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Prožívaná životní smysluplnost, všímavost a sebehodnocení v kontextu omezené zevní stimulace

Existential meaning in life, mindfulness and self-esteem in the context of restricted environmental stimulation

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Abstract

The aim of the study was to assess the influence of the overall context of a modified version of chamber restricted environmental stimulation (chamber REST; in a variation also known as “Darkness Therapy” - „DT“) on the meaning in life, mindfulness and self-esteem. The research sample consisted of 37 clients of the Beskydy Rehabilitation Centre in Čeladná who, based on their own decision, underwent a week-long stay under chamber REST conditions, between 15th March, 2012 and 14th November, 2013. The age ranged between 25 and 84 (M = 45.86; SD = 13.16). The sample consisted of 17 women and 20 men. The youngest woman was 25 years old and the oldest one was 71 years old. The youngest man was 25 years old and the oldest man was 84 years old. The respondents were selected by purposive voluntary sampling. Considering the education, 14 subjects completed secondary-school education, 23 of them completed university education. Considering the occupation, 3 respondents were retired, the remaining 34 were employed. All subjects, who participated in the research voluntarily and at their own expense, underwent technically the same process. It was a seven-day stay in a REST environment (absolute darkness, quiet and solitude). The participants stated and confirmed by their signature that they did not show any psychopathological reactions at that time, they did not take any psychopharmaceutical drugs and did not experience any significant physical ailments (acute illness, bleeding etc.) and they entered the experimental environment voluntarily. During the week the participants/clients were daily visited by a therapist with whom they could talk about any current issues. The duration of the interviews depended on their current needs, thirty to forty-five minutes on average. A week before the DT stay, each of the subjects filled in the following diagnostic questionnaires: Existence Scale (ES), Five Facets Mindfulness Questionnaire (FFMQ) and Rosenberg Self-Esteem Scale (RSES). Three weeks after they completed the procedure they received the same measures again. The data obtained were evaluated by the SPSS software. Normal distribution of data was verified by Shapiro-Wilk test. The effect of the experimental conditions was assessed by a paired-sample t-test or Wilcoxon paired-sample test. The distortion emerging as a result of multiple testing was eliminated by Bonferroni correction. Comparing the values measured prior to

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and after the stay in the researched modification of chamber REST environment (DT), we found a significant difference on all scales. Most of them remained significant even after applying the Bonferroni correction. Therefore, we concluded that the overall framework of the effect of the researched modification of chamber restricted environmental stimulation applied for a week has a positive influence on the respondents regarding the meaning in life (evaluated by ES), mindfulness (measured by FFMQ) and self-esteem (measured by RSES). No statistically significant differences were found as a function of gender or educational level.

Keywords: restricted environmental stimulation, chamber REST, darkness therapy, existential meaning in life, mindfulness, self-esteem

Introduction

Originally sensory deprivation, lately the restricted/reduced environmental stimulation technique/therapy – REST (most frequently used acronym) – has been discussed for the first time in the Czech Republic in an overview study explaining the historical context and pointing out to possible therapeutical and personal development potential (Kupka, Malůš, Řehan, & Kavková, 2012) and later in more detail in Kupka, Malůš, Kavková & Němčík (2014). The restricted environmental stimulation emerged at the end of the 1970s thanks to research on sensory deprivation (also sensory overload or monotonous stimulation) and perceptual isolation (Norlander, Kjellgren, & Archer, 2003; Rosner, 2010; Suedfeld, 1980, 1989, 1999; Zubek, 1969). There were three major forms of REST – immersion, flotation and chamber. At present, only two forms are still at use, described in detail by Suedfeld (1980, 1999):

1. Flotation REST: The participant floats in a tank that has approximately 20 cm of an extra dense saline solution (of magnesium sulphate), which is kept at skin temperature. The person floats on his back with the face, ventral parts and the upper part of the body out of the dense solution. The person may wear ear plugs, which keep the solution out of the ears and also reduces ambient sounds. The float tank lid is closed, which creates environment of complete darkness. There is a call button inside the tank. The usual length of the procedure is forty-five to sixty minutes.
2. Chamber REST: The participant stays alone in a room. The equipment always includes a bed, a toilet, and usually an armchair, sometimes a cool box (depends on the length of the stay). The room provides reduced external stimulation (darkness, quiet, reduced mobility, and solitude). Amount of food and beverages is provided according to the person's needs. Each subject remains usually for 24 hours or longer, usually having therapeutic support. Suedfeld (1980) states that fewer than 10% of participants terminate their stay based on their unpleasant experience before the expiry of the basic 24-hour period.

