Deepened relaxation-meditation states – facilitating and hindering experiences *versus* type of practice

Pogłębione stany relaksacji i medytacji – doświadczenia ułatwiające i utrudniające *versus* rodzaj praktyki

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Wprowadzenie. Stany definiowane jako relaksacyjne i medytacyjne mają własną specyfikę, która odróżnia je od stanów czujności, snu lub marzeń. Autorzy badań zwykle wymieniają następujące cechy charakterystyczne dla stanu relaksacji/medytacji: utrata podmiotowości postrzegana jako rozwiązanie granic między sobą i środowiskiem; rozszerzenie percepcji zmysłowej i uwrażliwienie świadomych procesów; ponadczasowość gdy adekwatność upływu czasu przestaje być postrzegana; niezdolność do logicznego i precyzyjnego opisu tego typu doświadczenia.

Cel. Analiza doświadczeń ułatwiających, utrudniających i innych podczas różnych praktyk pracy z ciałem i umysłem oraz wykazanie zależności między poszczególnymi doświadczeniami a praktykowanymi metodami.

Materiały i metody. Badanie zostało przeprowadzone wśród studentów i doktorantów z dwóch szkół Akademii Wychowania Fizycznego we Wrocławiu i Warszawie. Wszystkie grupy uczestniczyły w treningach relaksacji, które zostały uwzględnione w programach ich kierunków akademickich: hatha joga, joga nidra, medytacja i progresywna relaksacja mięśni wg Jacobsona.

Wyniki. Wykazano brak istotnych różnic w występowaniu ułatwiających doświadczeń we wszystkich analizowanych grupach. Stwierdzono również, że we wszystkich grupach badanych wraz z rosnącą liczbą doświadczeń utrudniających wzrastała także częstość występowania pozostałych (innych) doświadczeń.

Wnioski. Największe różnice pomiędzy występowaniem doświadczeń zarówno ułatwiających i utrudniających oraz innych w treningach zorientowanych na pracę umysłu odnotowano w grupie medytacyjnej, natomiast w sesjach opartych o pracę ciała – w grupie hatha jogi. W kategorii doświadczeń pozostałych (innych), najbardziej istotne różnice stwierdzono pomiędzy obiema grupami: hatha jogi i jogi nidry oraz progresywnej relaksacji wg Jacobsona.

Słowa kluczowe: *relaksacja, medytacja, indywidualne doświadczenia, odmienne stany świadomości, hatha joga, joga nidra, progresywna relaksacja mięśni wg Jacobsona*

Introduction. The states defined as both relaxing and meditative have their own particularity which differentiate them from the vigilance, sleeping or dreaming states. Researchers usually name the following features: the loss of subjectivity perceived as a dissolution of boundaries between the self and the environment; extension of sensory perception and sensitization of the conscious processes; timelessness when the adequacy of the passage of time ceases to be perceived; inability to logically and precisely describe this type of experience.

Aim. To analyze facilitating, hindering and other experiences during various practices.

Material & methods. This study was conducted among undergraduate and postgraduate students of two universities of physical education in Wroclaw and Warsaw. All the groups participated in relaxation training sessions which were included in the curricula of their academic majors: hatha yoga, yoga nidra, meditation and Jacobson's progressive muscle relaxation.

Results. There were no significant differences in the facilitating experiences in all the experimental groups. It was also observed that in all the experimental groups the incidence of the other experiences grew with the increased number of the hindering experiences.

Conclusion. The largest differences between the other experiences and both facilitating and hindering ones in the groups focused on mind-work were recorded in the meditation group, whereas in the category of body-work – it was the hatha yoga group. In the category of the other experiences, the most significant differences were observed between both hatha yoga and yoga nidra groups and relaxation according to Jacobson.

Key words: *relaxation, meditation, individual experiences, altered states of consciousness, hatha yoga, yoga nidra, progressive muscle relaxation according to Jacobson*

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Introduction

The states defined as both relaxing and meditative have their own particularity which differentiate them from the vigilance, sleeping or dreaming states. The previous studies show that it is possible to indicate some characteristic features of this experience.

Researchers usually name the following features: the loss of subjectivity perceived as a dissolution of boundaries between the self and the environment; extension of sensory perception and sensitization of the conscious processes; timelessness when the adequacy of the passage of time ceases to be perceived; inability to logically and precisely describe this type of experience. In general, the experience itself defies rational description, thus the person describing it rather senses it and is aware of this sensation than actually is able to describe it using precise words.

Subjective feelings and associations predominate in most descriptions. These by themselves are significant and symbolic for a given person but when their contents and intensity are compared, they defy attempts of objectification. Hence, one of the greatest difficulties in work with experiences of deepened relaxation-meditation states is inability to describe them objectively, and thus to compare these experiences in different individuals or groups of people.

