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Titel der Masterarbeit

“Shamanic Journeying with music versus Relaxation with music.

Are there different effects on emotional states and salivary cortisol concentration?”

Verfasser

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Introduction

Shamanic journeys (Eliade 1975, Uccusick 1993, Cowan 1997, Harner 2001, Goodman 1989, 2000, Walter & Neumann-Friedman 2004, Kowarsch-Wache 2011) are part of an ancient spiritual practice to connect with a non-ordinary reality. There are different reasons for undertaking such a journey, such as looking for a “Power Animal” or some “Spirits” that may help in some way. Mostly drums or rattles are used to obtain this so-called “shamanic trance” (a state of mind for undertaking a shamanic journey).

Shamanic Journey to the so-called “Lowerworld“.

Finding the start point to the Lowerworld is the first step in a shamanic journey. It is an individual place for everybody. Often it is found soon and it is sometimes possible for a participant to meet his or her “Power Animal”. In Core Shamanism (founded by Harner, www.shamanism.org, Harner 2001), it is possible to learn this in one weekend workshop (as I have done). One may experience this as a lucid dream. For instance, going down in the earth (in the Lowerworld) and by this entering non-ordinary reality (shift to a “shamanistic non daily reality”) is one journey to get in contact with a power animal. At the end of the journey one should come back to "everyday reality” from the “shamanistic trance” by going back to the starting point and opening the eyes.

Unfortunately there are few published empirical studies on the topic of shamanic interventions and shamanic journeys.

Felicitas Goodman (1992) observed that naive participants experienced trance states, using different body postures while listening to monotonous rattling. Moreover the postures lead to posture specific subjective experiences of the participants.

These results of Goodman could not be replicated in a study of Woodside, Kumar & Pecula (1997). Woodside found no specific posture effects with naive participants.

Guttmann et al. (1990) found specific EEG – pattern by experienced participants using body postures described by Goodman (1992, 1999) and being exposed to rattle sound.

Earlier EEG studies done by Neher (1961, 1962) were criticized because of the uncontrolled movements of the participants (Walsh, 1992; Achterberg 1990). Goodman (1994, p. 51) noted in an (unpublished) experiment (n=4) done in Munich physiological changes including a decrease of cortisol, adrenalin, and noradrenalin in the blood serum during shamanic trance.

Rock et al. (2005, 2006) analyzed phenomenological experiences during rhythmic drumming. The results suggests that Harner's shamanic instructions for journeying in the Lower world and exposure to drumming at eight beats per second for 15 minutes is the most noteworthy antecedent of ostensibly shamanic imagery. In the phenomenological analysis of the experience shamanic and religious contents were found.

Harner (2001, 2010) showed that shamanic journey by live drumming had an effect on sIgA (Immunoglobulin A taken from saliva) with experienced participants (shamanic practitioners). Kjellgren & Erikson (2009) reported subjective shaman like experiences by experienced participants listening to drumming.

Pohler et al. (2009) showed the benefits of a shamanic intervention done by shamanic practitioners for cancer patients.

In none of these publications saliva cortisol was measured. Cortisol (hydrocortisone) is secreted in the zona fasciculata of the adrenal gland. The ZNS is regulating the cortisol via the hypothalamus (corticotropin releasing hormone, CRH) and the pituitary gland (adrenocorticotrophic hormone, ACTH). Cortisol production follows a circadian rhythm (Wutke, 1997).

In the blood the peak levels of cortisol are measured in the morning, and the lowest levels around midnight. Moreover it is released in response to stress and low levels of blood glucocorticoid (Salpolsky 1992, Silbernagel & Despopoulos 2007).

The levels of saliva cortisol are well correlated with plasma cortisol (and the measurement using the Salivette device is noninvasive). A sudden increase of saliva cortisol is connected with acute stress (Kirschbaum & Hellhammer 1989).

A decrease in salivary cortisol concentrations was associated with relaxation (Cruess et al. 1999, Pawlow & Jones 2002 and 2005), Yoga and meditation (Tang et al. 2007, Balakrishnan et al. 2011) balneotherapy (Matzer et al. 2011), aromatherapy (Atsumi & Tonoskai 2007), exposure to music (Möckel et al. 1995, Khalifa et al. 2003, Hodges 2010), choir singing (Kreutz et al. 2004) and psychoanalysis (Euler et al. 2005).

In the present study I explored emotional cognitive and biochemical effects (salivary cortisol concentrations) of listening to music samples for about fifteen minutes, on the one hand using instructions for listening to the music and on the other hand instructions for shamanic journeying, with two different musical styles (shamanic drums and New Age music).

In short there were four different groups. None of the participants was experienced in shamanic journeying.

Hypotheses

The main hypotheses were that after music exposure participants would report increased feelings of wellbeing and relaxation and a decrease in salivary cortisol. In comparing relaxation instructions groups versus shamanic journeying instruction groups a stronger effect for shamanic journeying is predicted, based on subjective experiences during shamanic journeys (deep relaxation) as known by literature.

- 1) Higher post scores for relaxation and wellbeing in the mood questionnaire for all groups (because music experience can be a tool to relaxation).
- 2) Cortisol concentration is predicted to decrease after music exposure. (Because relaxation goes together with decrease of cortisol).
- 3) Different effects on cortisol concentration in the four groups.
 - 3a) The differences between pre and post Cortisol scores are predicted to be stronger in journeying (n = 20) versus relaxation (n = 20).
 - 3b) New Age music may show a stronger decrease than drum music only in the listening group because it is not so rhythmical.
- 4) Reported experiences between journeying and relaxation groups are different.

Material and Methods

Participants

Most participants in the pretest did have some experience in shamanic journeying.

For the rest of the study only naïve participants (without experience in shamanic journeying) were used. 39 people (preferably biology students of both sexes) were attributed randomly to one of the experimental groups. Randomization was done on application time.

The drum group with shamanic instructions

There were ten participants, six women and four men; their age ranged from 20 to 67 years (mean = 32).

The drum group with instructions for relaxation

There were eight participants, four women and four men; their age ranged from 19 to 70 years (mean = 42).

The New Age music group with shamanic instructions

There were eleven participants, eight women and three men; their age ranged from 23 to 63 years (mean = 32).

The New Age music group with instructions for relaxation

There were ten participants, five women and five men; their age ranged from 21 to 59 years (mean = 26).

All participants signed information and consent form (Table 1) and received 5 Euros for participating in the study.

Table 1: Consent form

**Einverständniserklärung zur Mitwirkung an einer wissenschaftlichen Studie
„Entspannung mittels audioteknischer Vorgaben“**

EINLEITUNG

Wir bitten Sie, die Teilnahme an der oben genannten Studie zu erwägen. Nehmen Sie sich so viel Zeit wie Sie benötigen, um sich zu entscheiden. Sollten Sie sich dazu entschließen, an der Studie teilzunehmen, bitten wir Sie, dieses Formular an der entsprechenden Stelle mit Datumsangabe zu unterschreiben.

ZWECK DER STUDIE

Ziel dieser Studie ist den Einfluss unterschiedlicher Musiksampels und unterschiedlicher Instruktionen auf die Entspannungsfähigkeit unterschiedlicher Persönlichkeitstypen zu untersuchen.

Nach der Beendigung des Experimentes kann Ihnen auf Wunsch eine umfangreichere Erklärung der Studienziele gegeben werden; Sie können sich jedoch natürlich auch vorher gerne an den Versuchsleiter wenden, sollten Sie weitere Fragen haben.

ABFOLGE DER STUDIE

Nachdem Sie sich für die Studie angemeldet haben, werden Sie einer Gruppe von ca. 10 Personen zugeteilt. Diese trifft sich an einem Abend um ein Entspannungsexperiment durchzuführen. Sie werden rechtzeitig über Ort und Zeit informiert.

Essen, Trinken, Sport und Rauchen unterlassen Sie bitte ab 30 Minuten vor unserem Termin.

Lippenstift oder Lippenbalsam bitte entfernen. Wichtig ist auch, dass Sie gesund sind.

Vor Beginn des Experiments werden wir Sie bitten eine Speichelprobe abzugeben und einen Fragebogen auszufüllen. Danach erhalten Sie weitere Instruktionen. Während des Experiments werden Sie mit geschlossenen Augen auf einer von Ihnen selbst mitgebrachten Decke oder Matratze liegen während Ihnen ein Soundsample vorgespielt wird.

Nach Beendigung des Experiments werden wir Sie erneut bitten eine Speichelprobe abzugeben und weitere Fragebögen auszufüllen.

Insgesamt ist mit einem Zeitaufwand von ca. 1 Stunde zu rechnen.

VERTRAULICHKEIT DER DATEN

Jegliche Informationen, die über Sie gesammelt werden, werden streng vertraulich behandelt.

Um Ihre Informationen sicher zu verwalten, wird Ihnen ein alphanumerischer Code zugeteilt. Daten, die Ihre Identifizierung ermöglichen würden, wie z.B. Ihr vollständiger Name, Ihre email-Adresse oder Telefonnummer, werden in einem passwortgeschützten Ordner auf dem persönlichen Computer des Versuchsleiters aufbewahrt, zu dem nur der Versuchsleiter Zugang hat. Ihr Name oder andere identifizierbare Informationen werden in keiner Form in Publikationen, welche aus dieser Studie entstehen können, genannt werden.

AUFWANDSENTSCHÄDIGUNG

Sie erhalten eine Aufwandsentschädigung von €5, sofern Sie beide Versuchsabschnitte absolvieren.

IHRE RECHTE ALS PROBAND/IN

Die Teilnahme an dieser Studie ist ausnahmslos freiwillig. Sie können sich jederzeit dazu entschließen, an der Studie nicht teilzunehmen oder die Teilnahme abubrechen.

FRAGEN ODER BEDENKEN?

Wenn Sie Fragen zur Studie haben, kontaktieren Sie bitte:

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ZUSTIMMUNGSERKLÄRUNG

Ich erkläre hiermit, dass ich dieses Formular gelesen und verstanden habe.

Ich erkläre hiermit, dass ich zu allen allfälligen die Studie und deren Durchführung betreffende Fragen umfassende und ausführliche Antworten erhalten habe.

Ich erkläre hiermit, dass ich freiwillig an dieser Studie teilnehme.

