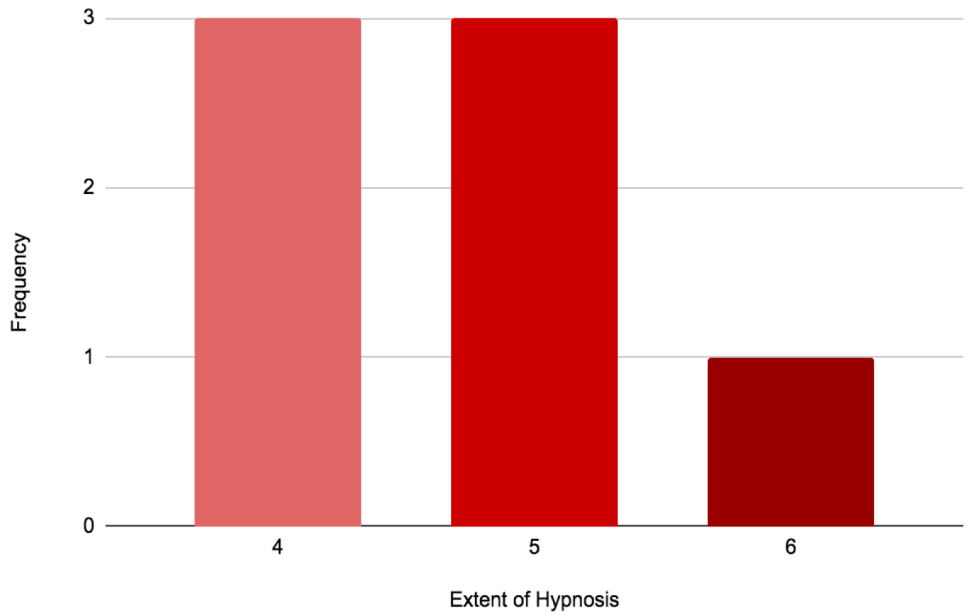


5.3 Effectiveness of the Hypnosis

Use of the hypnosis app after the study

68% of the (hypnosis) test subjects stated that they used the hypnosis app after the study as well.
54% of these users reported a noticeable effect from the hypnosis.

The test subjects were asked to specify the perceived effect on a six-point scale. No values were below 4.



5.3 Effectiveness of the Hypnosis

Test subjects' own input about improvement effects from the hypnosis

- 75% Falling asleep improved
- 38% Less tired during the day
- 25% Sleep duration
- 25% Sleeping through the night improved
- 12% Waking up early less often

Further changes

- Sleep was more regular

Using multiple choice, the test subjects who noticed an effect were asked which type of improvement they would attribute to the hypnosis and whether there were further changes.

The majority of the test subjects stated that they fell asleep more easily. They also specified 'Being less tired during the day', 'Longer sleep duration', 'Being able to sleep through the night more easily' and 'Waking up early less often'. One test subject also mentioned that sleep had become more regular.

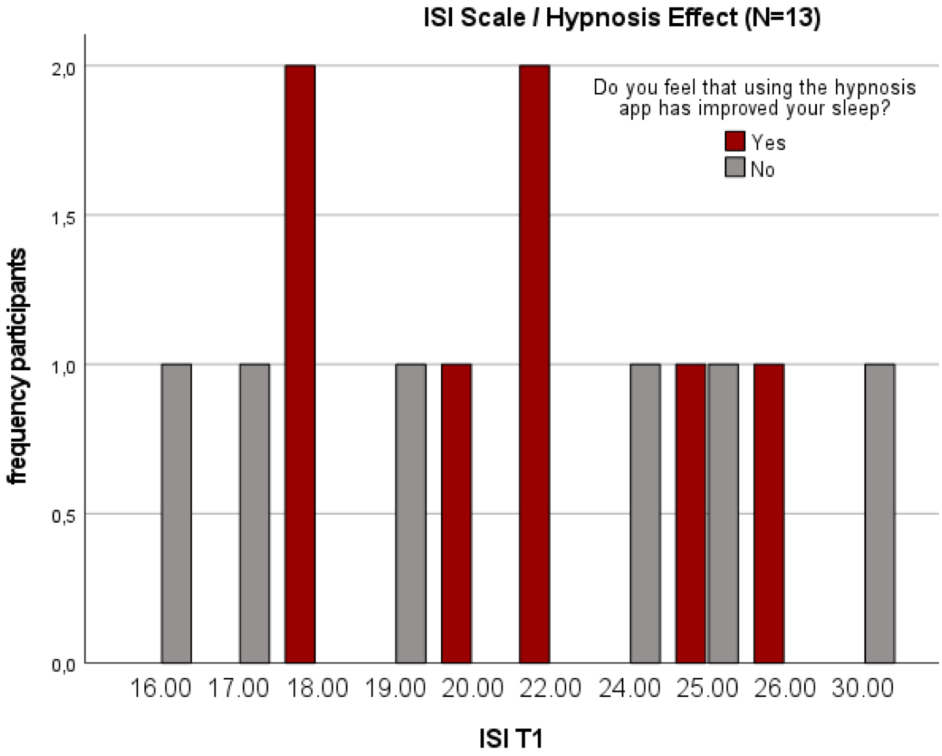
5.3 Paradoxical Effect

Paradoxical Effect

Even though 58% of test subjects stated that they felt no effect at measuring time T1, and 46% of test subjects at T2, the results of the analysis are very clear. The same result occurred in the follow-up calculations where the specification of the effect was compared with results from the scales.