Studies of changes of conscious processes usually take the general name related to the altered states of consciousness. Such studies of meditation were carried out by, for example, Andrew Newberg and Eugene d'Aquili at the University of Pennsylvania on a group of Buddhist monks advanced in meditation practice. In conclusion, the authors indicate the specificity of perception [1, 2]. Namely, the essence of the changes is the described mechanism based on the fact that the stimuli coming from the outside undergo 'filtration', which means that only some of them will get inside and become conscious; quite the opposite happens to inner stimuli that increase their impact. In the study the researchers applied a neuroimaging technique with the use of a single photon emission computed tomography camera (SPECT). At the climax of experiencing what is defined as the altered state of consciousness (the moment was indicated by the participants), the researchers recorded changes in the brain, i.e. they saw which centers were activated. It turned out that there was a significant increase of activity in the vicinity of the airfoil (maintaining high attention) and simultaneously there was a decline in activity in the adjacent areas (reception of cognitive processes). The technique applied by the monks allowed them, on the one hand, to build a kind of protective shield against stimuli penetrating from the outside and, on the other, to protect the attention developed from the inside. The researchers noticed that the essence of this objectively describable phenomenon involved two important changes. First, it is a change in neural activity in the cerebral hemispheres. The activity declines in the left hemisphere and intensifies in the right one. Thus, the nature of this change lies in activating the cerebral hemisphere responsible for the intuitive and abstract perception and simultaneously dismissing the hemisphere responsible for rational and discursive thinking. Second, the change lies in the decrease in the activity of the parietal lobe, which consequently leads to changes in the perception of time and space. According to them this is the essence of the subjective experience of the altered states of consciousness that consists of a feeling of dissolution of boundaries between the individual self and the environment, which probably will be possible to record and compare by computer devices.

Such well-known terms used in yoga techniques as 'combining', 'merging' and 'centering' are here a cautious confirmation of this kind of experiences at the neurological level. Numerous persons experiencing deepened relaxation or meditation states mention this other way of seeing and perceiving the surrounding world. This article is an attempt to present authors' own scheme of a list of the symptoms occurring during relaxation and/or meditation. What is the 'otherness' of perception during relaxation and /or meditation? Does it depend on the applied relaxation or meditation technique? What happens during the intensification of stimuli coming from the outside? What stimuli are they? Which of them facilitate and which hinder? These are the questions the authors raise in this study. The specific research questions are as follows:

1. Does experiencing deepened states of relaxation and meditation differ in people who follow various forms of relaxation practices, and if so, to what extent?
2. Which "symptoms" play the most important role in each of the three groups of experience?

Aim

To analyze facilitating, (other) and hindering experiences during various types of practice.

Material and method

Experimental groups

The study included 73 persons (60 women and 13 men) aged 22-57 years. They were divided into two age groups: the group under 25 years of age (41 persons: 32 women and 9 men) and the group over 25 years of age (32 persons: 28 women and 4 men).

Four randomly selected groups of students took part in the study. Two groups included undergraduate students and the other two postgraduate students of two Universities of Physical Education (UPE): Wroclaw and Warsaw. All the groups participated in relaxation training sessions which were included in the curricula of their academic majors, i.e. yoga and relaxation techniques. The groups recruited for the study had to meet three criteria: to have previous experience in this kind of psychosomatic exercises; to participate in a regular program consisting of various forms of relaxation and meditation practices; to consent to report

their experience after one of the deepened trainings.

The students were randomly assigned to the following four experimental groups: Group I (16 students: 13 women and 3 men) was surveyed after a yoga nidra session consisting of extended formulas related to body consciousness and experiencing the mind-body relationship. Group II (18 postgraduates: 16 women and 2 men) was surveyed after a classical hatha yoga session including stretching exercises, classical yoga positions (asanas) and breathing exercises (pranayama). Group III (16 students: 14 women and 2 men) filled the questionnaire of symptoms soon after the end of meditation training of 'flow' character accompanied by music and monotonous sounds in the background. Group IV (23 postgraduates: 17 women and 6 men) was surveyed soon after they had finished Jacobson's progressive relaxation session which was based on guided tensing and relaxing specific muscle groups. The sessions of all the groups were of the same duration (90 min.) and were conducted by the same instructor. The gender variable was not included in the analysis due to a small number of men.

Research tool – RMEC-31

A standardized chart called RMEC-31 (Relaxation and Meditation Experience Chart-App.1) was developed originally in the Department of Psychology, and subsequently in the Department of Relaxation Techniques and Motor Expression of UPE Wroclaw [5].

The validity of the tool used can be understood as content validity, i.e. the extent to which a given measure takes into account all the meanings contained in the notion of the measured phenomenon. The accuracy of the RMEC-31 was correlated with the results of the Ralph W. Hood Jr. Jr. Scale of Mysticism, with a positive correlation with the mystical experience (compound strength 0.69). The technique that is used to measure a phenomenon every time gives the same result. The reliability was verified with the most popular Cronbach's alpha coefficient, which measured the extent to which questions in the research tool are related. The reliability factor was 0.72, indicating the consistency of the questions. In addition, the test-retest method was used – the measurement was carried out 8 times and gave similar results.