Ich habe verstanden, dass jede Information, die ich im Rahmen dieser Studie zur Verfügung stelle, absolut anonym und vertraulich behandelt wird, und dass keine im Rahmen der Studie erfassten Daten an Dritte weitergegeben werden bzw. für andere als diese Studie betreffende Forschungszwecke verwendet werden.

Ich habe verstanden, dass ich meine Teilnahme an der Studie jederzeit ohne Angabe von Gründen widerrufen kann.

Ich wünsche, dass alle meine Person betreffenden Daten nach Abschluss der Studie vernichtet werden.

Datum

Unterschrift

Study design

The design included two between-subjects factors: type of music and type of instructions. Two types of music styles (Shamanic drumming, and as a control New Age Music) and two types of instructions for the participants were used:

A: Instructions for the listeners **to use the music for shamanic journeying** (Harner 2006)

B: Instructions for listeners to **use the music for relaxation**

Music styles

1.) The Shamanic drums used in this study is from a CD (Michael Harmer's Journey Solo and Double Drumming, Foundation of Shamanic Studies. Shamanic Journey Series No 1).

We used the second track, which has a sequence of faster drumming at the end of a 15-minutes drumming session – the so-called “callback”. The callback acts as a signal to the listener to come back from the shamanic Journey to the starting point.

2.) This callback sign was changed to the rattle callback from Michael Harmer's Shamanic Journey Rattle CD, Foundation of Shamanic Studies. Shamanic Journey Series No. 6) because it is easier to discriminate from the drum sound and in order to have the same callback signal on both sound files.

3.) New Age Music (as control for drums)

We selected the third track from “Listening to the Heart” by Oliver Shanti and friends, Sattwa Art Music, Munich. This track is about 5 minutes and was copied 3 times to obtain 15 minutes of music.

It is a piece of instrumental meditation music, composed by Paramahansa Yogananda. His book “Autobiography of a Yogi” is well known by meditating people (Pohler 2001). The callback was cut and pasted from the rattle CD.

All music samples were equalized for loudness (65 dB, A-weighted) using the software program Praat and a MATLAB algorithm for the A-weighted loudness curve.

As the reader cannot hear the difference between the music samples I used the software Audacity to make oscillograms (waveform views) and spectrograms (the horizontal axis shows the duration and the vertical axis the frequencies) of the sounds. The upper waveform represents the left channel and the lower waveform represents the right channel.

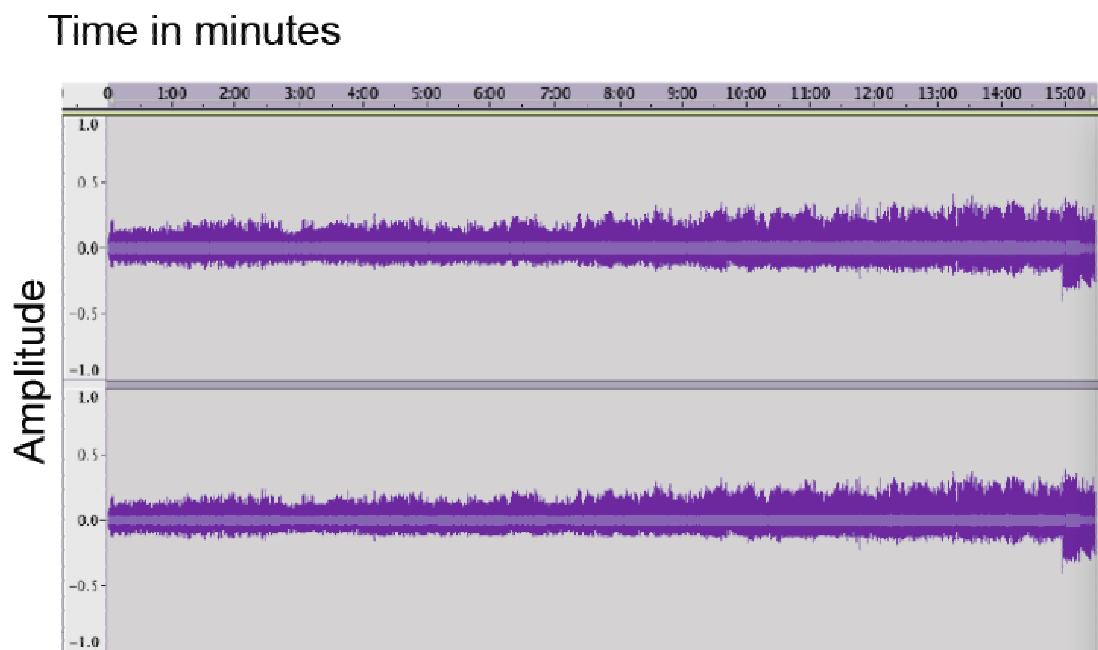


Figure 1: Oscillogram of drum sound with callback (65 dB, A-weighted). The horizontal axis represent the time and the vertical the amplitude in a linear scale running from -1.0 to +1.0 and centered on zero. The horizontal axis shows the duration of the drum sound from 0 to 15 minutes. From 15 minutes to 15 minutes and 30 seconds the callback signal (rattle) cut and pasted.

The monotonous rhythm of the drum is easy to recognize when comparing with the New Age music excerpt (Figure 5).

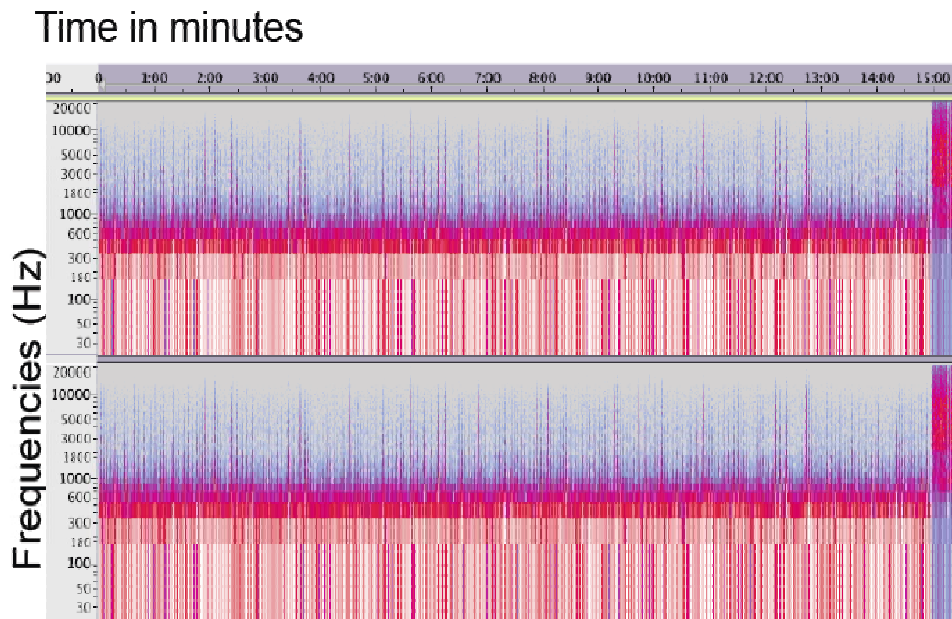


Figure 2: Spectrogram of drum sound with callback (65 dB, A-weighted). The spectrogram (the horizontal axis shows the duration and the vertical axis the frequencies) of the drums (0 to 15 minutes) showed the most power (red color) between 400 and 1000 Hz. The spectrogram of the callback signal (Figure 4) 15.00 to 15.30 minutes has the most power between 1000 to 15000 Hz.

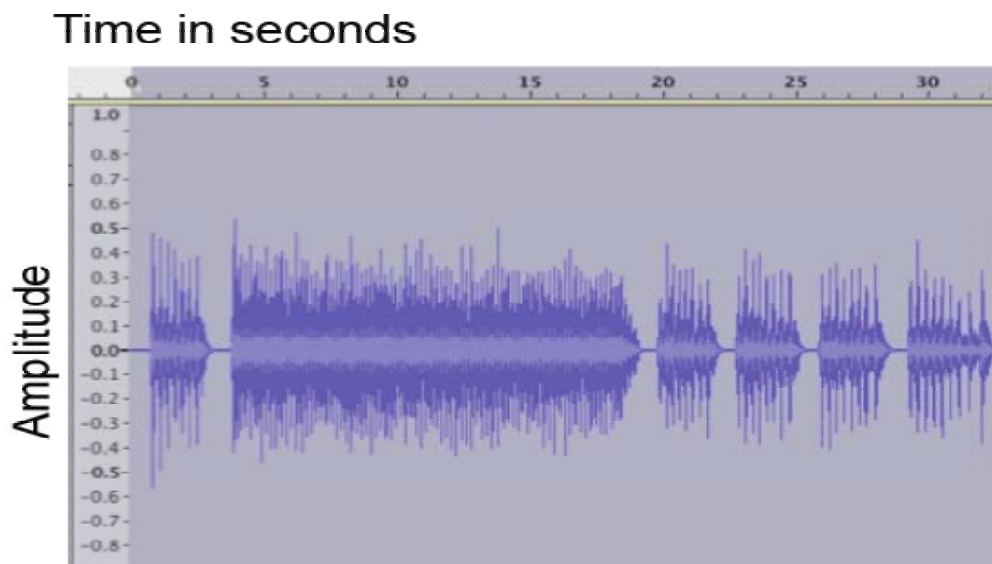


Figure 3: Oscillogram rattle callback sign (65 dB, weighted). The horizontal axis represent the time and the vertical the amplitude in a linear scale running from -1.0 to +1.0 and centered on zero. The vertical axis shows the duration of the sound (30 seconds). There are intervals (about one second in shaking the rattle (4 to 5 seconds, 19 to 20 seconds and so on) and the time of shaking varies.