These can be seen on the following slides.

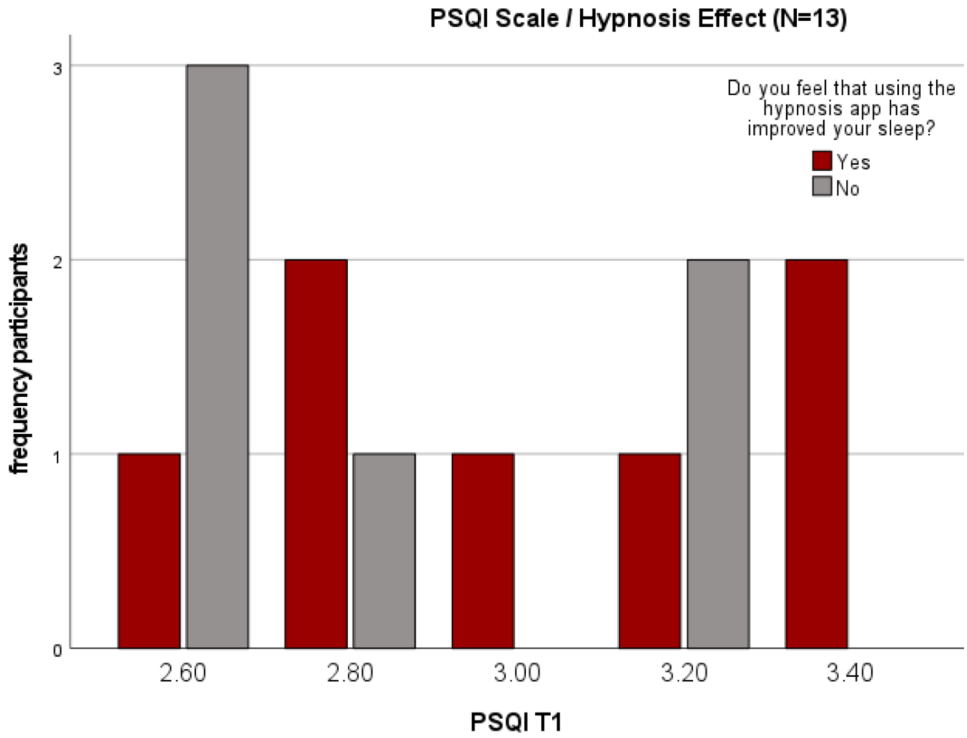
5.3 Paradoxical Effect - Cross Table



With a negatively perceived effectiveness of the hypnosis and a starting point of the group median* of 22.00 at T0, the assumption should be that with higher scale values, the tendency should be towards “No”.
The paradox with the “No” statements occurs in the positive areas of the ISI sleep scale.

*Median describes the central value, i.e. the value right in the middle of all listed values.

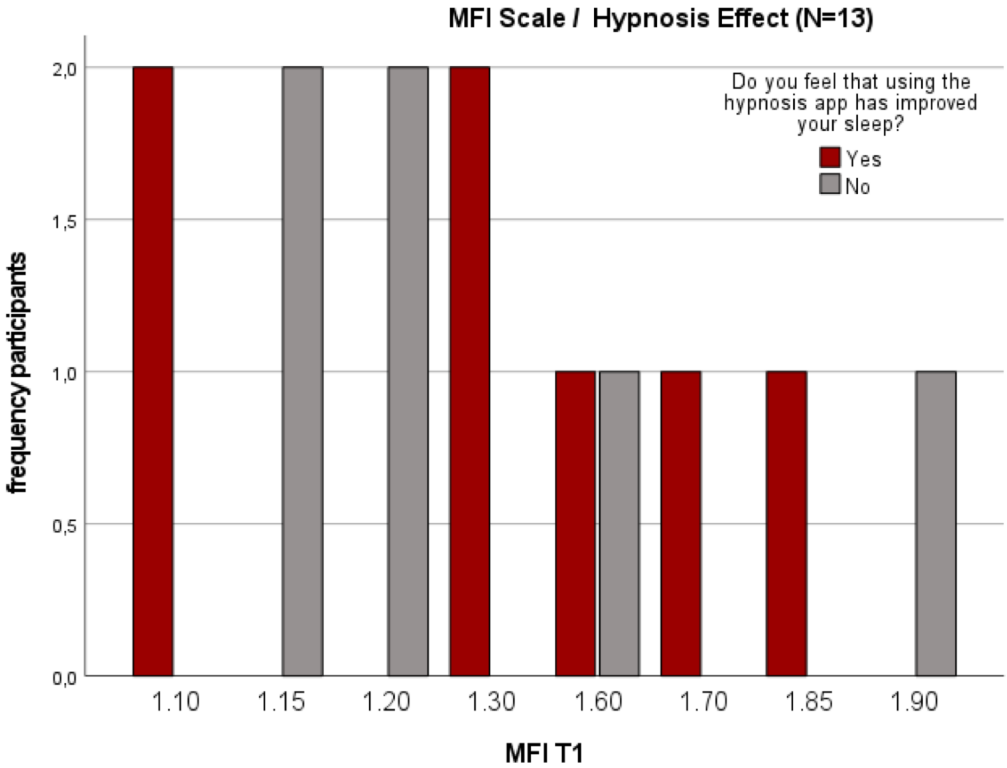
5.3 Paradoxical Effect - Cross Table



With a negatively perceived effectiveness of the hypnosis and a starting point of the group median* of 3.5 at T0, the assumption should be that with higher scale values, the tendency should be towards “No”.
The paradox with the “No” statements occurs in the positive areas of the PSQI sleep scale.