The division of the experiences into 'facilitating', 'hindering' and 'other' allows systematization of regular monitoring and describing their experiences by the participants during relaxation and meditation training sessions which were part of the program of their studies at all the levels of academic education between 2006-2011, whereas the qualification to different groups took place at the end of 2011. Since then this tool has been tested on numerous groups in order to standardize it, in the meantime some slight changes were introduced within the group of 'other' experiences. The final version of the chart consists of 31 statements which are to be rated using a 1-10 scale (the more intense and distinct the feeling, the higher the number). The statements describing different symptoms of deepened states of relaxation and meditation were chosen after a three-stage selection process conducted during a two-year pilot study. In the final phase of preparatory research the symptoms, i.e. experiences, were divided into three groups:

1. a group of 'facilitating' symptoms (10 items) includes such experiences that unequivocally were classified as those which undoubtedly favor the processes of relaxation and meditation, e.g. sense of mindfulness;
2. a group of 'hindering' symptoms (10 items) includes such experiences that unequivocally were classified as those which constitute an obstacle to achieve the deep state of relaxation or meditation, e.g. occurrence of clearly defined thoughts;
3. a group of 'other' symptoms (11 items) combines the features of the previous two groups, e.g. loss of self-control. In this part of the chart there are statements which were difficult to classify, as they were facilitating for some participants and hindering for others.

Results

The percentage distribution of overall ratings of the sensations in the cognitive, mental, imaginal and emotional spheres which unequivocally facilitate the achievement of a deepened state of relaxation or meditation within the three experience groups are presented in Table I.

The authors include in the group of 'facilitating' experiences the sensations in the cognitive, mental, imaginal and emotional spheres which unequivocally facilitate the achievement of a deepened state of relaxation or meditation; in the group of 'hindering' – which unequivocally hinder the achievement of a deepened state of relaxation or meditation; in the group of 'other' experiences – which proportionally evenly can facilitate and hinder the achievement of a deepened state of relaxation or meditation. Undoubtedly, it is the most varied group because, as it results from the findings, there are groups of participants who mainly classify them as closer to facilitating experiences while the others in most of the cases classify them as close to the hindering ones.

Comparison of the means (points) for different types of relaxation practices (groups) within each of the 'symptoms' in the three experience groups. The Kruskal-Wallis non-parametric ANOVA test was used to analyze the data. The fields with various colors include the means which are statistically significantly different (the yellow from the green ones). The yellow-colored means deviate significantly upwards,

whereas the green-colored means – downwards. The fields of a single color (colorless as well) include the means which are not significantly different statistically. The colorless fields include the means which significantly differ statistically neither from the yellow nor green ones. It should be noted that the use of a parametric one-way ANOVA leads to similar results.

The mean score within an experience group constitutes the variable used in the further analysis. As in the previous analysis, the one-way ANOVA test was used.

Significant differences occurred within hindering experiences between groups I and (III, IV) and between II and IV, whereas there was no significant difference between groups I and II. In addition, significant differences in mean scores occurred in other experiences between groups (I, II) and IV, whereas the differences between groups I-II as well as III-IV were insignificant.

Overall effectiveness of the Relaxation and Meditation Experiences (RME). The three experience groups were analyzed together. The score in the hindering experience group was reversed ('mirror image'). Reversing the score is useful to perform a simple linear transformation according to the formula: $y=11-x$, where x stands for the original score and y stands for the reversed score. It is true that this type of transformation changes the mean value but it does not change the values of standard deviation. Consequently, no change occurs in the level of significance between the means of all four experimental groups (e.g. ANOVA results). In the original scoring the mean values in the hindering experience group were the lowest. In the reverse scoring they would become the highest. The analyzed variable is the total score of three experience group (its range is between 31-311) divided by 31 (i.e. the mean of all the experiences). The distributions of the total effectiveness of RME (especially mean values) do not differ in the four experimental groups. The Kruskal-Wallis non-parametric ANOVA test leads to a similar conclusion ($H=0.390$; $p=0.942$).

Overall effectiveness of the Relaxation and Meditation Experiences (RME) vs. the subjects' age and gender. In order to find some relationship between the RME effectiveness and the subjects' age and gender, the Mann-Whitney Test was used and the Spearman's rank correlation between the effectiveness and age in each experimental group was determined (Table II). The authors realize that a small number of men in the research sample diminishes the importance of gender-related study with respect to the effectiveness of RME in the participants in each experimental group.