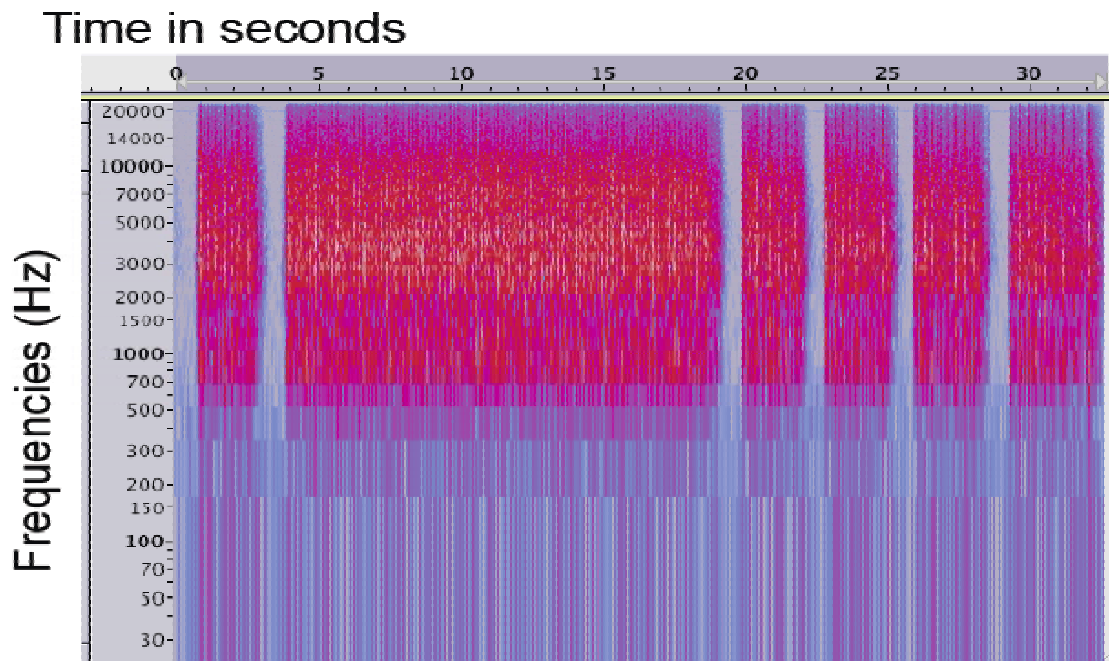


Figure 4: Spectrogram of rattle callback sign 65 dB weighted. The spectrum (the horizontal axis shows the duration and the vertical axis the frequencies) showed the most power between 1000 to 15000 Hz.

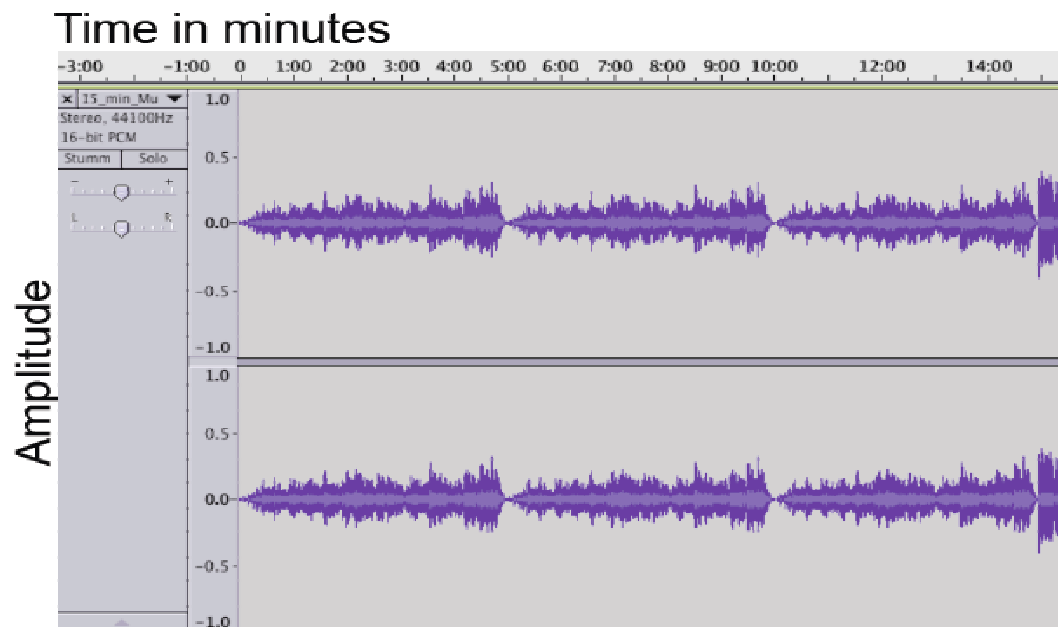


Figure 5: Oscillogram of the New Age music excerpt with callback (65 dB, A-weighted). The horizontal axis represents the time and the vertical the amplitude in a linear scale running from -1.0 to +1.0 and centered on zero. The horizontal axis shows the duration of the drum sound from 0 to 15 minutes. From 15 minutes to 15 minutes and 30 seconds the callback sign (rattle) is cut and pasted. The composition of this sound file adding three times the original track is easy to see.

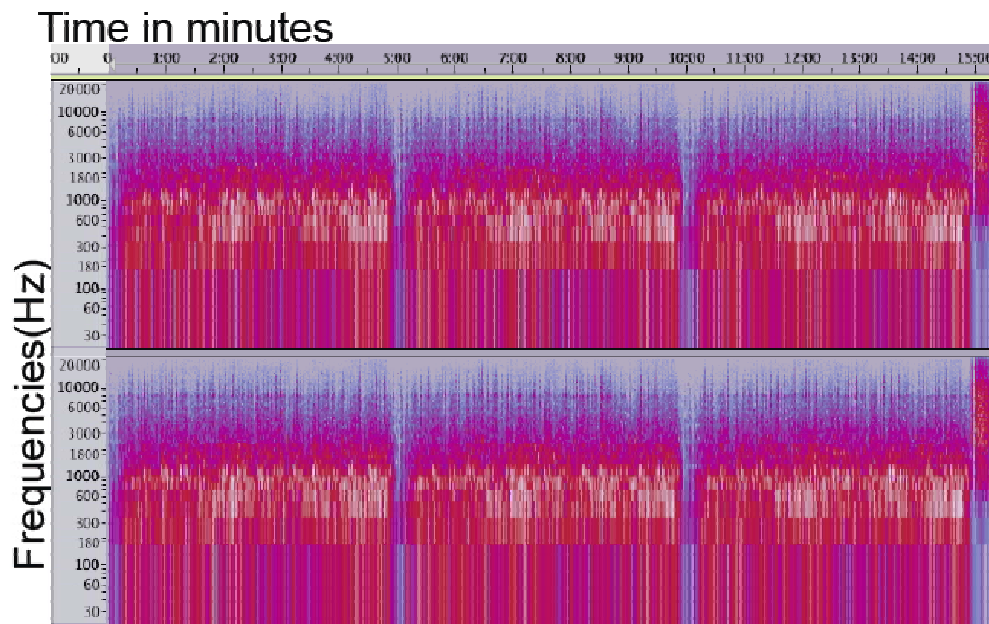


Figure 6: Spectrogram of the New Age music excerpt with callback (65 dB, A-weighted). The spectrum (the horizontal axis shows the duration and the vertical axis the frequencies) of “listening to the heart” (0 to 15 minutes) showed most power between 200 to 1500 Hz.

Comparing the sound files we can see that the spectra of both excerpts are quite different. The drum music showed the most power between 400 and 1000 Hz (Figure 2) whereas “Listening to the Heart” showed most power between 200 to 1500 Hz (Figure 6). From the oscillograms it is clear to see that drums (Figure 1) show a monotonous rhythm, whereas “Listening to the Heart” (Figure 5) is quite different (If you listen to the track you may find it more melodic).

The music was played with Windows Media™ Player, from a laptop with external active loudspeakers (M-Audio AV 40).

Body Posture

Goodman (1992) used different body postures for shamanic journeys. Harner (2006) the founder of Core-Shamanism (Kowarsch-Wache 2011, www.shamanism.org) use only one position for shamanic journeys. Lying on the back with left hand covering the eyes.



Figure 7: All participants had to lay on the floor on their in a special shamanic position (“Indianische Reise in die Untere Welt” Goodman, 1992; Harner, 2006) backside with closed eyes.

Instructions

The instructions were recorded with the software program Audacity and played using Windows Media Player. This was done to minimize nonverbal and verbal effects of the experimenter. Instructions were given in German.

Instructions for Saliva collection

“Nehmen Sie bitte die Salivette in die Hand und öffnen Sie den Verschluss. Halten Sie das Röhrchen in der Hand und lassen Sie die Saugrolle in den Mund gleiten. Berühren Sie die Saugrolle nicht mit den Fingern! Wenn nötig, tippen Sie auf das Röhrchen. Nehmen Sie die Saugrolle in den Mund auf und kauen Sie langsam für 3 Minuten. Spucken Sie die Saugrolle zurück in die Tube, berühren Sie sie dabei nicht mit der Hand! Verschließen Sie die Salivette wieder und geben Sie sie mir wenn ich zu Ihnen komme!“

Instructions for shamanic journeying

“In unserem Versuch geht es heute darum herauszufinden ob es Ihnen gelingen mag eine Erfahrung zu machen die man aus dem Schamanismus kennt. Der Sound den Sie hören werden ist sozusagen ein Reiz der es Ihnen ermöglicht Ihr Bewusstsein kurzfristig zu verändern. Eine besondere Liegehaltung, am Rücken mit der linken Hand auf der Stirne und geschlossene Augen ist dafür vorgesehen. 15 Minuten lang werden Sie dann einen Sound hören der sich gut für schamanische Reisen eignet. Versuchen Sie dann möglichst bewegungslos zu liegen. Stellen Sie sich einen Platz vor der in die Erde hinunter führt. Das kann ein realer Platz sein den Sie bereits kennen oder ein Fantasieplatz. Etwa ein Erdloch ein Krater oder ein See. Wenn Sie diesen gefunden haben versuchen Sie wie in einem Tunnel nach unten zu reisen und achten Sie darauf was Sie dabei wahrnehmen.

Durch ein Rasselsignal (it was played now using Windows Media™ Player, Figure 3) wird das Ende Ihrer Reise angezeigt. Kehren Sie, wenn möglich auf demselben Weg wieder zurück zu ihrem Ausgangspunkt und öffnen Sie bitte Ihre Augen, spenden wieder eine Speichelprobe und füllen die Fragebögen aus. Im Anschluss können Sie gerne Fragen an mich richten. Ich möchte Sie jetzt bitten sich auf den Rücken zu legen, die linke Hand auf die Stirn zu legen, die Augen zu schließen und sich möglichst nicht mehr zu bewegen.”