*Median describes the central value, i.e. the value right in the middle of all listed values.

5.3 Paradoxical Effect - Cross Table



With a negatively perceived effectiveness of the hypnosis and a starting point of the group median* of 1.60 at T0, the assumption should be that with higher scale values, the tendency should be towards “No”.
The paradox with the “No” statements occurs in the positive areas of the MFI sleep scale.

*Median describes the central value, i.e. the value right in the middle of all listed values.

5.3 Paradoxical Effect - T-Test

The technical measurements also confirmed that the eleven test subjects who stated that they noticed no effect showed significant improvement.

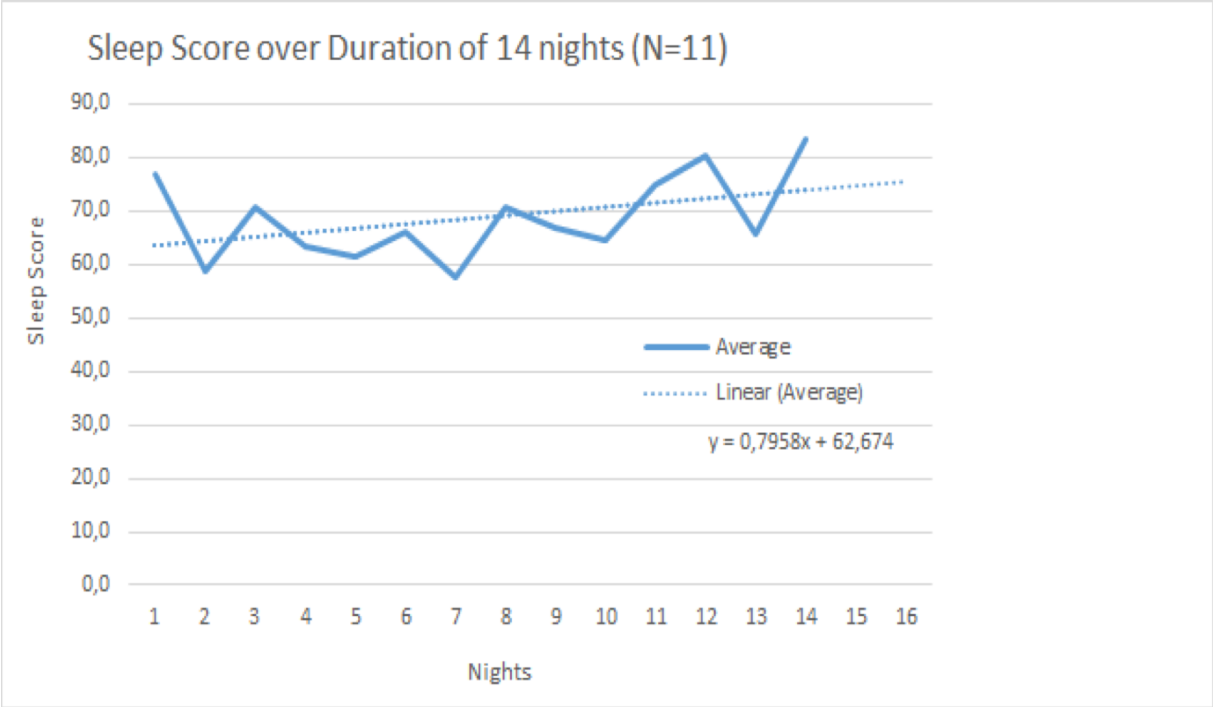
Values	M	T-value (p-value)
Night 1-7	64.9481	**2.245* (0.02)**
Night 8-14	72.3377	

The table shows the “Sleep assessment” averages for the eleven test subjects based on the technical measurements.

5.3 Paradoxical Effect - Linear Regression

A significant regression increase within the “Sleep assessment” variable was also found for the eleven test subjects.

The regression coefficient shows an increase of 0.796 points per night. This increase is significant on an alpha level of 10% (T=1.615).



5.3 Paradoxical Effect - T-Tests

This trend was also visible in the questionnaires on the ISI, PSQI and MFI scales.

Values	M	T-value (p-value)
ISI_T0	24.8182	**3.148** (0.005)
ISI_T1	23	
PSQI_T0	3.5977	**2.106*** (0.03)
PSQI_T1	3.0182	
MFI_T0	1.5773	1.230 (0.12)
MFI_T1	1.4909	

The table shows the averages and significances of the eleven test subjects' T-tests on the ISI and PSQI scales. The MFI scale missed the specified significance level by merely 0.02 percentage points and was therefore also depicted.

5.3 Paradoxical Effect

Conclusion - Effect

Even though 58% of test subjects stated that they felt no effect at measuring time T1, and 46% of test subjects at T2, the results of the analysis are very clear.