The analysis showed that neither gender nor age significantly affects the difference in the overall RME effectiveness. Lack of significant age-related relationship was confirmed by the correlation analysis with the use of Spearman's rank correlation coefficient. The strongest correlation (negative) occurred in the group of men,which was also the least numerous (Table II).

Another task set by the authors was to determine the distance between the experimental groups. They wanted to address the question: which of the experimental groups following different relaxation trainings were the closest to each other in terms of the overall result of MRE?

On the basis of the determined distances, a tree diagram showing the distances between the experimental groups was drawn (Table III, Fig. 1). The analysis demonstrated that groups I and II were the closest to each other. Groups III and IV constitute separate 'beings' parallel to each other and different from the cluster of groups I and II.

In the analysis of the distances between the experience groups, the correlation coefficient can become a measure of distance. Thus the stronger the correlation between two experience groups, the closer they are to each other, provided that the correlation was positive. Nevertheless the application of

Table I. Percentage distribution of experience evaluations facilitating in analyzed experimental group
Tabela I. Rozkład procentowy ocen doświadczeń (1-10 pkt) ułatwiających w analizowanych grupach eksperymentalnych

Experience group /Grupa eksperymntalna	Group /Grupa	Rating /Ocena [%]									
		1 pt /pkt	2 pts /pkt	3 pts /pkt	4 pts /pkt	5 pts /pkt	6 pts /pkt	7 pts /pkt	8 pts /pkt	9 pts /pkt	10 pts /pkt
'facilitating' symptoms /objawy ułatwiające	I	11	3	5	9	14	14	14	14	6	10
	II	9	6	7	8	10	3	13	16	17	11
	III	5	5	6	6	15	16	16	14	10	7
	IV	5	4	8	5	13	10	17	16	12	10
'hindering' symptoms /objawy utrudniające	I	62	16	5	4	2	2	3	3	2	1
	II	54	11	6	4	7	6	4	3	3	2
	III	37	14	16	7	7	4	5	4	4	2
	IV	26	17	14	6	8	5	6	7	5	6
'other' symptoms /inne objawy	I	30	10	11	8	11	8	7	5	3	7
	II	33	11	8	8	7	6	9	6	7	5
	III	21	14	11	14	7	9	10	4	5	5
	IV	15	15	11	5	8	9	13	9	7	8

Table II. Means of overall RMEC and correlation between overall RMEC effectiveness and subjects' effectiveness according to age and gender
Tabela II. Średnie wartości efektywności kwestionariusza RMEC oraz korelacja między efektywnością kwestionariusza RMEC a płcią i wiekiem badanych

Grouping variable /Zmienne		N	M±SD	Mann-Whitney Test			Spearman p	t	p
				U	Z	p			
gender /płeć	women /kobiety	60	6.05±0.83	307.5	1.182	0.237	0.106	0.810	0.421
	men /mężczyźni	13	6.31±0.50				-0.470	1.766	0.105
age /wiek	⩽25 years /lat	41	6.07±0.77	653.0	0.028	0.978			
	>25 years /lat	32	6.14±0.82						
Total /Ogółem							0.032	0.268	0.790

the Euclidean distance results in a reverse image of the mutual distances (Table IV, V). Due to the use of reverse scoring in the hindering experience group which changes the sign of the correlation coefficient, the 1-r metric and the Euclidean distance lead to similar results. The negative correlation coefficient 'repel' the hindering experience group (negative) from the others (1-r>1 for negative correlation). The tree diagrams for both metrics are similar.

Discussion

Among the facilitating experiences no dependences on relaxation techniques were found. The sense of mindfulness resulted to be the most significant of all the experiences. It was perceived most in the yoga nidra group when compared to the other three groups showing approximately the same level. The hindering experiences occurred far more frequently than the facilitating ones. The desire to withdraw from other people was characteristic of those who did hatha yoga and Jacobson's training. Both in the yoga nidra group and the meditation group the vast majority of experiences was found statistically significant, except for the desire to withdraw from people. Similarly in the group following Jacobson's relaxation where all the statements referring to the hindering experiences were statistically significant but to a lesser extent than in the yoga nidra group. Among the participants following hatha yoga and Jacobson's relaxation, all the hindering experiences were statistically significant; in the hatha yoga group the less significant experiences referred to the occurrence of psychophysical bad feeling, intense negative emotions, realistic sense of time and chronology, feeling of limitation. In the category of the other experiences the most frequently indicated were: the sense of enlarging of some body parts in the yoga nidra and Jacobson's relaxation groups. The feeling of numbness occurred in all the experimental groups, though in the two groups following yoga it was the most significant. Clear visual imagery was the most frequent experience in the hatha yoga, meditation and Jacobson's relaxation groups, and in the last of the groups though to a lesser extent.