Different modifications of chamber REST have been labelled *Dark Therapy* (Phelps, 2008) and *Dunkeltherapie* (Kalweit, 2006). In the Czech literature, popular terms of *Terapie tmou* (Urbiš, 2012) and *Léčba tmou* (Brodská, 2008; Krumlová & Hrdličková, 2009) have become common. That is why sometimes rather a popular expression *Darkness therapy* (*Terapie tmou* in Czech) is being used. When the term *darkness therapy* – *DT* - is used, it describes a special

form of chamber REST, usually in duration ranging from three/four days up to one week (most often) or its multiples (not so often).¹

Data from previous REST studies have identified potential therapeutic and self-insight gains and thus a positive effect on human health within the broad definition that includes bio-psycho-social-spiritual dimensions (Biderman, Yeheskel, & Herman, 2006; Engel, 1977; Granqvist & Larsson, 2006; Kebza, 2005).

In this paper, we deal with the effects of a chamber REST in the DT variant.

Starting points and goals of the study

In 2010 our interest in researching so called *darkness therapy* started. And first pilot studies in REST started in 2011. In our first qualitative pilot research, we focused on the motivation of the participants for undergoing such a procedure, on charting the dynamics of their experience and the potential benefits about which the participants talked after the therapy. Individual reports led us to define the following general categories of possible gains: self-knowledge and relation to self (my strengths and weaknesses; successes and failures in life; current direction in life), recapitulation of relationships (reflecting past and present relations with important people), restructuring of values and anchoring of values (what is important in my life now; what tasks appeal to me in particular; what goals I want to strive for), attention to the presence (paying attention to intrapsychological processes, full sensory connection to the present moment). Those findings are described in greater detail in other works (Kupka & Malůš, 2013; Malůš, Kupka & Kavková, 2013).

Based on these findings, we decided to examine whether this form of restricted environmental stimulation has an impact on the meaning in life, mindfulness, and self-esteem. We were also interested in testing the suggestion (e.g., Mason & Brady, 2009) that sensory deprivation may produce psychopathological symptoms, which will be discussed in another paper.

We stated three following assumptions:

1. The overall context of the researched modification of chamber REST influences participants' *meaning in life* within the concept of the Existence scale.
2. The overall context of the researched modification of chamber REST influences participants' *mindfulness* within the concept of the Five facets mindfulness questionnaire.
3. The overall context of the effect of this modification of chamber REST influences participants' *self-esteem* within the concept of the Rosenberg self-esteem scale.

¹ *Darkness therapy (DT)*: The length of the chamber REST procedure is not the only difference to former chamber REST studies. Second point is that subjects are clients who pay for the DT procedure (and whose motivation is inner, intrinsic). Third reason is that participants are daily visited and interviewed by a therapist.

Method

Participants

Research sample consisted of 37 clients of the Beskydy Rehabilitation Centre in Čeladná who, based on their own decision, underwent a week of chamber REST (DT modification), between the 15th March, 2012 and 14th November, 2013. The age ranged between 25 and 84 ($M = 45.86$; $SD = 13.16$). The group consisted of 17 women and 20 men. The youngest woman was 25 years old and the oldest one was 71 years old. The youngest man was 25 years old and the oldest man was 84 years old. The respondents were selected by purposive voluntary sampling. From the point of view of education, 14 participants completed secondary-school education, 23 had university education. From the point of view of occupation, 3 respondents were retired, the remaining 34 were employed.

They were relatively healthy, both psychologically and physically, did not show any psychopathological reactions at the time of research and did not take psychopharmaceutical drugs or feel any significant physical difficulties. For an individual to be included in the quasi-experimental group, he or she had to meet the following conditions: a seven-day stay in the restricted environmental stimulation environment, their first experience with this method and minimal or no experience with meditation (therefore, no intended meditation practice during the chamber REST stay).

Based on agreement with Dr. Andrew Urbiš, who provides the clients with the service of *darkness therapy* at Beskydy rehabilitation centre in Čeladná, we created an informed consent form describing the research, its nature and purpose, with the specification of preserving anonymity of the data gained, the principle of voluntariness and the right to terminate participation in the experiment at any time. Subsequently, Dr. Urbiš sent the document to the clients interested in the procedure by e-mail. It was then up to the clients whether they would contact us and be interested in participating in the study. If they agreed, their questions were answered and the initial administration of the measures occurred via e-mail a week before they started their DT stay. Three weeks after they completed the procedure, they received the same tests again.