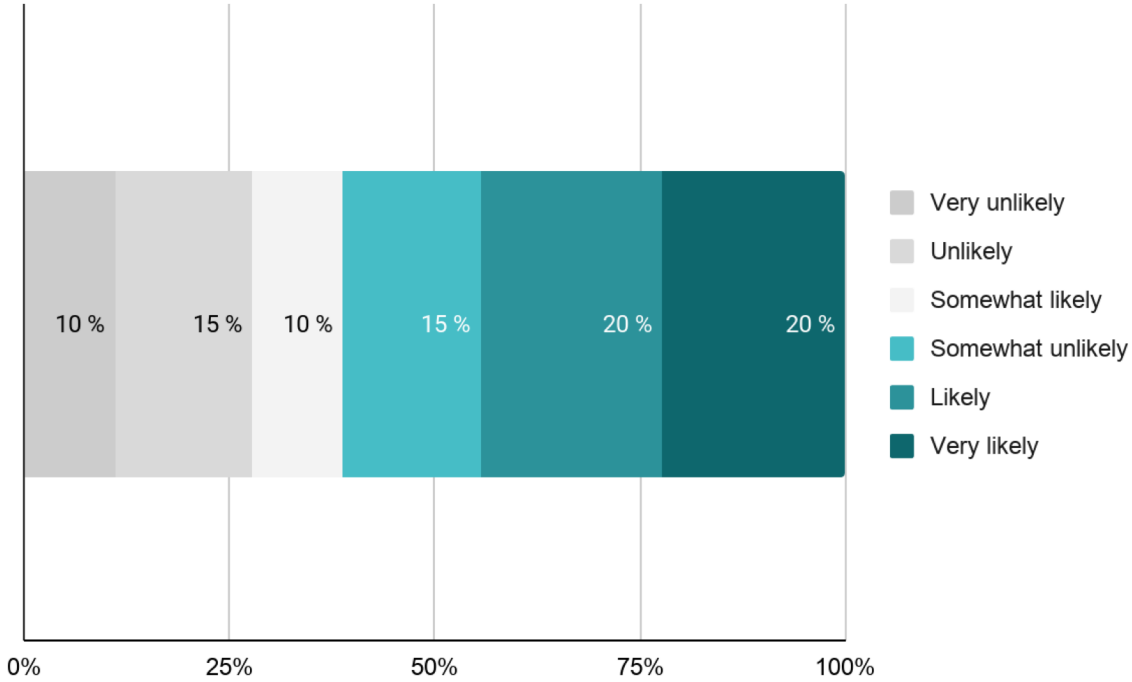
This is highlighted in the cross tables (in the form of bar charts), T-tests and regressions from the technical measurements as well as the developments on the individual scales for the eleven test subjects.

A reason for this may be the subconscious process of the hypnosis at a mental level. Evidence is hard to derive on the basis of the subconscious. However, this result can be seen as an indication.

5.4

Distribution - Continued Use of the App

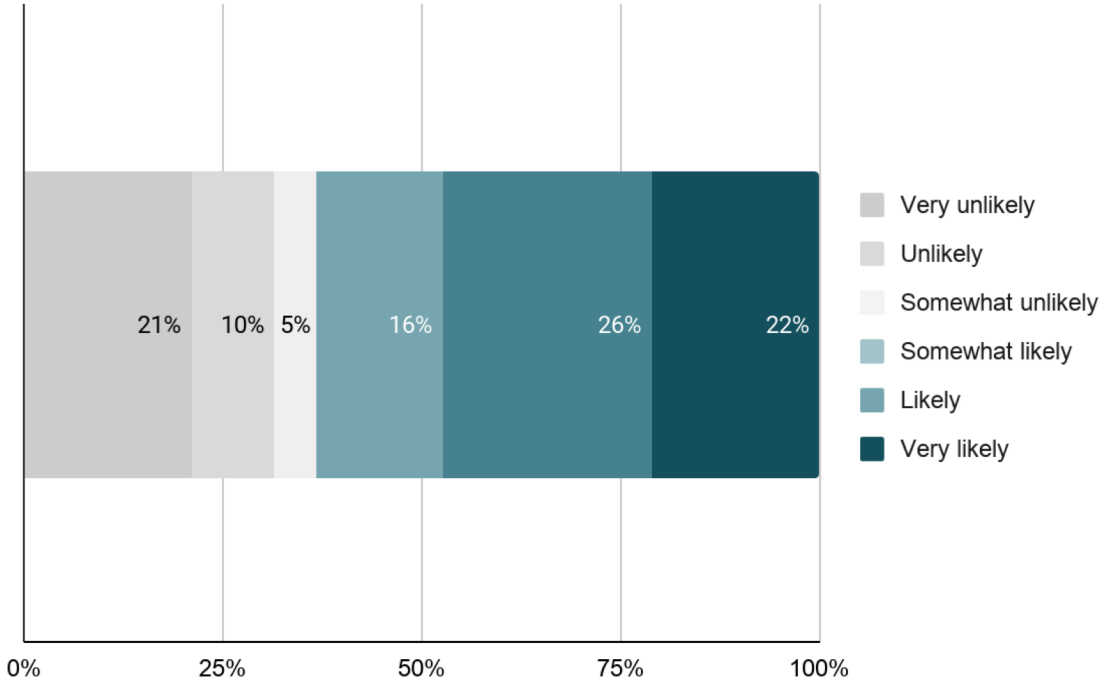
55% of the hypnosis users stated that they would like to continue using the app after the intervention.
The question of the likelihood of continuing to use the app was rated as very likely and likely by 20%, and somewhat likely by 15% of those asked. 10% of those asked felt it was very unlikely that they would continue to use the app, 15% unlikely and 10% somewhat unlikely.