An increased feeling of sadness was perceived in each group, but was the highest in the yoga nidra

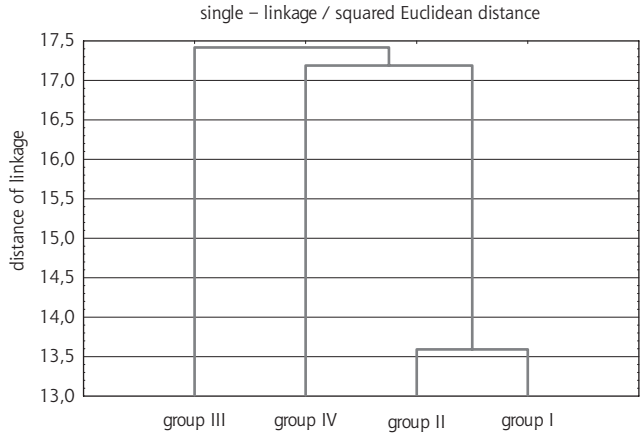

Fig. 1. Distances between experimental groups (I-IV) who followed different relaxation techniques

Ryc. 1. Odległości między grupami eksperymentalnymi (I-IV), które praktykowały różne techniki relaksacji

Table III. Matrix of inter-group squared Euclidean distance
Tabela III. Kwadraty odległości euklidesowych między poszczególnymi grupami

		Group /Grupa			
		I	II	III	IV
Group /Grupa	I	xxxx	13.6	27.5	17.2
	II	13.6	xxxx	17.4	23.1
	III	27.5	17.4	xxxx	17.9
	IV	17.2	23.1	17.9	xxxx

Table IV. Appropriate distance matrix (metric: 1-r) between experimental groups
Tabela IV. Odległości oparte o metryczkę (1-r) pomiędzy grupami eksperymentalnymi

Statements /Doświadczenia	'facilitating' /ułatwiające	'hindering' /utrudniające	'other' /inne
Facilitating /Ułatwiające	xxxx	1.23	0.32
Hindering /Utrudniające	1.23	xxxx	1.66
Other /Inne	0.32	1.66	xxxx

Table V. Appropriate distance matrix (Euclidean distance) experimental groups
Tabela V. Odległości euklidesowe poszczególnych grup eksperymentalnych

Statements /Doświadczenia	'facilitating' /ułatwiające	'hindering' /utrudniające	'other' /inne
Facilitating /Ułatwiające	xxxx	24.82	18.25
Hindering /Utrudniające	24.82	xxxx	37.28
Other /Inne	18.25	37.28	xxxx

and meditation groups. No need for action in the two aforementioned methods possibly results in highly emotional experiences [6]. The feelings of keeping this experience for the self was the most significant in the hatha yoga group and, to a lesser extent, in the yoga nidra and Jacobson's training groups. In the yoga nidra group the most frequent experiences facilitating concentration and meditation exercise included: inner silence, losing control over the place of practice, intense positive emotions and feeling of timelessness. This group less frequently indicated psychophysical wellbeing and a realistic sense of time and chronology. People who practiced hatha yoga thought that the experiences facilitating most their training were: intense positive emotions, feeling of timelessness and that of infinity. The experience that were less significant in the perception of this group were: losing control over the place of practice, psychophysical wellbeing, realistic sense of time and chronology and mindfulness.

Similar symptoms in a group undergoing yoga program was observed by Kjellgren, et al. [7]. Increased wellness as the feeling of peace and balance occurred, as well as the feeling of calming down, living in the present moment, and experience of a new outlook on life. Furthermore, the examined group experienced that yoga program decreased tensions, unpleasant sensations, blocks and locked-up feelings, as well as the experience of better control over their feelings.

The meditation class participants most frequently perceived the following experiences: inner silence, losing control over the place of practice, intense positive emotions, feeling of timelessness, whereas the least common were: dissolutions of boundaries between self and environment, psychophysical wellbeing, realistic sense of time and chronology, mindfulness and feeling of insight/understanding.

Attentional control, emotion regulation, body awareness, and change in perspective on the self has been recognized by Hölzel, et al. [8]. The essence of meditation is that the practitioner experiences mental phenomena including the sense of self, gaining distance (detaching) from identification with a static sense of self , as well as developing new ways to experience and face life events which may lead to changes in personality [9].

The authors point that also other personality traits matter – higher self-acceptance, self-esteem and a more positive self-representation, self-insights and greater acceptance of one's own internal states.

In addition to effect on attention, some forms of contemplative practices such as Sahaja Yoga and mindfulness also induce the feeling of bliss or happiness, increase positive affect, reduce anxiety, and decrease negative affect – Chan, et al. [10].

Those who followed progressive muscle relaxation according to Jacobson, as the facilitating experiences mostly indicated: intense positive emotions, feeling of timelessness, inner silence, and to a lesser extent, dissolutions of boundaries between self and environment, wellbeing and mindfulness. The maximal tension in Jacobson's method may induce 'relief' reactions when tension is released, as well as cognitive relaxation, after more complete muscular relaxation is achieved [11].