Measures

1. **Existence scale (ES)** by Längle, Ogler and Kundi (2001). The first release in Czech was translated and edited by Karel Balcar and published by Testcentrum in 2001, Prague. It is a self-assessment questionnaire determining the competence of persons to deal with themselves and the world. It consists of 4 basic scales. Self-distance: the ability to step aside from oneself and open oneself to unbiased perception of the situation; Self-transcendence: the ability to leave the boundaries of oneself and enter an emotional relationship with someone or something; Freedom: the ability to decide among different options according to the person's subjective evaluation; Responsibility: the ability to act and bear the consequences. The total score is the sum of all four sub-scales: meaningful existence. ES has 46 items in total, its starting point being Frankl's existential-analytical anthropology (1996), further elaborated and modified by Längle (2002). The authors of the method point out to satisfactory coefficients of internal consistency (Cronbach's alpha) that were ascertained both in the standardization (0.93) and the clinical sample (0.95).

2. **Five facets mindfulness questionnaire** (FFMQ) by Baer, Smith, Hopkins, Krietemeyer and Toney (2006). In our study we used the Czech version of the questionnaire prepared by Benda (2007a) as a part of his PhD thesis. FFMQ is a 39-item questionnaire measuring five facets of mindfulness. The result is a total score that is the sum of the scores of the five subscales: Observing (alert attention on what is currently going on); Describing (the ability to put one's feelings, thoughts and ideas into words); Acting with awareness (the ability to be fully attentive to the activity that is being done); Nonjudging of inner experience (having a non-judgmental attitude toward one's own thoughts and feelings); Nonreactivity to inner experience (the ability to refrain from being carried away or entangled in one's own thoughts and feelings). The reliability of the test was verified by the authors by calculating the internal consistency of the test (Cronbach's alpha), which varied between 0.75 and 0.94 on individual scales (Baer et al., 2006).

3. **Rosenberg self-esteem scale** (RSES) is a subjective ten-item scale measuring the level of the global relation to oneself. Rosenberg (1965) defines self-esteem as the belief of an individual that he/she is good enough. Halama (2008) says that the method may be used alternatively as a one-, two- or three-dimensional tool. Most often, however, it is understood as one-dimensional (Blatný & Osecká, 1994). That is how we use it in our study. The reliability of the test was verified many times and shown to be satisfactory (Hamala & Bieščad, 2006).

Procedure

Each subject participated in the research at his own expense and underwent a seven-day stay in an environment of a complete darkness, quiet and solitude. The participants stated and confirmed by their signature that they did not show any psychopathological or significant physical ailments (acute illness, bleeding etc.), they did not take any psychopharmaceutical drugs, and that they entered the experimental environment voluntarily. During the week they were being daily visited by a therapist with whom they could discuss any current issues. The duration of for the interviews was cca 30-45 minutes per day (and depended on clients' needs). All participants were instructed that they could quit the REST environment at any time.

The REST chamber (apartment) in which the participants stayed had the following features: In the area of the park of a rehabilitation centre, there was a small detached single-storey house (apartment) with no windows, with two robust entrance doors and with an automatic air-conditioning unit. There was an entrance hall, the main living room and a separate bathroom. The main room (4x5m) was equipped with a bed, a positioning arm-chair, a table and a chair. There was also a one-way intercom, through which the participant could call a contact person (the therapist or a nurse) outside at any time. There was also a groundsheet and an elliptical trainer. Adjoining the main room there was the entrance hall and the bathroom. Each participant received food for the whole day in regular intervals. First the participant was alerted by a bell to retreat from the entrance hall, then the person bringing food (lunch, dinner and breakfast) could enter. There were always enough liquids to drink - mineral water, decaf tea and ersatz coffee in thermos bottles. The experimental environment was not absolutely soundproof: faint sounds from the surroundings could be heard, such as a chapel bell, cars and trains passing by, a group of people talking as they were passing by.