Instructions for relaxation

“In unserem Versuch geht es heute darum herauszufinden ob es Ihnen gelingen mag eine Erfahrung zu machen die man aus Entspannungsübungen kennt. Die besondere Liegehaltung die sie für dieses Experiment einnehmen sollen ist folgende:

Liegen Sie bitte am Rücken mit der linken Hand auf der Stirne und geschlossene Augen und bewegen Sie sich dann nicht mehr. 15 Minuten lang werden Sie dann einen Sound hören, der zur Entspannung geeignet ist. Versuchen Sie nun möglichst bewegungslos zu liegen und den Sound auf sich einwirken zu lassen. Durch folgendes Signal (it was played now using Windows Media™ Player, Figure 3) wird das Ende der Entspannungsübung angezeigt. Öffnen Sie dann bitte Ihre Augen, spenden wieder eine Speichelprobe und füllen die Fragebögen aus. Im Anschluss können Sie gerne Fragen an mich richten. Ich möchte Sie jetzt bitten sich auf den Rücken zu legen, die linke Hand auf die Stirn zu legen, die Augen zu schließen und sich möglichst nicht mehr zu bewegen.”

Measurement

Saliva Cortisol was collected before and after the music exposure using the Sarstedt Salivettes®. The concentration of cortisol was analyzed by a bioanalytical procedure. Saliva samples were analyzed using an EIA (enzyme immunoassay, Lottspeich & Engels 2006). This method measures the concentration of a substance in a solution by the use of antigen or antibody reactions (Richter 2003, Otto 2006, Nelson & Cox 2008). An analysis with a double antibody biotin-linked enzyme immunoassay for cortisol (Patzl 1990, Haubenhöfer et al. 2005) was conducted in the endocrinological lab of the Behavioral Biology Department of the University of Vienna.

Emotional states were measured before and after the sound exposure using a psychological questionnaire (Steyer et al 1979; Appendix 3). It measures “Gute – schlechte Stimmung” (“feeling well”) “Wachheit - Müdigkeit” (“feeling awake”) and “Ruhe-Unruhe” (“feeling relaxed”). Each scale is built of 8 items graded on a 5-point scale.

An experience scale “Fragebogen zur Erfassung von Bewusstseinsveränderung während Entspannungsübungen” (Appendix 4) which I constructed because I could not find a valid and reliable scale in German language was used to assess relaxation experiences and subjective “dream like experiences” (cognitions) after the music exposure. The first three items (heaviness, warmth and heartbeat) were formulated out of the praxis of autogenic training basic exercises (Luthe & Schultz 1969, Schultz 1973, Pohler 1989) a well-known relaxation method. Heaviness is correlated with muscular relaxation. Warmth with the relaxation of blood vessels, and decreasing heartbeat is also a well-known sign of relaxation. The next item asks for any other body sensation, and the last for dreamlike experiences.

Additionally, the Neo FFI (Borkenau & Ostendorf 2008) was used to measure personality factors (for instance extraversion) to see if there are correlations with the cortisol scores. However, this data was not used for this thesis.

Procedure

Because of the circadian rhythm of cortisol release all groups were started at same time (19.00 pm) and also on the same day of the week (Wednesday) in the seminar room of the department of Cognitive Biology at the University of Vienna.

At the gathering of the groups the following welcome sentences were spoken by the experimenter:

“Ich möchte mich herzlich Bedanken, dass Sie sich heute hier zum Experiment Audiotechnik Entspannung eingefunden haben. Ich darf Sie bitten eine Speichelprobe abzugeben und dann den Fragebogen auszufüllen.”

The first step was the saliva sample collection.

Biochemical effects were measured by measuring the concentration of cortisol in saliva samples before and after the sound exposure. Saliva was collected with Sarstedt Salivettes®. This device consists of a plastic tube containing a cotton wool swab. Before the verbal instructions were played during the group session participants got an information handout for the right use of the salivettes (Appendix 5) and the body position (left arm over the eyes, Figure 7).

Subjects were asked to insert the swab into their mouth and were instructed not to swallow saliva for a 3 minutes period. Afterwards this cotton wool swab was placed back into the tube.

Then the tubes were immediately placed on ice in the deep freezer at – 20 Degree Celsius. Saliva samples were analyzed later in the endocrinological lab of the Behavioral Biology Department of the University of Vienna.

Second step

Participants were asked to fill out a mood questionnaire (Steyer et al. 1997), used to measure “Gute - schlechte Stimmung” (“feeling well”) “Wachheit - Müdigkeit” (“feeling awake”) and “Ruhe – Unruhe” (“feeling relaxed”), before and after the music exposure.

Next steps

The instructions recorded on a sound file, for either shamanic journeying or relaxation, were then given. After listening to the instructions, the participants had to lie down on blankets in journeying positions. The music exposure with callback was the next step. Afterwards participants were asked again to provide saliva samples and to fill out the mood questionnaire, the experience scale (Fragebogen zur Bewusstseinsveränderung während Entspannungsübungen) and the NEO FFI. Participants also had the possibility to ask questions or discuss experiences once the experiment was completed.

Statistics

The testing with SPSS (Howitt & Cramer 2001) depended on the statistical distribution of the data. When applicable, analyses of variance and t-tests were used to analyze the biochemical and questionnaire data, otherwise non-parametric tests were used. The analysis of the “Fragebogen zur Erfassung von Bewusstseinsveränderung während Entspannungsübungen“ was done using the Chi-square test.

RESULTS

Pretest

The aim of this test was to see if there are differences in cortisol (ng/ml) and in the scores of the Mood questionnaire after music exposure. The music excerpt used was the shamanic drum excerpt. The pretest was done with eight participants (five females, three males), seven of them experienced with shamanism. Participants' age ranged from 23 to 79 years (mean = 45 years).

The data of the mood scales and the Cortisol scores showed a distribution that deviates from a normal distribution according to the Shapiro-Wilk test. Therefore a Wilcoxon test between pre and post scores was conducted (mean scores are shown in Figures 8 and 9).

The Wilcoxon tests showed no significance at all for all scales, except for a marginal tendency to be more relaxed (scale "Ruhe") after sound exposure (Wilcoxon-test, $Z = -1.703$, $p < 0.089$).

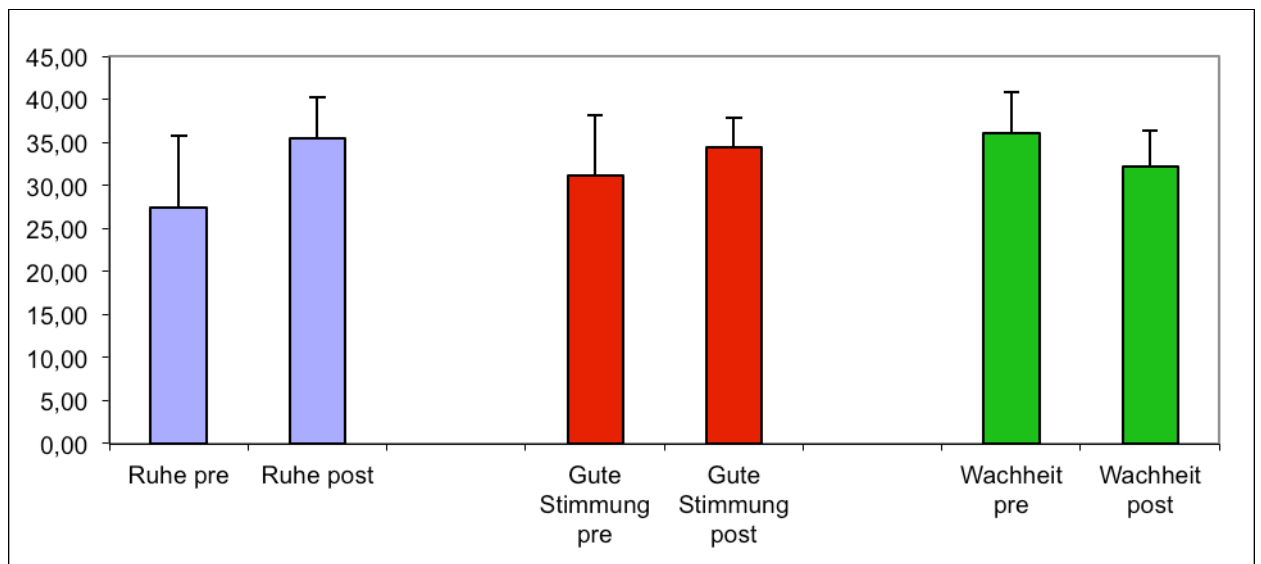


Figure 8: Bar chart displaying the mean scores and standard deviations of the Mood Questionnaire for the pretest ($n = 7$).

Looking at the Cortisol scores of the single participants we found lower scores after sound exposure by 4 people, higher scores by 3 people (two of them suffering from an illness).

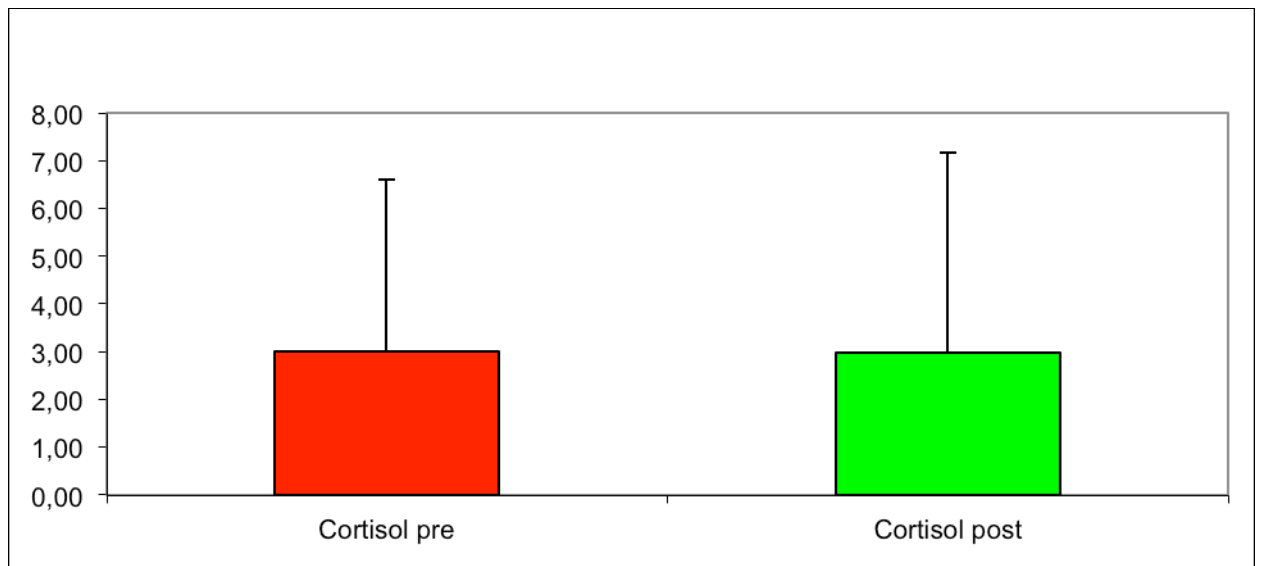


Figure 9: Bar chart displaying the mean scores and standard deviations of the cortisol (ng/ml) from the pretest.