Among the hindering experiences the one that each group considered the key one and the most significant was bad feeling. The desire to withdraw from people was less frequently indicated in three groups: yoga nidra, hatha yoga and meditation, whereas for the participants in Jacobson's training the rarest hindering experiences were negative emotions and losing a grip on reality.

Among other experiences the groups following yoga nidra, hatha yoga and meditation mostly indicated an increased experience of boundaries between self and environment, and to a lesser extent the feeling of sadness (yoga nidra), desire to share or not to share this experience with people (hatha yoga) and feeling of joy (meditation). The participants in Jacobson's training rated three experiences at an approximately the same level: dissolutions of boundaries between self and environment, disappearing of body parts and clear visual imagery. According to Shapiro and Walsh [6], relaxation techniques can constitute a source of various subjective experiences related to feelings of tranquility, rest, as well as arousal or excitement. The authors think it is associated with focusing attention on the object or chosen area, or both. In this study significant differences were found between the experimental groups in the hindering experiences.

Lazarus, et al. [12] claimed that relaxation techniques have been shown to have negative effects (e.g., RX-induced anxiety and panic, paradoxical increases in tension, parasympathetic rebound). Another factor conditioning the participants' perception is previous experience in various methods might have had an effect on the results. However it was not verified in the research results presented in this paper. Moreover, the aforementioned authors indicate a possibility of occurrence of unfavorable feelings, such as impatience, dissociation, anxiety or withdrawal, thus suggesting that individuality of the participants' previously perceived sensations can be intensified, and at the same time regarding the hindering experiences as an integral part of the process of development and self-cognition during psychophysical practices. Each method followed by the participants verifies true intentions, attitude, motivation and expectations.

Kemper, et al. [13] underline the significance of reported numerous expectations in the examined group of nurses about the expected benefits of mind-body training on physical, emotional, mental, spiritual, and social well-being as well as stress. Nurses

primarily expected greater benefits in terms of spiritual well-being (56%), inner peace (54%), or serenity (54%) compared with physical outcomes such as better sleep (42%), immunity (36%), or blood pressure (29%). Inappropriate motivation, unreal expectations, unpreparedness for the studied practices can lead to disappointment, sense of emptiness, psychophysical discomfort or negative emotions.

Another point of view characterized the study of Crestetini and Capusary [9], who verified in group of meditating that the practice of meditation was negatively related to neuroticism and positively related to openness-to-experience and extraversion (the tendency to experience positive emotions and being sociable). Meditators showed higher openness-to-experience scores (reflecting dispositional curiosity, creativity) than non-meditators but lower conscientiousness scores than the latter.

Previous experiences are connected with time devoted to practice. People who have been meditating for years or even decades show marked differences in both their physiological response and their ability to control their own physiology compared with meditators who have only been practicing a short time [14]. Individuality of the participants' previous experiences can affect a high level of differentiation in movement perception. Therefore, the hatha yoga group and the Jacobson's relaxation group have so different movement experiences. Comparing sitting with movement-based meditative practices would be useful because movement-based practices may have additional benefits associated with exercise [11].

According to Shapiro and Walsh [6], the participants' initial level of tension or mood do not have any effect on their experiencing psychosomatic practices and state of consciousness. Meditation affects the level of mood, even in the persons with mood disorders, which was proved more than once. The study of Norman, et al. [15] showed the mechanism of emotion regulation through mindfulness training. It reduces automatic negative self-evaluation and increases tolerance for negative emotions and pain and help to engender self-compassion and empathy in people with chronic dysphoria. Kabat-Zinn [16] found reduction in suffering due to meditation practice. According to Lalot, et al. [17] this kind of practice facilitates emotion regulation on a long-term scale. Higher internal and less external health locus of control, as well as higher life satisfaction than in controls occurred in a meditating group examined by Lauche, et al. [18]. No group differences were found for general health perception, most other aspects of quality of life, anxiety, depression, and medication use and health satisfaction.

Meditation helps to adopt a mindful attitude in contrast to proprioception known as detached observation. This seems to cause a 'detachment' of the sensory dimension of the pain experience from the emotional alarm reaction and reduction in the experience of suffering through cognitive evaluation. One of the meditation classifications in the available literature is an altered state of consciousness. Meditation practice can lead to what have been referred to as 'altered states of consciousness' claimed Berkovich, et al. [19].

Clearly, to the three states previously recognized by scientific medicine, the state of waking, the sleep state with dreams, and the condition of deep sleep without dreams, a fourth should be added – the wakeful hypometabolic state of parasympathetic dominance, which appears to be a state of deep bodily rest with the potential of acute mental alertness that can have significant effects on increased adaptation [20]. Another author suggest that concentration and mindfulness 'meditations' may be unique forms of consciousness and are not merely degrees of a state of relaxation [21].