Each participant could terminate the experiment at any time by calling the contact person through the intercom, by switching on the sealed emergency light, or by unlocking the door with a spare key and leaving the house. The participants did not have any personal source of light with them nor any other devices that could occupy their attention during the DT procedure. At the beginning of the experiment, they were always introduced to the environment in which they were to stay in detail. The functions of the communication device were explained to them so that they knew in what way they would receive food and were told that a therapist would come at regular intervals for interviews about their current experience and needs. They were also instructed regarding the function of the emergency light they could activate at any time, which however meant terminating the experiment. During the experiment the whole building was locked. The participant had a set of keys (in a sealed case), as did the therapist, the person bringing food, and the nurse on duty. After seven days, the participants left, accompanied by the therapist. Attention was paid to a gradual adaptation to daily light (using sunglasses). After the participant left the dark environment, breakfast and an interview reflecting the whole experience and both actual physical and psychological humor followed.

Results

The data were evaluated using SPSS software.

Existence scale (ES)

The *Shapiro-Wilk test* showed that the data were distributed normally, thus paired sample t-test was used for testing the first assumption: The overall context of the researched modification of chamber REST influences participants' meaning in life within the concept of the ES. The results are shown in Table 1.

Table 1: Comparison of the values prior to and after the DT for ES.

ES	Pre- / post- values				Differences		t-test		
	M_{pre}	M_{post}	SD_{pre}	SD_{post}	M_{dif}	SD_{dif}	t	p	d
Self-distance	35.14	36.73	5.30	5.99	1.59	3.82	2.54	< 0.05	0.42
Self-transcendence	72.92	75.51	7.77	6.41	2.59	4.62	3.42	< 0.01*	0.56
Freedom	49.35	54.57	9.85	8.53	5.22	7.07	4.49	< 0.001*	0.74
Responsibility	56.05	61.38	11.05	10.36	5.32	7.31	4.43	< 0.001*	0.73
ES total	213.46	228.19	31.39	28.11	14.73	17.56	5.10	< 0.001*	0.84

Note: *Self-distance, self-transcendence, freedom and responsibility* are the four sub-scales making up the total score (ES total); *p-values with an asterisk (*)* are significant even after applying the Bonferroni correction ($\alpha / 22 = 0.002$); Value "d" is an indicator of effect size – M_{dif} / SD_{dif}

Table 1 shows that in all subscales as well as in the total ES, there was a statistically highly significant shift towards higher values (i.e. improvement). With the exception of *self-distance*, the improvements were statistically significant even after applying the Bonferroni correction.

Five facets mindfulness questionnaire (FFMQ)

Using the *Shapiro-Wilk test* normal distribution of the data was verified, therefore parametric statistics was used for testing the second assumption: The overall context of the researched modification of chamber REST influences participants' *mindfulness* within the concept of the FFMQ.

Table 2: Comparison of the values prior to and after the DT for FFMQ.

FFMQ	Pre- / post- values				Differences		t-test		
	M_{pre}	M_{post}	SD_{pre}	SD_{post}	M_{dif}	SD_{dif}	t	p	d
Nonreactivity to inner experience	23.16	26.51	5.15	5.67	3.35	4.15	4.91	< 0.001*	0.81
Observing	30.03	31.62	5.50	5.28	1.59	3.81	2.54	< 0.05	0.42
Acting with awareness	26.65	30.14	6.07	5.96	3.49	4.48	4.73	< 0.001*	0.78
Nonjudging of inner experience	29.97	32.95	6.59	5.43	2.97	3.83	4.73	< 0.001*	0.78
Describing	28.78	32.68	7.92	6.83	3.89	6.45	3.67	< 0.001*	0.60
FFMQ total	138.59	153.89	20.94	20.48	15.30	14.40	6.46	< 0.001*	1.06

Note: *p*-values with an asterisk (*) are significant even after applying the Bonferroni correction ($\alpha / 22 = 0.002$); Value "d" is an indicator of effect size – M_{dif} / SD_{dif}

From Table 2 we can see that in all subscales and in total there was a statistically significant shift towards higher values (i.e. improvement), in particular in $p < 0.05$ (*observing*) and $p < 0.001$ (*nonreactivity to inner experience*, *acting with awareness*, *nonjudging of inner experience*, *describing* and **the total score**). With the exception of the scale of *observing*, the improvement rate retained statistically significant even after applying the Bonferroni correction.