Analysis of the mood – questionnaire

The mood – questionnaire consists of 3 scales measuring “Gute Stimmung” (“feeling well”), “Ruhe” (“relaxation”) and “Wachheit” (“wakefulness”).

To find any significant changes in the mood questionnaire, for all three scales an analysis of variance for repeated measures was conducted. This was possible because the data of all groups showed a distribution that did not deviate significantly from normality, according to the Shapiro-Wilk test.

There is one within-subject factor “time” (before and after the exposure), and two between-subjects factors:

Instructions (shamanic journeying / relaxation) and
music styles (drums /New Age)

The mean of “Gute Stimmung” (“feeling well”) over all conditions ($n = 39$) increased from 30.4 to 31.5 but this was not statistically significant.

We found a significant within – subjects effect (Greenhouse-Geisser: $df = 1$, mean of square = 300.97 $F = 14.98$, $p < 0.001$) on the scale 2 “Ruhe” (“relaxation”). The mean scores increased from 28.6 to 32.5 ($n = 39$).

This means that over all instructions and sound files the participants averaged higher ratings on the “Ruhe” (“relaxation”) scale after music exposure than before music exposure.

We found one significant between-subjects effect (Greenhouse-Geisser: $df = 1$, mean of square = 313.46, $F = 4.76$, $p < 0.036$) for music excerpts in the scale 3 “Wachheit” (“wakefulness”).

Within the groups exposed to New Age music higher values in wakefulness pre and post were found, whereas in the groups exposed to drums we found lower pre and post values for wakefulness. This might be an effect of the different ages of participants in the groups.

Another significant effect is the three-way interaction (Greenhouse-Geisser: Type III df = 1, mean of square = 160.438, $F = 9.403$, $p < 0.004$) We found within-subjects effects in the Scale 3 “Wachheit” (“wakefulness”) for an interaction with instructions and music excerpts. It seems that with the drums, the wakefulness increased with the relaxation instructions but not with the shamanic instructions. It was the reverse for the New Age excerpt.

There is a very small difference between the repeated measures under instructions for shamanic journey for drum music (means 24.2 to 24.1), but for relaxation instruction there is a large increase (mean scores 21.50 to 25.37).

The opposite effect is found for the New Age excerpt: there is an increase in wakefulness under the shamanic journeying instructions (mean scores 27.27 to 31.0) and a decrease by the relaxation instructions (28.2 to 24.6).

All this results are shown in Table 3 and Figure 10.

Table 3: Repeated measures mean scores for wakefulness

			Mean	standard error
Instructions for shamanic journeying	Drums	pre	24.200	2.251
		post	24.100	1.793
	new age	pre	27.273	2.146
		post	31.000	1.710
Instructions for relaxation	drums	pre	21.250	2.516
		post	25.375	2.005
	new age	pre	28.200	2.51
		post	24.600	1.793

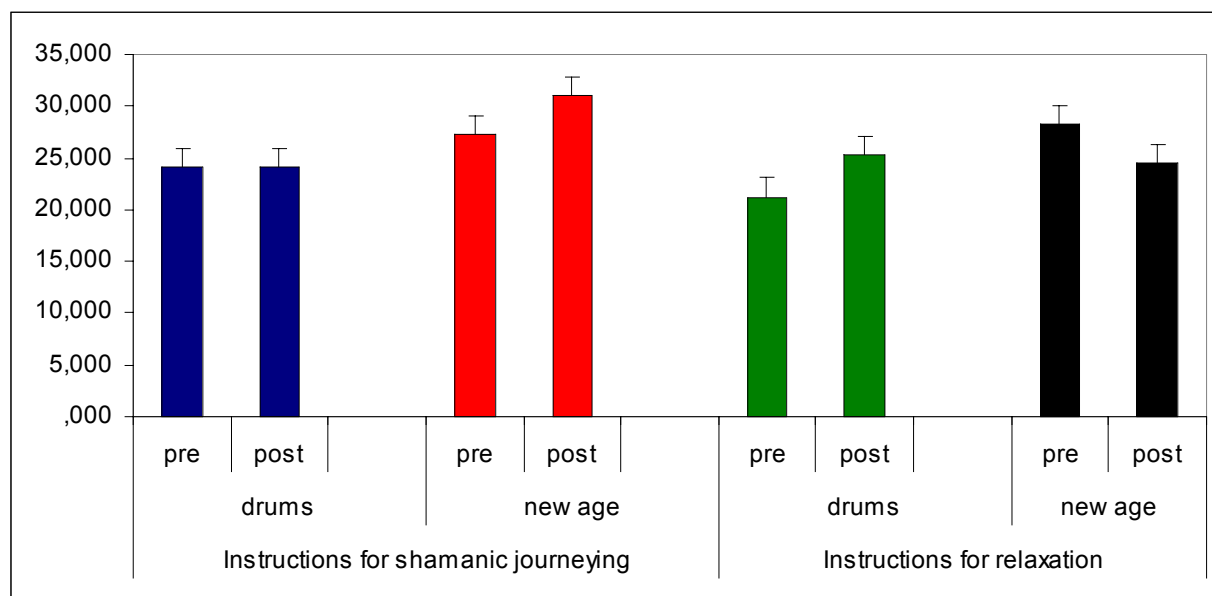


Figure 10: Bar chart displaying the repeated measures, mean scores and standard errors for wakefulness

Analysis of the Cortisol

Cortisol concentration was predicted to decrease after music exposure. Moreover, the decrease was hypothesized to be stronger in groups with journeying instruction. For New Age music a stronger decrease was hypothesized for the relaxation instruction groups.

As the cortisol (ng/ml) data did not fit a normal distribution according to the Shapiro-Wilk test the data was log-transformed.

Now we find a distribution that did not deviate significantly from normality, according to the Shapiro-Wilk test. We therefore conducted an analysis of variance on the log-transformed data.

There is one within-subject factor “time” (before and after the exposure), and two between-subjects factors: Instructions (shamanic journeying / relaxation) and music (drums / New Age).

We found a significant time factor ($n = 39$): a decrease from 0,381 to 0,296 ($df = 1$, mean of square = 1, $F = 6.470$, $p < 0.016$). There was no statistical significance in the between-factors music style and instructions (see Table 4 / Figure 11).

Table 5: Bar chart displaying the repeated measures, for the ten log transformed cortisol scores

		n	mean	standard deviation
logcort-pre	Drums with shamanic instructions	10	.484	.433
	Drums with relaxation instructions	8	.371	.396
	New Age with shamanic instructions	11	.444	.300
	New Age with relaxation instructions	10	.215	.200
	All	39	.381	.343
logcort-post	Drums with shamanic instructions	10	.306	.565
	Drums with relaxation instructions	8	.279	.272
	New Age with shamanic instructions	11	.437	.322
	New Age with relaxation instructions	10	.145	.211
	All	39	.296	.373

Only the time factor (all together $n = 39$) was statistical significant ($df = 1$, mean of square = 1, $F = 6.470$, $p < 0.016$)

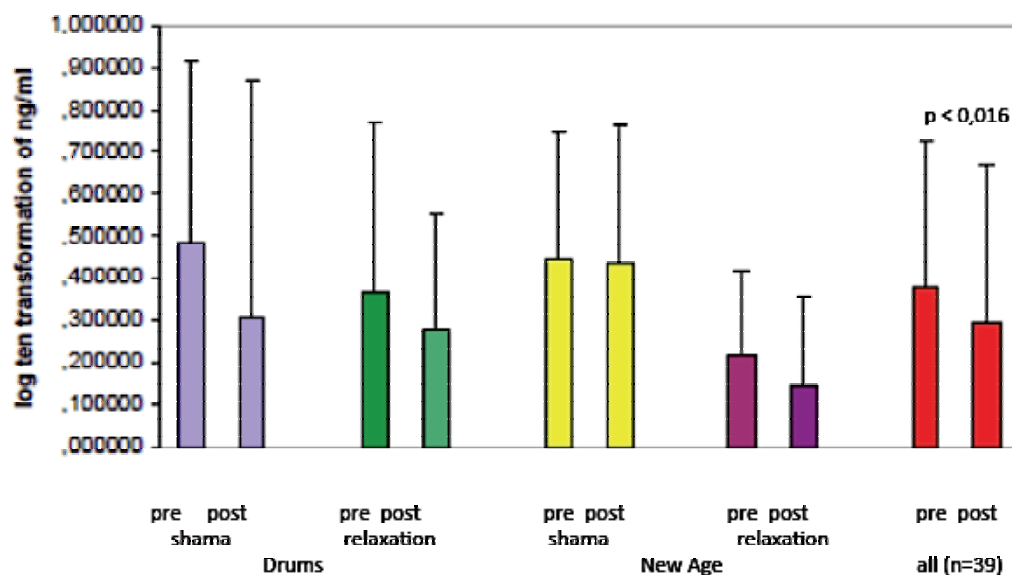


Figure 11: Ten log transformed cortisol scores for all four groups. Only the time factor (all together $n = 39$) was statistical significant ($df = 1$, mean of square = 1, $F = 6.470$, $p < 0.016$).

The meaning of these results is that over all instructions and music styles the participants saliva cortisol decreased after music exposure. This result was predicted in Hypothesis Nr 2. No further significant differences were found between music, instructions and groups.

Analysis of the Experience Scale

The Experience Scale was constructed to assess relaxation experiences and subjective “dream like experiences“ (cognitions) after the music exposure.

The first four items (heaviness, warmth, heartbeat, and other body sensations) asks for relaxation. Item four asks for dreamlike experiences. The scales were analyzed using the Chi Square test for each question.