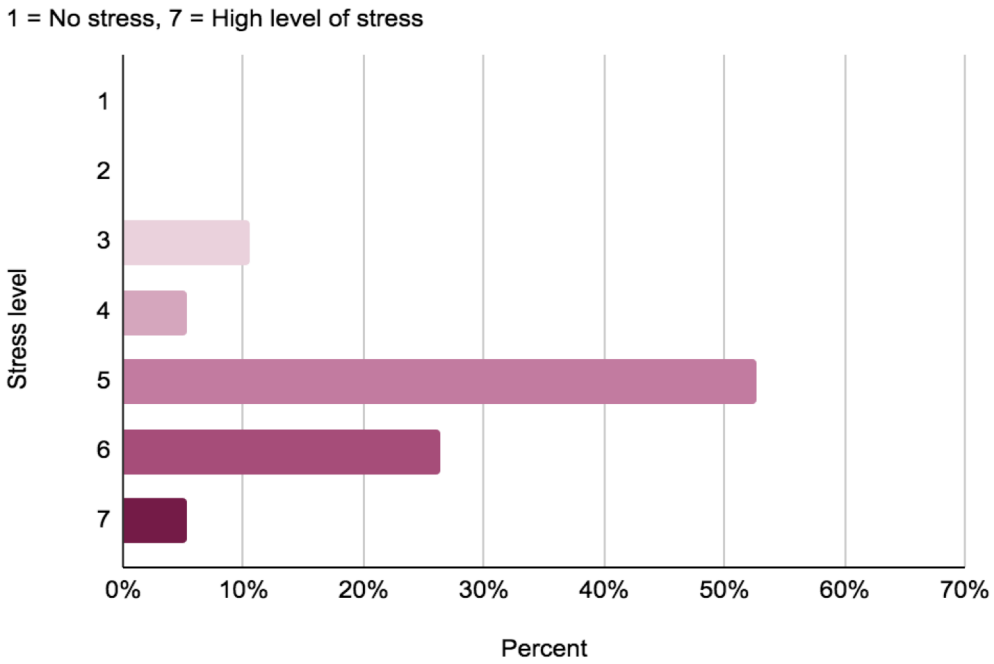
5.4 Distribution - Continued Use of the App

Even four weeks after the intervention, 63% stated that they would like to continue using the hypnosis app.

These likelihoods relating to the continuation of use are similar to the T1 results.



5.4 Distribution - Stress Level T1

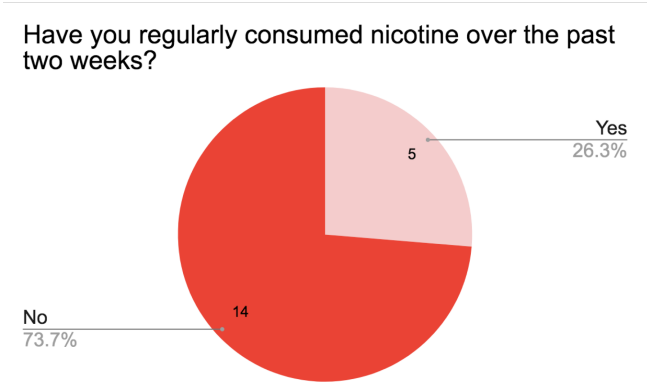


The test subjects were asked about their stress levels over the previous weeks. The stress levels specified were generally quite high. 84% of those questioned reported moderate to very high stress levels. 11% stated that they felt somewhat low levels of stress. Only 5% reported to be in a neutral stress level.

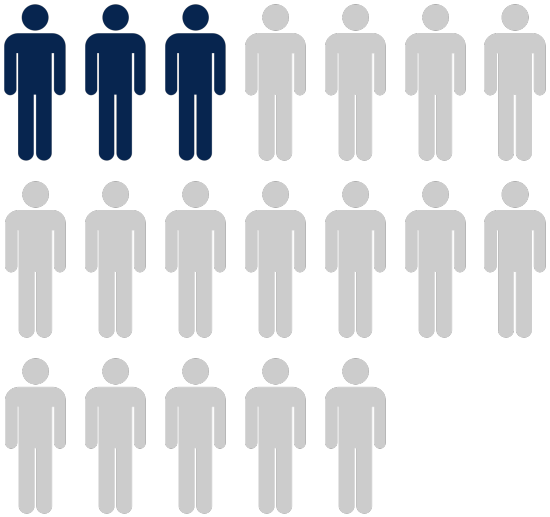
Nobody was completely stress-free.

5.4 Distribution - Habits

In total, five test subjects stated that they consumed substances containing nicotine for the duration of the study. The other 14 people testing the hypnosis said they did not.



Did you eat substantial meals before going to bed?

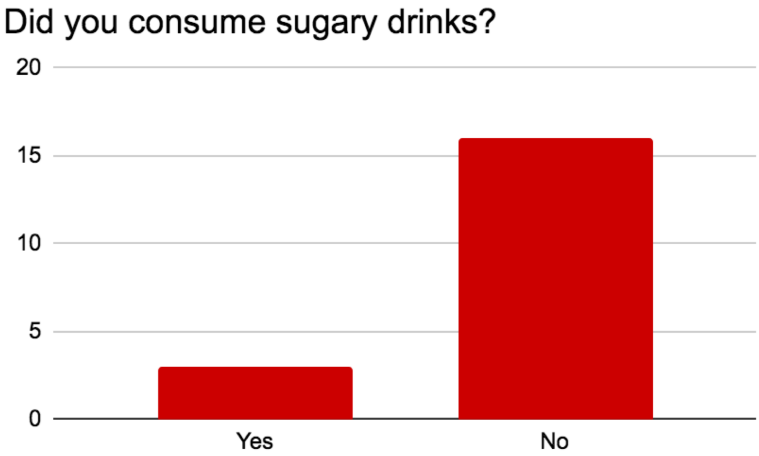


According to the answers from the Hypnosis Group, only three test subjects ate substantial meals before going to bed. The majority of this study group with a total of 16 test subjects therefore did not eat a substantial meal before going to bed.