Rosenberg self-esteem scale (RSES)

The *Shapiro-Wilk test* did not confirm normal distribution of data for RSES. The values show a negative skew which may lead to decreased accuracy of parametric testing of the assumption concerning the difference in this questionnaire prior to and after a week's stay in the environment of restricted environmental stimulation. Apart from the paired sample t-test, we verified the assumption also by Wilcoxon paired-sample test that is not limited by the condition of normality. In view of the fact that both methods led to identical findings, we can confirm that the accuracy of the testing was not decreased. For a greater clarity, we present only the results of testing with the help of parametric methods. Therefore, the third assumption that the overall context of the effect

of this modification of chamber REST influences participants' *self-esteem* within the concept of the RSES, will be assessed by the results of a parametric paired sample t-test.

Table 3: Comparison of the values prior to and after the DT for RSES.

RSES	Pre- / post- values				Differences		t-test		
	M_{pre}	M_{post}	SD_{pre}	SD_{post}	M_{dif}	SD_{dif}	t	p	d
RSES total	31.95	35.24	6.05	4.40	3.30	4.68	4.29	< 0.001*	0.70

Note: The asterisk (*) with the p-value means the value remained statistically significant even after applying the Bonferroni correction ($\alpha / 22 = 0.002$); Value "d" is an indicator of effect size – M_{dif} / SD_{dif} .

Table 3 shows that there was a statistically significant increase in the score of self-esteem (at the level of significance $p < 0.001$), which passed even the Bonferroni correction.

Sex and education

On all the scales of ES, FFMQ and RSES questionnaires we investigated the differences of the effect of the chamber REST between men and women and between individuals with and without university education (by a t-test for two independent samples). The absolute value of effect size (Cohen's d) ranged between <0.02 and 0.63 in the case of gender. The greatest absolute differences were found on the scale of the questionnaire of ES self-transcendence, $t(35) = -1.92$, $p = .06$, $d = -.63$, where the women achieved higher values, and in the scale of the questionnaire of SCL-90 depression, $t(35) = 1.89$, $p = .07$, $d = .63$, where higher values were achieved by men. None of the differences, however, was significant. The effect was not significant even in the case of education, where the greatest difference was on the scale of ES self-distance, $t(35) = 1.72$, $p = .09$, $d = .58$, where the university graduates showed a smaller change.

Discussion

The first assumption was supported: After darkness therapy, there was an increase of the values of *self-distance*, *self-transcendence*, *freedom*, *responsibility*, therefore the *experienced meaningfulness* in general as measured by the Existence scale.

By tes16ay have had or to assess the impact of the therapeutical interventions.

In original studies, the influence of chamber REST on groups of subjects with a certain diagnosis or behavioral problem was investigated. The control group consisted of patients with the same diagnosis who were treated in a standard way. Or the occurrence of problematic behavior in the clinical population was followed up a specified time after the REST procedure. The positive influence of REST was thus proved in patients with neurotic problems like obsessive-compulsive disorder or phobic reactions, or in patients suffering from addictive behavior – alcoholism, smoking, overeating (Borrie, 1990; Cooper, Adams & Scott, 1988; Dyer, Barabasz & Barabasz, 1993; Suedfeld, 1980; Suedfeld & Baker-Brown, 1985, 1987; Walker, Freeman, & Christensen, 1994). What is surprising about these research findings, in most of those studies, the chamber REST lasted only twenty-four hours or less.

Our conclusions may also be interpreted in the context of expectation of the respondents. We need to remember that every subject participated in the research at his or her own expense and voluntarily. They invested their own time and funds in the procedure and came with certain expectations. It may have been difficult for them to admit that a week's stay in the restricted environmental stimulation environment was not useful at all. This could lead to an overly positive self-assessment. Impression management might have also played a role, as the individual strives to show himself in the best light.

Especially, in the Czech Republic darkness therapy has become quite popular among nonclinical population as a service which people pay for. In the last years, this method has attracted significant media interest. New, popular or alternative "psychotherapeutic" methods may attract specific individuals who expect rapid and substantial improvement, which later shows in their positive self-assessment.

Persons who undergo a stay in an environment with reduced external stimuli expose themselves - in a way - to a quite stressful situation. In our qualitative research (Kupka & Malůš, 2013; Malůš et al., 2013) we repeatedly encountered statements of the participants reflecting on how demanding such an experience was. Restricted environmental stimulation and solitude often provoked anxiety in connection with the recapitulation of one's life (unpleasant memories with the relevant emotional accompaniment, repressed experiences, unpleasant dreams). Some participants referred to unpleasant experiences arising from the nature of the overall layout of the REST environment. Thus, if an individual copes with such a stressful situation (endures the stay despite the unpleasant experiences), his or her sense of competence increases, which shows as a positive change not only on the Rosenberg self-esteem scale, but also on the other scales. Also, mirroring (acknowledging courage) on the part of the social environment after the return of such an individual into everyday life may lead to increased self-confidence and the sense of a greater competence to cope with the demands of the surrounding world. The questions remain, to what extent the sense of competence is only deceptive and temporary, and to what extent do the other changes arise from it? We are now trying to establish that through further research. We are getting in touch with the participants in that study and asking them to concentrate on what has remained from their experience and how valuable the experience is for them after a longer time lapse.