We found significances between the instructions but only for the drum music.

For the Item “Schwere” a significant effect (Fisher’s exact test two-tailed $p < 0,043$) was found (see Figure 12).

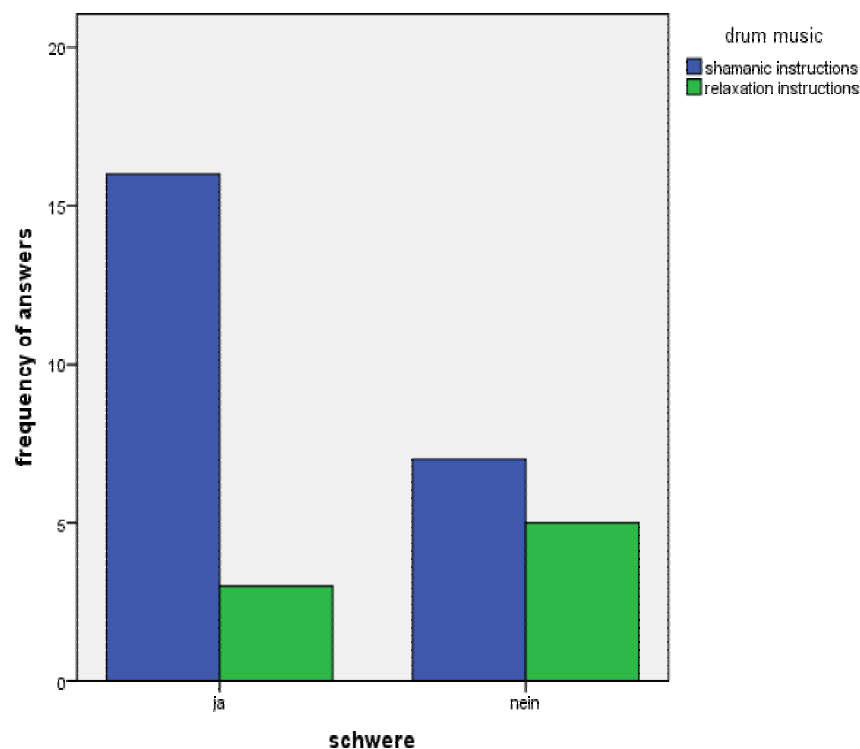


Figure 12: Numbers of answers for “Schwere“ (“Konnten Sie Schwere in Ihrem Körper spüren ja oder nein?” Could you experience heaviness inside your body yes or no?”) for drum music and both instructions.

This means that more participants of the shamanic instruction group with music style drums experienced “Schwere” than the participants of the relaxation instruction group. Experiencing “Schwere” in the body is a sign of relaxation.

The Item “Herz” was also significant (Fisher’s exact test two-tailed $p < 0.013$ see Figure 13). More participants of the shamanic drum group experienced a decrease in heartbeat than the participants of the relaxation drum group. A decrease in heartbeat is also a sign of relaxation.

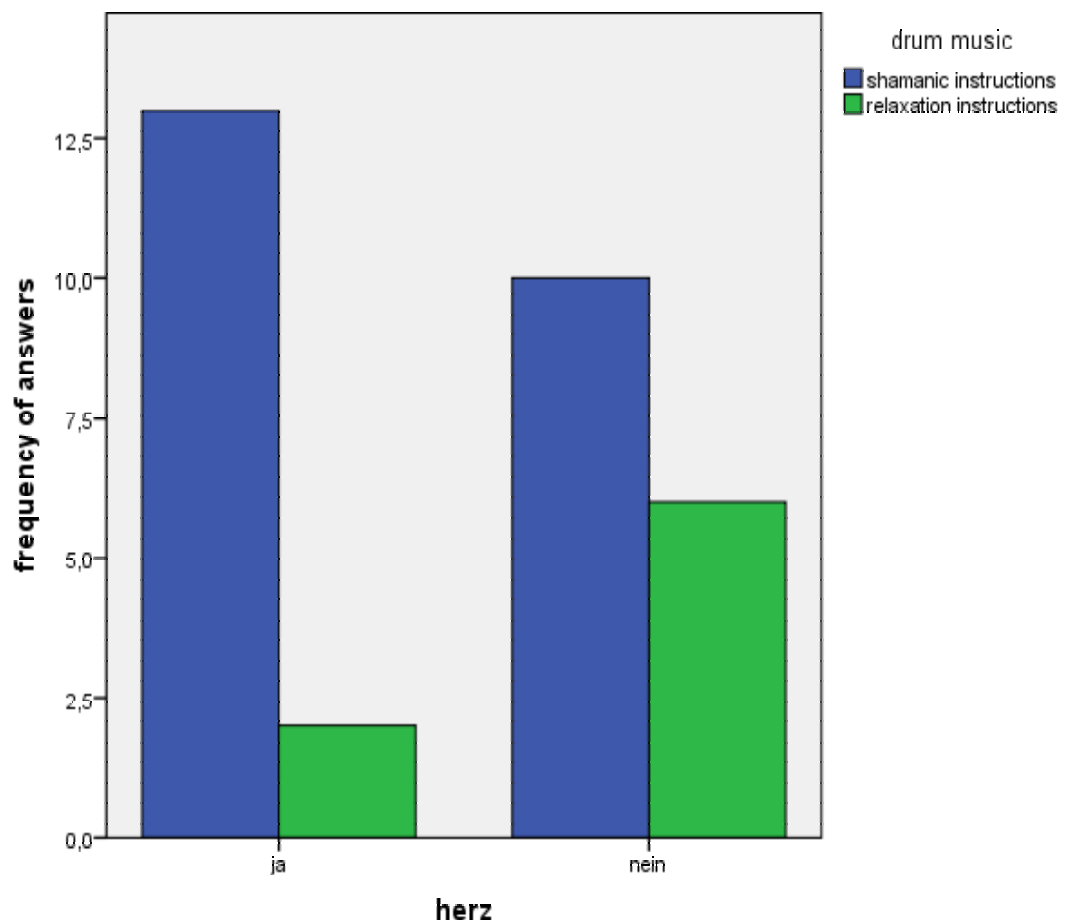


Figure 13: Numbers of answers for “Herz” (“Konnten Sie bemerken dass Ihr Herz ruhiger schlägt ja oder nein?” Could you experience your heartbeat beating slower yes or no?“) for drum music and both instructions.

At last the item “fantasies” (Fisher’s exact test two-tailed, $p < 0,002$, see Figure 15) was significant too. More participants of the shamanic drum group experienced fantasies than the participants of the relaxation drum group.

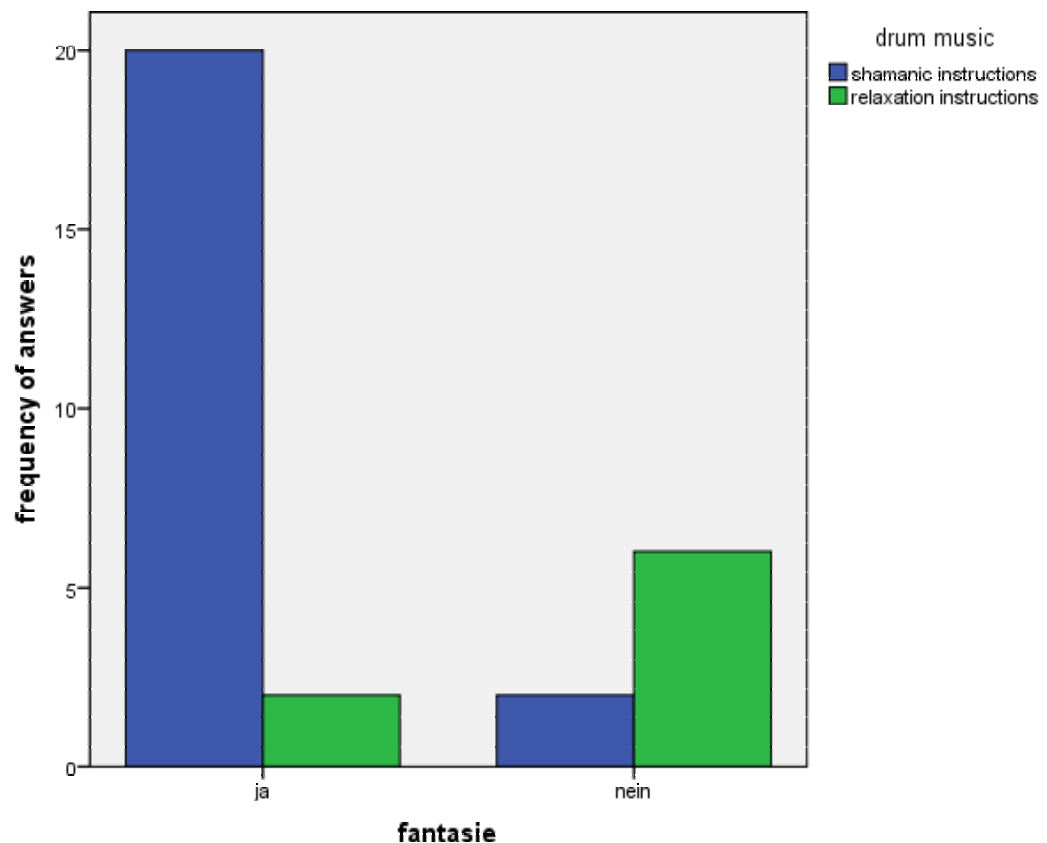


Figure 16: Numbers of answers for “fantasies” (“Sind in Ihrem Bewusstsein Bilder, Fantasien oder traumähnliche Erfahrungen entstanden? Wenn ja dann bitte beschreiben Sie diese auf!” “Did you experience fantasies or dreamlike experiences if so please write them down!”) for drum music and both instructions.

It is interesting that we found a statistically significant difference between both instructions only for drum music samples.

Drum music is more rhythmical than New Age music.

It might be that the neurophysiological concept of “auditory driving” (Neher (1961, 1962, Achterberg 1990) is an explanation. This theory says that drums could evoke theta waves in the brain correlated with acoustic and visual imaginations.

Content analysis

Content analysis or textual analysis is a method to examine qualitative data (Atteslander 2003). Interviews about special themes are often analyzed in this way. The content is thereby analyzed for some special research topics or categories. There are different techniques and methods to do this, some more elaborated than others. For a better reliability of this method, more raters should be used for this type of analysis. This could not be done for my thesis, therefore there is some uncertainty in my interpretation of the outcome. As in dream research, I analyzed different groups (Schredl 2006). A content analysis of the response to items 4 and 5 from the Experience Questionnaire for shamanic groups and relaxation groups was conducted.