5.4 Distribution - Habits

Three participants from the Hypnosis Group said that they consumed substances containing alcohol. Overall, 16 test subjects were abstaining from alcohol by their own account.

Among those questioned, 16 test subjects did not consume sugary drinks. Only three test subjects stated that they consumed sugary drinks for the duration of the study.



5.4 Conclusion Derived from Control Variables

- The analysis of the control variables showed that the Hypnosis Group, when asked about habits, stated for the most part that no substances were consumed that would influence sleep.
- When answering the question about perceived stress levels, most (84%) test subjects said they felt stressed.
- Some test subjects reported that they did not use the hypnosis app every night during the study period.
- Many hypnosis test subjects expressed positive opinions about the app and would continue to use it.

5.5 Limitations

During the study period, a small number of limitations were identified relating to the questionnaires as well as the technical measurements.

- The questionnaire for answering the research question consists of a combination of three validated questionnaires. Based on the length of these questionnaires, not all related items could be taken into account.

- Over the course of the study period, individual questions were added to the T1 questionnaire to provide a better assessment of the effect and therefore the effectiveness of the hypnosis.

- The technical measurement tool was inaccurate at times. Incorrect values were therefore replaced with averages to maintain the integrity of the data.

6 Conclusion

6.1 Hypothesis Check
6.2 Conclusion

6.1 Hypothesis Check - Review

Hypotheses

1. Sleep in the Hypnosis Group is improved after the intervention. The improvement is more pronounced than in the Placebo and No Treatment Groups.
2. Perceived everyday well-being increases more significantly based on the hypnosis intervention compared with the Placebo and No Treatment Groups.
3. Compared with the Placebo Group, hypnosis has a longer-lasting effect.

Secondary Hypotheses:

1. There is a significant difference in sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.
2. There is a significant difference in the number of wakings in the Hypnosis Group compared with the Placebo and No Treatment Groups.
3. There is a significant difference in REM sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.
4. There is a significant difference in deep sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.

6.1 Hypothesis Check

Hypotheses

Hypothesis 1: Sleep in the Hypnosis Group is improved after the intervention. The improvement is more pronounced than in the Placebo and No Treatment Groups.

Explanation: Significant differences were found for sleep quality and insomnia severity (PSQI & ISI) within the Hypnosis Group. Additionally, sleep assessment was significantly better than in the Placebo Group, based on technical measurements. The technical data from the time series analysis also showed improved sleep in the Hypnosis Group.

But: In the Placebo Group, too, sleep only significantly improved on the severity scale (ISI).

Based on the limited significance, the time series analysis increase can merely be seen as a trend.

6.1 Hypothesis Check

Hypotheses

Hypothesis 2: Perceived everyday well-being increases more significantly based on the hypnosis compared with the Placebo and No Treatment Groups.

Explanation: The Hypnosis Group significantly improved its values relating to degree of fatigue (MFI). The Placebo and No Treatment Groups showed no significant improvement.

Hypothesis 3: Compared with the Placebo Group, hypnosis has a longer-lasting effect.

Explanation: The hypnosis effect on the MFI, PSQI and ISI scales were still significant even four weeks after the intervention.

6.1 Hypothesis Check

Secondary Hypotheses:

1. There is a significant difference in sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.

→ No empirical evidence was found for this.

1. There is a significant difference in the number of wakings in the Hypnosis Group compared with the Placebo and No Treatment Groups.

→ No empirical evidence was found for this.

6.1 Hypothesis Check

Secondary Hypotheses:

3. There is a significant difference in REM sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.

→ No empirical evidence was found for this.

4. There is a significant difference in deep sleep duration in the Hypnosis Group compared with the Placebo and No Treatment Groups.

→ The Hypnosis Group had a significantly longer deep sleep duration than the Placebo and No Treatment Groups.

6.2 Conclusion

- The results of the analysis showed a significant effect provided by the hypnosis intervention. Sleep and everyday well-being improved in various areas. This effect also remained stable after a four-week follow-up.
- Within the Placebo Group, sleep only improved to some extent. These effects then reduced again.
- The No Treatment Group remained the same for the duration of the study. No significant changes were found on any of the sleep assessment indices.
- All three main hypotheses have been confirmed. One of the four secondary hypotheses turned out to be significant.

Conclusion:

In principle, hypnosis is suitable for use in cases of sleep disorders. It showed most effectiveness on everyday well-being in terms of the degree of fatigue (MFI scale) and the reduction of severity (ISI scale).

Thank you very much!

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A Appendix

A Items - Health

Rubrik GE: Gesundheit

[GE02] ⊡ Auswahl
Operationen
"Wurden Sie im letzten Monat operiert?"

GE02 Operationen

1 = Ja
2 = Nein
-9 = nicht beantwortet

[GE03] ⊡ Auswahl
Krankheit
"Waren Sie in den letzten vier Wochen krank?"

GE03 Krankheit

1 = Ja
2 = Nein
-9 = nicht beantwortet

[GE01] ⊡ Auswahl
Gewicht
"Haben Sie einen erhöhten Body-Mass-Index (BMI ≥ 25)?"