Altered States of Consciousness (ASC) that imply major brain changes based on subjective reports: (1) external awareness dims, (2) internal verbalizations fade, (3) the sense of personal boundaries is altered, (4) attention is highly focused on the object of meditation, and (5) joy increases to high levels [22]. Thus we differently perceive ourselves, other people and the environment. Experience of altered states of consciousness has been associated with deep relaxation and stress release. During an ASC-state many different psychological changes occur as compared with normal waking state, for example, very deep relaxation, the feeling that the border between body and surroundings is eliminated, and this changes the sensation of time or mindset where new and creative thoughts are generated. A mild ASC-state is often described as having the character of daydreaming [7].

According to Davidson, et al. [23], meditation enhances the sense of reality, which was confirmed by the present analysis. Also Newberg, et al. [3] confirm these findings. They recognized the occurrence of two dimensions during meditation: emotional release of subjective experiences of horror, peace, calm or excitement and degree of unity, infinity related to 1 dimension. Both affect the awareness of the boundaries between us and others and us and the environment.

The frequency of brain waves determines our activity and perception. According to Lagopoulos, et al. [24], theta waves, associated with a deep relaxation state, frequently occur during meditation in the front and middle parts of the brain which are responsible for other mental processes. The finding was confirmed by Kjaer, et al. [25]. They verified experiences of people practicing yoga nidra, for whom the clearest sensation was a depressed level of desire for action and no sense of control that was accompanied by developed imagination due to the presence of theta waves. Alpha

waves are more numerous in the back parts of the brain and are characteristic of its resting state from an intentional goal-oriented task. During meditation delta waves appear too, which are characteristic of sleep. This may be the reason of such a vast variety of experiences on the edge between reality and dream during meditation.

These findings are confirmed by another study run by Corby, et al. [26]. During meditation, proficient meditators demonstrated increased alpha and theta power, minimal evidence of EEG-defined sleep, and decreased autonomic orienting to external stimulation. Proficient meditators demonstrated increased autonomic activation during meditation while unexperienced meditators demonstrated autonomic relaxation. An episode of sudden autonomic activation was observed that was characterized by the meditator as an approach to the Yogic ecstatic state of intense concentration. These findings challenge the current 'relaxation' model of meditation.

Studies with meditators, however, show an increased intensity of slow alpha activity (8-12 Hz) in central and frontal regions, occasionally interspersed with the high frontal voltage theta activity. Beta and delta waves are either decreased or remain constant during meditation. Studies also show a widespread alpha EEG coherence across the cortex in meditation. These data suggest that the alpha-theta activity is predominant in meditation, whereas the delta activity predominates in deep sleep. Although the theta-wave activity is indicative of dreaming, alpha, the predominate wave form in meditation, is most closely associated with a state of wakeful alertness. In wakeful alertness, one's state of consciousness is characterized as empty of any particular content but nevertheless active and alert above the threshold of awareness [14].

Reality, also the one perceived during psychophysical practice, can differentiate experiences as the participant will have another perspective due to the attitude adopted, that of a subject, observer or experimenter. The belief system seems to play an important role, which was suggested by Newberg and Waldman [3]. They studied the activity of the prefrontal cortex of people who follow atheism. They found higher activity in the atheist's prefrontal cortex when compared to the Buddhists' monks.

In addition to activation of the prefrontal cortex being responsible for concentration and emotion control, the study showed a lower activity in the hippocampus responsible for emotions. Stimulation of the anterior lobe slows down the activity of the structures responsible for tendencies for alternate dimensions of reality perception, moreover it maintains the frame of 'unbelief', therefore these are arguments contributing to highlight the importance of our beliefs. According to Shapiro [27], such features as belief in self-efficacy, enthusiasm and commitment, sense of inner control, interest in the inner world, emotional stability, personality open and tolerant to unreal states of consciousness predispose people to reap the benefits of meditation practices.

The phenomenon of absorption is interpreted as a disposition for having episodes of 'total' attention that fully engage one's representational (i.e., perceptual, enactive, imaginative, and ideational) resources [28]. This kind of attentional functioning is believed to result in a heightened sense of the reality of the attentional object, imperviousness to distracting events, and an altered sense of reality in general, including an empathically altered sense of self. Absorption appears to be of interest for the study of hypnosis and personality.

Similar results obtained in the study of Pekala, et al. [29] indicated that absorption correlated with increased and more vivid imagery, inward and absorbed attention, and positive affect; decreased self-awareness; and increased alterations in state of consciousness and various aspects of subjective experience. In addition, individuals of high absorption ability, relative to lows, experienced a different state of consciousness during ordinary, waking consciousness that became an altered state with eye closure and an hypnotic-like induction.