Being more daring in the interpretation of the results, taking into account previous qualitative research (Kupka & Malůš, 2013; Malůš et al., 2013), based on which we formulated the goals of this study, we can state that the chamber REST in its overall context has a positive influence on the meaning in life, self-concept and mainly on mindfulness. How is it possible?

Baer, Smith, & Allen (2004) describe mindfulness as the ability of an individual to be open to anything that enters his or her field of consciousness, without being carried away or having to react to it in any way. Mindfulness is receptive awareness of everything we experience. A vital component of it is acceptance and openness to anything entering one's consciousness, irrespective of whether it is pleasant. That is why a substantial part of mindfulness is an indifferent or impartial attitude towards one's own experience, i.e., the attitude of openness to, interest in and acceptance of one's own experiences, without making judgements that are often critical - whether to oneself or to the surroundings (Bishop et al., 2004).

Benda (2007b) states that the basic method used for the development of mindfulness is a meditation of mindfulness and insight. There are different types of meditation training. Their

common denominator is that they are almost always held in an environment missing disturbing influences. Environmental stimulation is decreased. The environment is adapted in such a way that the meditating person is not unnecessarily distracted. The basis of any meditation training is practically always concentration on a certain bodily process that is repeated periodically - usually the breath. In meditation practice the meditating person has nothing except him or herself - whatever appears in his/her mind along the way of thoughts, emotions and different bodily perceptions, he or she learns to handle and accept him/herself. From this perspective, a parallel could be seen between the chamber restricted environmental stimulation and meditation practice: for both, disturbing external influences are missing and attention is concentrated on what enters the consciousness as currently present. The individual is radically confronted with him/herself and learns to accept whatever arises in his/her mind, whether bearing a positive or a negative emotional charge. In fact, during restricted environmental stimulation as well as meditation, the individual may observe his or her own mind. He/she becomes a witness to certain contents arising there, being the witness to these contents disappearing without reacting to them. One can realize that not every thought and emotional chain must be an impulse to activity, which may be a crucial experience for a person having troubles with depression, anxiety, coveting, obsessions, compulsions or self-destructive behavior and many other psychopathological symptoms. And what more during chamber REST some mental/emotional processes can be even externalized and then perceived as a changes of the ubiquitous darkness (Malůš et al., 2013).

When staying in a space of restricted environmental stimulation, the individual is exposed to a radically different environment from that which he or she is used to. In addition to not being distracted by excessive stimuli, participants have to be very careful about what they do, which centers their attention on the present. Most activities are done at a slow pace; they are forced to concentrate on one thing only. They have no articles of daily use distracting their attention (books, newspapers, computers, music, TV, mobile phones, etc.). Thus, darkness therapy may activate in a person the same sources that are cultivated by the practice of meditation, which leads to a measurable increase in mindfulness.

Hanstede, Gidron and Nyklíček (2008) believe that the state of attention and consciousness characteristic of mindfulness results in a number of psychological consequences having a therapeutic effect. The basic principle of the treatment through the cultivation of mindfulness is a change in the relationship to intrapsychic experiences, rather than a change in their contents. The clients learn to observe their current experiences with awareness and a conscious distance, without any judgment or analysis, with an accepting attitude. The impulses to act are observed as other psychological phenomena, without the client reacting to them in an automatic or habitual manner. The main effective therapeutic factors of mindfulness are the following: an insight into the psychological processes, de-identification with or distance from intrapsychic phenomena ("I am not my thoughts"), de-literalization (decreasing habitual and automatic behavioral and thinking patterns), increasing tolerance to unpleasant psychological states, relaxation, improving attention and concentration, decreasing rumination and internal dialogue and acceptance of, as opposed to suppressing or forcing out, unpleasant psychological contents (Baer, 2003; Brown, Ryan, & Creswell, 2007b; Segal & Hayes, 2004; Segal, Williams & Teasdale, 2002).