GE01 Gewicht

1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - Circumstances

Rubrik US: Umstände

[US01] ⊡ Skala (Extrema beschriftet)
Stresslevel
"Wie würden Sie Ihr Stresslevel der letzten vier Wochen einschätzen?"

US01_01 Wie würden Sie Ihr Stresslevel der letzten vier Wochen einschätzen?

1 = sehr niedrig
7 = sehr hoch
-9 = nicht beantwortet

[US02] ⊡ Auswahl
Urlaub
"Wann waren Sie das letzte Mal im Urlaub?"

US02 Urlaub

1 = vor weniger als 1 Monat
2 = vor weniger als 3 Monaten
3 = vor weniger als 6 Monaten
4 = vor weniger als 9 Monaten
5 = vor weniger als 12 Monaten
6 = vor mehr als 12 Monaten
-9 = nicht beantwortet

[US03] ⊡ Auswahl
Flug
"Haben Sie in den letzten vier Wochen einen längeren Flug angetreten?"

US03 Flug

1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - Substances

Rubrik SU: Substanzen

[SU01] Auswahl
Drogenkonsum
"Konsumieren Sie Drogen?"

SU01 Drogenkonsum
1 = Ja
2 = Nein
-9 = nicht beantwortet

[SU02] Auswahl
Alkohol
"Haben Sie in den letzten vier Wochen mehrmals pro Woche Alkohol konsumiert?"

SU02 Alkohol
1 = Ja
2 = Nein
-9 = nicht beantwortet

[SU03] Auswahl
Nikotin
"Haben Sie in den letzten vier Wochen regelmäßig Nikotin konsumiert?"

SU03 Nikotin
1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - Habits

Rubrik GW: Gewohnheiten

[GW01] Auswahl
Sport
"Haben Sie in den letzten vier Wochen kurz vor dem Schlafengehen Sport getrieben?"

GW01 Sport
1 = Ja
2 = Nein
-9 = nicht beantwortet

[GW02] Auswahl
Mahlzeiten
"Haben Sie in den letzten vier Wochen regelmäßig schwere Mahlzeiten vor dem Schlafengehen zu sich genommen?"

GW02 Mahlzeiten
1 = Ja
2 = Nein
-9 = nicht beantwortet

[GW03] Auswahl
Süßgetränke
"Konsumieren Sie Süßgetränke auch spätabends?"

GW03 Süßgetränke
1 = Ja
2 = Nein
-9 = nicht beantwortet

[GW04] Auswahl
Tee und Kaffee
"Nehmen Sie vor dem Schlafengehen Kaffee oder Tee zu sich?"

GW04 Tee und Kaffee
1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - Habits

[GW05] Auswahl
Smartphone am Bett
"Liegt Ihr Smartphone neben Ihrem Bett?"

GW05 Smartphone am Bett
1 = Ja
2 = Nein
-9 = nicht beantwortet

[GW06] Auswahl
Mittagsschlaf
"Halten Sie Mittagsschlaf?"

GW06 Mittagsschlaf
1 = Ja
2 = Nein
-9 = nicht beantwortet

[GW07] Texteingabe offen
Mittagsschlaf Min
"Wie lange schlafen Sie mittags?"

GW07_01 ... Minuten
Offene Texteingabe

A Items - ISI

Rubrik SQ: Schlafqualität

[SQ01] ⊡ Skala (Extrema beschriftet)
Einschlafstörungen

SQ01_01 Hatten Sie in den letzten 4 Wochen Schwierigkeiten einzuschlafen?
1 = 0 (Keine)
5 = 4 (Sehr starke)
-9 = nicht beantwortet

[SQ02] ⊡ Skala (Extrema beschriftet)
Durchschlafstörungen

SQ02_01 Hatten Sie in den letzten 4 Wochen Schwierigkeiten durchzuschlafen?
1 = 0 (Keine)
5 = 4 (Sehr starke)
-9 = nicht beantwortet

[SQ03] ⊡ Skala (Extrema beschriftet)
Frühes Erwachen

SQ03_01 Hatten Sie in den letzten 4 Wochen das Problem, am Morgen zu früh aufzuwachen?
1 = 0 (Kein)
5 = 4 (Sehr stark)
-9 = nicht beantwortet

[SQ04] ⊡ Skala (Extrema beschriftet)
Zufriedenheit Schlaf

SQ04_04 Wie zufrieden oder unzufrieden sind Sie mit Ihrem aktuellen Schlafverhalten?
1 = 0 (sehr zufrieden)
5 = 4 (sehr unzufrieden)
-9 = nicht beantwortet

A Items - ISI

[SQ05] Skala (Extrema beschriftet)
Alltagsfunktionen

SQ05_01 In welchem Ausmaß beeinflussen Ihre Schlafprobleme, Ihrer Ansicht nach, Ihre Alltagsfunktionen (z. B. Tagesmüdigkeit, Fähigkeit auf der Arbeit / bei Alltagstätigkeiten zu funktionieren, Konzentration, Erinnerung, Stimmung)?

1 = 0 (Überhaupt nicht)
5 = 4 (Sehr stark)
-9 = nicht beantwortet

[SQ06] Skala (Extrema beschriftet)
Wahrnehmung von außen

SQ06_01 In welchem Ausmaß nehmen, Ihrer Ansicht nach, Ihre Mitmenschen Ihr Schlafproblem und die damit verbundene Beeinflussung Ihrer Lebensqualität wahr?