Item 4: „*Hatten Sie andere körperliche Wahrnehmungen? Wenn ja, dann bitte schreiben Sie diese auf!*“ (Do you have other body sensations? If so, please write them down).

Table 5: Contents of narratives from participants of all four groups for Item 4

Journey music style drums	
1	<i>"Schwere der Arme"</i> (R)
2	<i>"hatte das Gefühl beim Tanz zuzuschauen werde müde"</i> (R)
3	<i>"Kribbeln auf der Stirne"</i> (R)
4	<i>"Kühle aber nicht unangenehm"</i> (R)
6	<i>"Li Hand schmerzt, Kribbeln in den Beinen"</i> (R)
9	<i>"Herzschlag intensive, Kribbeln im Körper"</i> (R)
Journey music style New Age	
32	<i>"Wärme auf der Stirne, als wäre die Hand quasi angewachsen am Kopf"</i> (R)
33	<i>"bissertl Entspannungsgefühl"</i> (R)
34	<i>"Hand auf Stirn wurde immer schwerer"</i> (R)
35	<i>"Linke Hand auf der Stirn half beim Vorstellen von Bildern"</i>
37	<i>"Atmung wurde langsamer"</i> (R)
41	<i>"Nach gewisser Zeit wieder Unruhe, Musik hat bereits genervt"</i> (U)

Relaxation music style drums

- 21 *"Linke Hand eingeschlafen"* (R)
- 22 *"Strahlung von der linken Hand weg (warm), Musik hüllt mich ein."* (R)
"Später Kreuzschmerzen" (U) *"zeitweise sehr hell als würde Lampe auf mich leuchten"*
- 23 *"zunehmend entspannter"* (R)
- 24 *"Gegen Ende angenehmer Summeton"*
- 25 *"Rückenschmerzen, heiße Füße linker Arm unangenehm"* (U)
- 26 *"Hunger Schlafentzug"*
- 27 *"leichter Krampf im Oberarm"* (U)

Relaxation music style New Age

- 50 *"hab angefangen manche Körperteile nicht mehr zu fühlen, wahrzunehmen", "Beine, Arme, ... Schwerelosigkeit"* (R)
- 51 *"Herz schlug langsamer aber intensiver, pulsieren der Adern in Arme, Bauch brennendes kribbelndes Gefühl auf bzw. abschwellend"* (R)
- 53 *"sehr schwerer linker Arm, fast wäre er eingeschlafen"* (R)
- 54 *"Entspannung"* (R)
- 56 *"Rieseln über den Rücken bei bestimmten Stellen der Musik Leichtigkeit und Schweben"* (R)
- 57 *"Li Hand über den Augen war ein wenig unangenehm"* (U)
- 58 *"kurz weggenickt"* (R)

Number = number of participant, (R) = sign for relaxation, (U) = sign for discomfort Most of all contents we see as signs for relaxation (marked with (R)) however some signs of discomfort (marked with (U)) were also found. There was only a small difference in numbers between both categories.

Item 5: *„Sind in Ihrem Bewusstsein Bilder, Fantasien oder traumähnliche Erfahrungen entstanden? Wenn ja dann schreiben Sie sie bitte auf!“* (Did you experience images, fantasies or dreamlike scenes? If so, please write it down). The number for shamanic contents and autobiographical contents is quite different for both instructions and both music styles (see Table 6).

Table 6: Contents of narratives from participants of all four groups for Item 5

Instructions journey music style drums

- 2 *"zuerst am Meer, dann Höhle, Tanz zur Trommel"* (S)
- 3 *"war an Orten die mir unbekannt sind"* (S) *"war dann irgendwo mit bekannten Personen"* (B)
- 4 *"Personen erscheinen die mein Denken beeinflusst haben"* (B)
- 5 *"Waldweg, Trichter, Eichhörnchen"* (S)
- 6 *"wurde in Richtung Erdmittelpunkt gerissen"* (S)
- 7 *"Bilder wie aus dem "Mittelpunkt zur Erde""* (S)
- 8 *"Kratersee...Höhle"* (S)
- 9 *"Reise in den eigenen Körper, später schwarze Löcher"* (S)
- 10 *"In Höhle Panther getroffen"* (S)

Instructions journey music style New Age

- 31 *"Gedanken an meine Stadt und meine Freunde"* (B)
- 32 *"Nicht wirklich "Orte" aus der Erinnerung gesucht, Berg, Höhle oder Unterwasser konnte aber nicht weit nach "unten" gelangen"* (S)
- 33 *"Tropischer Strand... Mit Wingsuit von Flugzeug gesprungen"* (S)
- 34 *"durchlebte Teile des Filmes "Herr der Ringe". Durchwanderung der "Zwergenstadt""* (S)
- 35 *"ja aber kein in die Tiefe gehen - Musik war störend für das - studiere Anthropologie mit Schwerpunkt Musik und Klang... andere Assoziationen"* (B)
- 36 *"See - Tunnel - Edelsteine"* (S)
- 37 *"Natur... Reise durch Wasser, Wälder, Gebirge"* (S)
- 40 *"Spaziergang über Blumenwiese an einem sonnigen Tag"*
- 41 *"Tropfsteinhöhle, je tiefer je jünger - Baby Auflösung"* (S)

Instructions relaxation music style drums

- 21 *"Erinnerungsfetzen des Tages"* (B)
- 23 *"Sonnenuntergang, Lagerfeuer, Tanz"* (S)
- 26 *"alltägliche Ereignisse"* (B)

Instructions relaxation music style drums

- 50 *"träumte von einem Zeichentrickfilm (Pocahontas) eine eigene Version"*
- 51 *"Sonnenstrahlen durch Baumäste, versinken im Boden." (S)*
"Indianer versuchte ihn ins Grab zu drücken"
- 53 *"Ereignisse der letzten Tage und Stunden... Farbtunnel"* (B) (S)
- 54 *"Reflexionen der Verg. U. Gegenwart. Blick in die Zukunft"* (B)
- 55 *"Das Bankerl in Salzburg... Sommer"* (B)
- 57 *"Alltagsgedanken, nordischer Tannenwald im Nebel"* (B)
- 58 *"in Zeitlupe vergangene Tage wiederholen, zukünftiges planen"* (B)
- 59 *"teilweise Bilder vom Meer und Tauchen, Gedanken ans kommende Wochenende"* (B)

Number = number of participant, (S) = shamanic content, (B) = autobiographic content.

Rock (2006, Rock et al. 2005, 2006) found in his analysis of phenomenological contents of shamanic journeying imagery and other trance induction techniques visual mental images of predatory creatures, helping spirits and others, which he concluded to be mostly out of autobiographical memories. Moreover, Kjellgreen & Eriksson (2009) analyzed experiences gained from shamanic-like drumming sessions. They found 31 so-called meaning units, contents of the phenomenological analysis.

For instance, "entry hole", "the tunnel", "encounters with animals or with plants", "landscapes" are some of them. Meaning units in this sense (shamanic) are marked with (S) in the table. We also find some autobiographic contents marked with (B).

The number of both categories is quite different for both instructions: Shamanic Journey drums: 8(S) 2(B), Shamanic Journey New Age 6(S) 2(B); Relaxation drums 1(S) 2(B), Relaxation New Age 2(S) 6(B).

In short, the shamanic journey instruction leads to more shamanic content and less autobiographical content, whereas for the relaxation instruction it is the reverse. This may be a cognitive effect of the different instructions. Shamanic instructions seem to promote shamanic contents. Instructions for relaxation seem to promote autobiographical contents.

Discussion

In this study we tested whether listening to shamanic drums or New Age music for 15 minutes with instructions for shamanic journeying has significant effects on salivary cortisol and emotional states compared with listening to the same music excerpts with instructions for relaxation only. The main hypotheses were that after sound exposure participants report increased feelings of wellbeing and relaxation and a decrease in salivary cortisol. In comparing instructions for relaxation versus instructions for shamanic journeying a stronger effect for shamanic journeying was predicted. Higher post scores for relaxation, and wellbeing in the mood questionnaire for all groups were predicted too. The differences between pre and post cortisol scores were predicted to be stronger in journeying versus relaxation. New Age music may show a stronger decrease than shamanic music only in the listening group because it is not so rhythmical. Reported experiences between journeying and relaxation were expected to be different.

Cortisol

We found a significant time factor ($n = 39$): a decrease from 0,381 to 0,296 ($df = 1$, mean of square = 1, $F = 6.470$, $p < 0.016$). There was no statistical significance in the between-subject factors music style and instruction. A decrease of cortisol post music exposure is known from studies on psychophysiological music research (Hodges 2010).

The emotional states

There was a small change in “Gute Stimmung“ (“feeling well”). The mean increased from 30.4 to 31.5 over all conditions but was not significant. For “Ruhe” (“relaxation”) we found a significant increase from 28.6 to 32.5 ($p < 0.001$).

This means - as hypothesized - that for all conditions after sound exposure participants feel “ruhiger” (more relaxed than before). This is in line with studies in music research (Möckel et Al. 1995, Khalfa et al. 2003, Spitzer 2005, Hodges 2010, Juslin & Sloboda 2010).

We also find two significant differences on the scale for “Wachheit” (“wakefulness”) for which we had not made any specific hypotheses.

It seems that with the shamanic drum music the wakefulness increased with the instructions for relaxation but not with the shamanic journeying instructions. It might be that there is more relaxation with the shamanic journey instructions. Maybe that this is a cognitive aspect from the instructions of going down into the earth.

Experience Scale

Subjective experiences measured with an experience scale differed significantly between the instructions for the shamanic drums music only, not for the New Age music. This is an interesting result.

It might be that the neurophysiological concept of “auditory driving” (Neher (1961, 1962); Achterberg 1990) is here an explanation. This theory says that drums could evoke a special brain activity (theta waves) correlated with acoustic and visual imaginations.

Participants of the shamanic journeying instructions reported more often “Schwere” (“heaviness” $p < 0.043$) more often a decrease of the heartbeat ($p < 0.013$) and more often “fantasies” ($p < 0.002$) than participants in the relaxation instructions.