Consequently, this context offers a possible and probable interpretation basis for the results of the measurement before and after the stay in the environment with low environmental stimuli.

The shift in values within the Existence Scale could be also interpreted in connection with the cultivation of mindfulness. Kabat-Zinn (2003) is of the opinion that reduced awareness of the presence is accompanied by many problems arising as a result of an unconscious and automatic conduct. Such problems may grow with time, and unless we pay attention to them, we can develop a feeling of being at the end of our tether, that life is pointless and we do not know what to do. Frankl (1997) talks about the courage to be alone, about the creative potential of solitude and the creative expression of the space for solitude which he perceives as an opportunity to review one's life. Lukas (2009) is of the opinion that there are special places and situations "purifying" the aeriels of our conscience and consciousness and filtering disturbing external stimuli. Such healing places include meditation, relaxation, quiet and solitude. Yalom (2006) says that if we accept the confrontation with solitude, it can significantly change our life for the better. It is primarily the chance to establish more authentic interpersonal relations. The experience of solitude then shows the way to a deeper grasp of the basic attributes of human existence, such as death, freedom, responsibility and meaning. Fromm (1996) also wrote about the connection between solitude and the quality of relationships. In particular, he was interested in the ability to develop mature love, which he considered as the foundation for a healthy relationship to oneself (self-love) as well as the foundation for establishing authentic interpersonal relations. And he considered the ability to be alone with oneself and not to run away from oneself in one of the many ways, such as reading newspapers and books, watching TV, listening to the radio or working at the computer, as the foundation for the development of the ability to love.

The REST environment in the overall context of its effect enables the individual to step back from his or her life and, in the voluntary seclusion, the individual may go through a certain "internal stocktaking": a review of the values; they can experience a review of their relationships; they are able to look at substantial moments in the past in a new perspective and reframe it in a constructive way; to think about what is currently important in their lives, which tasks are interesting for them and where to go further in the future, which results in a change of self-esteem in the Existence scale.

In the environment of restricted environmental stimulation, there is a space to get quiet and calm which is very difficult to do in the normal everyday life of people at present. Nowadays we are daily assailed by a lot of stimuli, most people usually divide their attention among several activities, each day we solve various everyday difficulties and problems. We are exposed to intensive intermittent stress which is harmful to our health in the long run, which has been proved by a number of studies (Šolcová & Kebza, 1998, 1999; Kebza, 2005). Oversaturation with stimuli and possibilities seems to be an increasingly serious problem from the point of view of deciding for something in particular that is personally important and also meaningful (Yalom, 2006). That is what Lukas (2009) means by screening the unimportant.

We agree with Suedfeld (1999) that chamber REST provides a number of therapeutic possibilities. We do not perceive it as a replacement of traditional psychotherapeutic methods. We consider staying in the darkness, quiet and solitude to be compatible with number of therapeutic schools, approaches and standard procedures. From our experience, such environment may deepen or accelerate the therapeutic efforts. We believe that using chamber REST environment for therapeutic process should rather be a part of protected environment. The main reason is the security of the clients and the subsequent integration of the experience, as well as a preparation for such experience. An essential condition is undergoing the procedure of one's own will. Of

course - nobody should be forced to undergo a therapy of any type. Such procedure is almost always without effect, particularly in this case it would be completely unethical, potentially harmful, therefore inadmissible. A question remains how the clinical population would tolerate the restricted environmental stimulation method. The limit of this study, understandably, is that our group of volunteers did not suffer from any significant psychopathology. However, the experimental use of chamber restricted environmental stimulation for clients with anxious reactions, phobic reactions or addictive behavior and for people with attitude/behavior problems in general (Suedfeld, 1999) both offer possibilities and call for further research.

Conclusion

Statistical analysis has shown that after the overall context of the week-long chamber REST there were significant changes in all measures and its subscales. It can be stated that in this study, after darkness therapy, participants reported significant increase in meaning in life (evaluated by Existence scale), mindfulness (measured by Five facets mindfulness questionnaire) and self-esteem (measured by Rosenberg self-esteem scale). Majority of results retained significant even after Bonferroni correction. No statistically significant differences were found as a function of gender or educational level.

We consider these findings to be interesting and worthy of a subsequent and more in-depth research and exploration.

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SGS10/FF/2016-2017 Experimental study on cognitive and psychophysiological processes under Chamber REST conditions II.

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