1 = 0 (Überhaupt nicht)
5 = 4 (Sehr stark)
-9 = nicht beantwortet

[SQ07] Skala (Extrema beschriftet)
Besorgnis

SQ07_01 Wie besorgt oder bedrückt sind Sie durch Ihre gegenwärtigen Schlafprobleme?

1 = 0 (Überhaupt nicht)
5 = 4 (Sehr stark)
-9 = nicht beantwortet

A Items - PSQI

[SQ08] Texteingabe offen

Stunden Schlaf

"Wie viele Stunden haben Sie während der letzten vier Wochen durchschnittlich pro Nacht tatsächlich geschlafen?"

SQ08_01 ... Stunden

Offene Texteingabe

[SQ10] Auswahl

Schlechter Schlaf

"Wie oft haben Sie während der letzten vier Wochen schlecht geschlafen?"

SQ10 Schlechter Schlaf

1 = Während der letzten vier Wochen gar nicht
2 = Weniger als einmal pro Woche
3 = Einmal oder zweimal pro Woche
4 = Dreimal oder häufiger pro Woche
-9 = nicht beantwortet

[SQ11] Auswahl

Schlafqualität

"Wie würden Sie insgesamt die Qualität Ihres Schlafes während der letzten vier Wochen beurteilen?"

SQ11 Schlafqualität

1 = Sehr gut
2 = Ziemlich gut
3 = Ziemlich schlecht
4 = Sehr schlecht
-9 = nicht beantwortet

A Items - PSQI

[SQ12] Auswahl

Schlafmittel

"Wie oft haben Sie während der letzten vier Wochen Schlafmittel eingenommen?"

SQ12 Schlafmittel

1 = Während der letzten vier Wochen gar nicht
2 = Weniger als einmal pro Woche
3 = Einmal oder zweimal pro Woche
4 = Dreimal oder häufiger pro Woche
-9 = nicht beantwortet

[SQ13] Auswahl

Allein schlafen

"Schlafen Sie allein in Ihrem Bett?"

SQ13 Allein schlafen

1 = Ja
4 = Nein, und mein Partner schläft im selben Bett
5 = Nein, eine weitere Partei schläft in meinem Bett, nämlich:
-9 = nicht beantwortet

SQ13_05 Nein, eine weitere Partei schläft in meinem Bett, nämlich

Offene Texteingabe

A Items - MFI

Rubrik BF: Befindlichkeit

[BF02] Auswahl
Leisungsfähigkeit
"Ich fühle mich leistungsfähig."

BF02 Leisungsfähigkeit
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF03] Auswahl
Fitness
"Körperlich fühle ich mich in der Lage, nur wenig zu tun."

BF03 Fitness
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF04] Auswahl
Aktivität
"Ich fühle mich sehr aktiv."

BF04 Aktivität
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF05] Auswahl
Unternehmungslust
"Ich habe Lust, alle möglichen schönen Dinge zu unternehmen."

BF05 Unternehmungslust
1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - MFI

[BF06] Auswahl
Müdigkeit
"Ich fühle mich müde."

BF06 Müdigkeit
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF07] Auswahl
Produktivität
"Ich denke, dass ich an einem Tag viel erledige."

BF07 Produktivität
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF08] Auswahl
Konzentration
"Wenn ich etwas tue, kann ich mich gut darauf konzentrieren."

BF08 Konzentration
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF09] Auswahl
Belastbarkeit
"Körperlich traue ich mir viel zu."

BF09 Belastbarkeit
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF10] Auswahl
Angst vor Aufgaben
"Ich fürchte mich davor, Dinge erledigen zu müssen."

BF10 Angst vor Aufgaben
1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - MFI

[BF11] Auswahl
Produktivität 2
"Ich denke, dass ich an einem Tag sehr wenig tue."

BF11 Produktivität 2
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF12] Auswahl
Konzentration 2
"Ich kann mich gut konzentrieren."

BF12 Konzentration 2
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF13] Auswahl
Ausgeruhtheit
"Ich fühle mich ausgeruht."

BF13 Ausgeruhtheit
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF14] Auswahl
Konzentration 3
"Es kostet mich große Anstrengung, mich auf Dinge zu konzentrieren."

BF14 Konzentration 3
1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - MFI

[BF15] Auswahl
Fitness 2
"Körperlich fühle ich mich in einer schlechten Verfassung."

BF15 Fitness 2
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF16] Auswahl
Pläne
"Ich habe eine Menge an Plänen."

BF16 Pläne
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF17] Auswahl
Durchhaltevermögen
"Ich ermüde sehr schnell."

BF17 Durchhaltevermögen
1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF18] Auswahl
Produktivität 3
"Ich schaffe es, nur wenig zu erledigen."

BF18 Produktivität 3
1 = Ja
2 = Nein
-9 = nicht beantwortet

A Items - MFI

[BF19] ⊡ Auswahl
Lustlosigkeit
"Ich fühle mich nicht danach, auch nur irgendetwas zu tun."

BF19 Lustlosigkeit

1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF20] ⊡ Auswahl
Konzentration 4
"Meine Gedanken schweifen sehr leicht ab."

BF20 Konzentration 4

1 = Ja
2 = Nein
-9 = nicht beantwortet

[BF21] ⊡ Auswahl
Körperliche Gesundheit
"Körperlich fühle ich mich in einer ausgezeichneten Verfassung."

BF21 Körperliche Gesundheit

1 = Ja
2 = Nein
-9 = nicht beantwortet

Thank you very much!

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