That means that the relaxation was deeper for participants exposed to the instructions of shamanic journeying than for those exposed to the instructions for relaxation, and they had more often dreamlike fantasies.

The reported experiences from the participants when comparing the shamanic journeying instructions with relaxation instruction analyzed by content analysis were different as we hypothesized.

The participants of the shamanic journey instruction had more shamanic contents and less autobiographical contents, for the participants with the relaxation instructions it is the reverse. This might be a result of the cognitive aspect of the instructions and is in line with findings of Kjellgreen & Eriksson (2009) and Rock (Rock 2006, Rock et al. 2005, 2006).

Conclusion

Taking a look at all results together it seems that exposure to shamanic drums together with instruction for shamanic journeying may lead to relaxation of the body and to experiencing dreamlike states of mind with typical contents as reported in narratives of shamanic journeying (Harner 2001, Uccusick 1993, Walter & Neumann-Friedman 2004, Rock 2006).

However, as we know from other studies (for instance Noll 1985, Woodside et al. 1997, Kjellgreen & Erikson 2009) the set of the participants and the setting (environment and circumstances) of the journeying are very important conditions for the outcome of shamanic journeying.

The intentions and goals for the journey, personality states and traits of the participants and the belief systems may play an important role for personal experience and physiological changes. The room where the journey may take place, live drumming or rattling, the presence of a native shaman or an experienced shamanic practitioner may lead to other results.

Sandra Harner (2001, 2010) had found that shamanic journeying might change immune response (saliva IgA) and Kjellgren & Eriksson (2009) had formulated that shamanic journeys might be useful to integrate in psychotherapy.

As my study suggests it might be useful to experience relaxation and wellness, therefore I think that this type of research should be expanded.

For further research it might be useful to have more participants, if possible shamanic practitioners, who are trained in shamanic journeys and as controls naïve participants. Furthermore, it might be interesting to use techno music as a control for shamanic drums or rattles. Other hormones besides cortisol (such as IgA, testosterone, and others) should be analyzed from the saliva. Another interesting aspect might be the research of live music exposure (drums, rattles, techno music) during shamanic rituals and without ritual practice with experienced and non-experienced participants.

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Shamanic Journeying with music versus Relaxation with music. Are there different effects on emotional states and salivary cortisol concentration?

Abstract:

In the present study I explored the emotional cognitive and biochemical effects (salivary cortisol concentrations) of listening to musical excerpts for about fifteen minutes, on the one hand using instructions for listening to music and on the other hand instructions for shamanic journeying, with two different musical styles (shamanic drums and New Age music), for a total of four different experimental conditions. None of the participants was experienced in shamanic journeying.

The main hypotheses were that after sound exposure participants would report increased feelings of wellbeing and relaxation and a decrease in salivary cortisol. In comparing listening to sound versus shamanic journeying a stronger effect for shamanic journeying was predicted, based on subjective experiences during shamanic journeys (deep relaxation) as reported in the literature. Instructions and sound samples were played with laptop and loud speakers to minimize the experimenter effect (“Versuchsleitereffekt“). The participants (n = 39) had no shamanic experiences.

Results: The analysis of the cortisol was done using a repeated-measures ANOVA.

The time factor was significant but we found no significant effect of music style or instructions. Different results between the groups were found at emotional states and subjective experiences.

Taking a look at all results together it seems that exposure to shamanic drums together with instruction for shamanic journeying may lead to relaxation of the body and to experiencing dreamlike states of mind with typical contents as reported in narratives of shamanic journeying.

Zusammenfassung

In der vorliegenden Studie wurden Speichelcortisol und die emotionale Befindlichkeit von Probanden untersucht die sich entweder schamanischen Trommeln oder einer New Age Musik mit einer Instruktion zur schamanischen Reise oder aber einer mit einer Instruktion zur Entspannung exponierten. Die Darbietung erfolgte über Laptop und Lautsprecher um Versuchsleitereffekte zu minimieren. Die Hypothese war, dass alle Probanden sich anschließend besser fühlen, entspannter sind und die Cortisolwerte sinken, zugleich dass diese Veränderungen bei den 2 Gruppe mit Instruktion zur schamanischen Reise stärker ausgeprägt sind.

Die Versuchspersonen ($n = 39$) hatten keine schamanische Vorerfahrung. Die Analyse der Cortisolwerte wurde mit einer Varianzanalyse für Messwiederholungen durchgeführt. Es zeigte sich ein signifikantes Ergebnis beim Zeitfaktor aber keine Signifikanz bezüglich Musik und Instruktion. Unterschiedliche Ergebnisse zwischen den Gruppen zeigten sich bei der emotionalen Befindlichkeit und subjektiven Erlebnissen

Die Ergebnisse lassen sich so zusammenfassen dass die Exposure mit schamanischen Trommeln zusammen mit der Instruktion zu einer schamanischen Reise zu einer Entspannung führt und zu traumähnlichen Erfahrungen die den typischen Inhalten von Berichten schamanischer Reisen entsprechen.

Appendix 3: Adjectives from the „Mehrdimensionaler Befindlichkeitsfragebogen“

(Steyer et al 1979). It measures “Gute- schlechte Stimmung” (feeling well), “Wachheit- Müdigkeit” (feeling awake) and “Ruhe-Unruhe” (feeling relaxed). Each scale is built of 8 items graded on a 5-point scale.

Gute Stimmung (feeling good)	Wachheit (Awakness)	Ruhe (Relaxation)
zufrieden gut wohl glücklich unwohl schecht unglücklich unzufrieden	ausgeruht munter frisch wach schlapp müde schläfrig ermattet	gelassen entspannt ausgeglichen ruhig ruhelos unruhig angespannt nervös

Appendix 4: Experience Questionnaire



Fragebogen zur Erfassung von Bewusstseinsveränderung während Entspannungsübungen

Name:

Datum:

- 1.) Konnten Sie Schwere in Ihrem Körper spüren?
ja nein
- 2.) Konnten Sie Wärme in Ihrem Körper spüren?
ja nein
- 3.) Konnten Sie bemerken dass ihr Herz ruhiger schlägt?
ja nein
- 4.) Hatten Sie andere körperliche Wahrnehmungen?
dann bitte schreiben Sie diese auf:

- 5.) Sind in ihrem Bewusstsein Bilder, Fantasien oder traumähnliche Erfahrungen entstanden? wenn ja dann bitte beschreiben Sie diese auf:

Danke für Ihre Mitarbeit!

The pictures of how using the Sarstedt Cortisol Salivette Device taken from the Website:
http://www.uwhealth.org/healthfacts/B_EXTRANET_HEALTH_INFORMATION-FlexMember-Show_Public_HFFY_1126664037299.html

Speichelprobe

Berücksichtigen Sie bitte folgende Punkte vor der Speichelspende

1. Putzen Sie vorher nicht die Zähne, entfernen Sie Lippenstift oder Lippenbalsam von den Lippen!
2. Bitte Essen oder trinken Sie 30 Minuten vor der Speichelspende nicht mehr!
3. Vermeiden Sie körperliche Aktivitäten (Sport u dgl.) in der Letzen Stunde vor der Speichelabgabe!

Anleitung zum Spenden der Speichelprobe:

1. Öffnen Sie bitte den Verschluss der Tube



2. Lassen Sie den runden Schwamm in den Mund gleiten, indem Sie auf die Tube drücken oder diese schräg halten. **Berühren Sie den Schwamm nicht mit den Fingern!**



Behalten Sie den Schwamm im Mund und kauen Sie vorsichtig für 5 Minuten. Spucken Sie den Schwamm dann zurück in die Tube und verschließen Sie diese Wieder. **Berühren Sie den Schwamm nicht mit den Fingern!**

Danke für Ihre Mitarbeit!



Curriculum Vitae

Dr. phil. Gerald Pohler

I was born in Wiener Neustadt Niederösterreich on the 27. of June 1953, as son of Dipl. Ing. Karl Pohler and Hildegard Pohler, my brother Georg was 6 years older.

After school I learned the Profession of Drogist and worked as Drogist in Wiener Neustadt and later as laboratory technician in a pharmaceutical Lab in Vienna, after my Military Service.

Beside my working I visited Dr. Roland's School in Vienna and had my Externistenreifeprüfung in 1976.

1976 – 1980 I studied Psychology and Pedagogic at Vienna University and got my Dr. phil. degree.

1980 I started with my clinical psychology and psychotherapeutic postgraduate education. I worked as psychologist and psychotherapist ("Akademikertraining") at the psychosomatic department of the psychiatric hospital (AKH) of the Vienna University (Head: Univ. Prof. Dr. Erwin Ringel).

1981 – 1983 I was working for a research project concerning psychological and psychotherapeutical aspects of cancer and cancer care at the Orthopedic Hospital Gersthof in Vienna (Head: Univ. Prof. Dr. Martin Salzer).

1983 – 1984 I was working as a psychologist at the Gefangenenhaus 1 Wien for the Ministry of Justice.
I finished my psychotherapeutic (cognitive behavior therapy ÖGVT) and clinical psychological education.

1984 till now: I established my psychotherapeutic and clinical psychological practice in Vienna.

Beside this:

I was working in the education of nurses (for instance in the Gesundheits- und Krankenpflegeschule Wien- Lainz 1992- 2010).

I lectured in the education of psychotherapists.

I was co –founder of the Österreichische Gesellschaft für Psychoonkologie (ÖGPO).

I worked as supervisor (for instance Psychonkologisches Team AKH Wien, (2008- 2011 Head: Univ. Prof. Dr. Alexander Gaiger).

I did some research in Behavior Therapy, Psychooncology and Psychology.

My publications are listed in a separate publication list.

2009 I started with the study of Verhaltens- Neuro and Kognitionsbiologie at the Vienna University.

Publications

A.) Books

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As Co-Author

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Declaration

Herewith I ensure that I wrote this masters thesis independently using only the indicated sources and means for writing. For individual parts inferred from other publications, literally or according to the sense, references have been made within the text. The same applies to pictures, tables and figures.

Hiermit erkläre ich, dass ich diese Masterarbeit selbstständig und nur unter Verwendung angegebener Quellen und Hilfsmittel verfasst habe. Für einzelne Teile, die im Sinne oder Wortlaut aus anderen Publikationen entnommen wurden, sind im Text die entsprechende Referenzen angegeben. Dasselbe gilt auch für Bilder, Tabellen und Grafiken.