Meditation is described through systematic mental training that develops self-awareness, an ability to effectively modulate one's behavior (self-regulation), and a positive relationship between self and other which increases prosocial characteristics (self-transcendence) [30]. Contemplative method as meditation is proposed to modulate self-specifying and narrative self-networks through an integrative fronto-parietal control network.

The examination of meditating people showed that during the practice of meditation the participants were found to have a significantly increased left-sided anterior activation and frontal midline theta activity. These results are including positive emotional experience, accompanied by focused internalized attention [10].

Fredrickson, et al. [31] confirm a surge of positive emotions after meditation which improves one's personal potential and reduces symptoms of disease and levels of depression, whereas people who are defensive, psychotic, emotionally disturbed and unable to get involved in regular exercise are at the opposite end. The studied practices can be recognized as self-regulation ones except for the consciousness categories [6]. Especially when the locus of control is external, somatic complaints occur, i.e. Raynaud's disease or migraine, but in such cases a better choice seems to be Jacobson's progressive muscle relaxation, instead of meditation.

Lloyd, Gannon [32] conclude that personality predicts an intervention-experience. These views depend upon an understanding that personality consists of dispositional-mood and style. Positive and negative emotionality as well as wellbeing, stress reaction, social closeness, alienation, absorption define dispositional-mood, and style. The authors maintain that the subjects who are disposed toward positive engagement are the ones more likely to report times of extreme positive emotions during their practice of either rebirthing or meditation.

A new theory of mind-body interaction in healing is proposed based on considerations from the field of perception. It is suggested that the combined effect of visual imagery and mindful meditation on physical healing is simply another example of cross-modal adaptation in perception, much like adaptation to prism-displaced vision. It is argued that mind-body interactions do not exist because of higher-order cognitive thoughts or beliefs influencing the body, but instead result from ordinary interactions between lower-level perceptual modalities that function to detect when sensory systems have made an error [33].

The effectiveness and perception of proposed methods could have been influenced by a general state of health and reported stress level, which was not verified in details in this survey [13]. The stress response is affected by an interactive system of socioeconomic, psychological, behavioral, and physiological factors, all of which may affect the individual's ability to cope with stress effectively while maintaining the body homeostasis. The ability to tolerate stress can be additively affected by physiological predisposition, behavioral coping skills, social support, and financial resources. Each of these factors can have generalized effects. The stress management methods directed at a single modality (e.g., cognitive, physiological or behavioral) can affect others as well [11].

Specifically, our review concluded that methods with predominant cognitive components (e.g., Beck's cognitive therapy or verbal psychotherapy) tend to produce specific cognitive effects (e.g., decreases in amount of worrying, self-assessment of anxiety or pain, inability to concentrate mentally, etc.); techniques with predominant autonomic components tend to produce greater effects on the autonomic nervous system (e.g., decreases in heart rate and blood pressure, increases in finger pulse volume, etc.); and methods with predominant skeletal muscle components (e.g., progressive relaxation) tend to produce greater muscular effects. The specific treatment effects may be great enough to produce differential clinical effects for particular disorders. The disorders with major cognitive components (e.g., anxiety or anger disorders, pain disorders) tend to respond differentially to cognitively-oriented procedures; the disorders with major autonomic components (e.g., hypertension, migraine headaches) respond differentially to autonomically-oriented procedures; and the disorders with predominant muscular components (e.g., musculoskeletal pain conditions) respond differentially to muscularly-oriented procedures [11].

Other results were presented in Agee, et al. [34] study. Meditators practiced meditation significantly more often than PMR participants practiced relaxation during the intervention period. Interestingly, the two conditions did not differ significantly in their posttreatment levels of relaxation or mindfulness. Although there were no differences between groups on any of the primary outcome measures, across both treatment conditions there were statistically significant reductions from pretreatment to posttreatment in general psychological distress. Whenever possible, persons leading this kind of practice should try to calibrate the goodness-of-fit of the intervention to the participant's primary processing style [12]. According to Lloyd, Gannon [32] personality measured as a structure of functioning units adequately explains variance on the intervention-experience measures. We could assume that experiences form our personality, or perhaps it is our personality which structures our experiences?

Conclusion

1. Among the facilitating experiences, no relationship was found in any of the relaxation techniques, whereas for the participants following hatha yoga and Jacobson's relaxation all the hindering experiences were statistically significant.
2. Among the facilitating experiences indicated by all experimental groups were inner silence, intense positive emotions and feeling of timelessness.
3. Among hindering experiences, the key experience was bad feeling, as it was the statement distinctly indicated by all the experimental groups.
4. As far as the other experiences are concerned, all the experimental groups most frequently indicated the experience of boundaries between self and environment. In addition, the followers of Jacobson's training indicated disappearing of body parts and clear visual imagery.
5. Taking into consideration the obtained results, it is not possible to state whether the practices starting from body-work (Jacobson's progressive training and hatha yoga) are more or less effective than the practices inspired by mind-work (yoga nidra, meditation).

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