

EFFECTS OF ART THERAPY ON STRESS AND ANXIETY OF EMPLOYEES

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The study was designed to determine if art therapy has any effect on the stress and anxiety of employees. The results demonstrated that before and after art therapy in the study group, the level of the stress indicator (cortisol) over twenty-four hours and also the state of anxiety decreased significantly ($P < 0.05$). The mean final stress level and situational anxiety for the study group were significantly lower ($P < 0.05$) than those for the control group. No significant changes were found for trait anxiety in any of the groups. These findings suggest that art therapy for employees is a preventive measure for a person to understand stress situations and to be capable to manage their anxiety, react adequately and to cope with stress, thus improving the quality of life by creative means.

Key words: art therapy, stress, anxiety.

INTRODUCTION

Stress and anxiety are problems connected with nowadays situations at work and at home, which have a negative influence on employee health. Our time is called the “era of anxiety”, and stress is considered as the health problem number one (Изард, 1999; Nadel, 2006). Stress and anxiety are often separately used terms but they do have similarities. Stress deals with emotions, including anxiety, because it affects man’s psychological well-being, function of the body and health (Lazarus, 1999).

With the growing intensity of workload, there arise psycho-emotional experiences related to job stress, incorrect work organization, unreasonable requirements, little social support, inadequate salary, insufficient family support and negative assessment of colleagues (Baķe and Rozenberga, 2005). In a group of observed health care workers in Latvia 10% respondents evaluated their health as satisfactory and 90% felt tired, low and anxious (Baķe u.c., 2007). This can provoke psycho-somatic reactions and be a reason of somatic changes. The first symptoms of stress to appear can be physical (lack of appetite, sleeplessness, headache, pain in chest) and psychological (difficulties to concentrate, imbalance, anxiety, irritability, difficulties to make a decision, burn out). Illnesses and social problems develop in the case of permanent stress (Reņģe, 2007). Stressors such as time limits, relationships and unreasonable requirements are considered to be factors that cause symptoms in upper extremities (Feuerstein *et al.*, 2004). In stressful situations the emotions created increase adrenocorticotrope hormone acti-

vating adrenal cortex, which in its turn extract cortisol (Kemper, 1990). Changes in the cortisol level are an indicator of the stress level (Melamed *et al.*, 1999; Hofman., 2001; Fujivara *et al.*, 2004). There is some information on ways to reduce the level of cortisol in stress situations and on the effects of creative activities to cortisol level (Kirschbaum and Hellhammer, 1994; Fukui and Yamashita, 2003). It is necessary to develop solutions for decreasing unreasonable stress and anxiety in workers suffering from stress situations at work.

The aim of the study was to examine the effect of art therapy on stress and anxiety for health care workers.

MATERIALS AND METHODS

A quantitative quasi-experimental pilot design was implemented for this study.

The participants in the study were 60 health care workers (women), ranging in age from 20 to 69 years, who agreed to participate. The study was approved by the Committee of Ethics. The participants were divided into two groups: study group (30 respondents) and control (30 respondents). The mean age of both groups (40.0 ± 9.8) corresponds to the same psychological age group (38.5 years in the study group and 41.5 years in the control group). Study duration was three months. For the study group a programme of art therapy was designed (Visnola, 2009), which is described further.

Three methods were used before and after art therapy for evaluation of stress and anxiety:

1. **Stress questionnaire.** The stress questionnaire was developed by the Institute of Occupational and Environmental Health of Rīga Stradiņš University on the basis of the model of the Finnish Institute of Occupational Health. The questionnaire covered socio-demographic characteristics and profession. The level of stress is determined taking into consideration such factors as physical and mental workload, work organization and management, social support (from family and friends, attitude of colleagues and superiors), psychological climate at work, acquirements of employee and allocation of work (hurry and ability to influence the character of work), physical / mental threat from patients, hazardous risk factors at work (physical injure, biological and chemical factors), psycho emotional expression of stress (vital exhaustion and tension), physiological expression of stress, self evaluation of health, satisfaction with work and life. The questionnaire used the Likert scale, ranging from 1 (never) to 5 (almost always). The level of stress was considered as raised (persons evaluated as stressed) if the total scores was above 174 points (Bake, *et al.*, 2007).

2. For detection of the level of stress indicator (cortisol) over twenty four hours, the **high-performance liquid chromatography method** (HPLC Water Alliance with UV detection) was used for determination of cortisol in saliva (Kawasaki *et al.*, 1979). Saliva samples were collected three times during the day: in morning (8–9), at noon (12–13) and in the afternoon (16–17). Each participant was asked to hold Salivette® tampons in the mouth for three minutes.

3. **Examination of anxiety with State-Trait Anxiety Inventory Form Y-1** by C.D. Spielberger (Spielberger and Vagg, 1984). Its first part, the workers' response to questions about their feelings at the time of the test, was used to evaluate anxiety (S-anxiety). In the second part respondents were asked to evaluate how they usually feel, to determine trait anxiety (T-anxiety). Participants responded to each item on a four-point Likert scale. The results of each part can vary from 20 to 80 points (Škuškovnika, 2004).

In addition, before art therapy participants of the study group were questioned about the kind of motivation they have. After art therapy they were asked if they had reached the goals and what they have attained during the sessions. Before and after each art therapy session, participants of the study group were asked to describe their emotions, in order to determine changes of emotions during the day of the session and dynamics of the art therapy.

Study design. The above assessment was made for both the study and the control group prior to art therapy. No intervention was carried out for the control group in order to control the influence of the art therapist and normal development of people within the effects of environmental factors.

The study group participated in an art therapy programme consisting of three stages: 1) situation determination; 2) acquiring of methods of stress reduction and overcoming of anxiety; 3) awareness of man's self-conception and strengthening of man's potential (Visnola, 2009). Each stage consisted of three sessions (nine sessions in total, 18 hours in two months). The sessions were structured. Half an hour was planned for the introduction including fixing of participant emotions before each art therapy session, speaking about participants' home works, doing warming exercise and / or providing information. Approximately an hour was given for creating of an art work and negotiations. At the end of the art therapy session half an hour was planned for description of home work, feedback with fixing the emotions participants have after sessions, and the conclusion exercise. No artistic skills were required from the participants. In the art therapy sessions several art therapy methods and techniques (collage, creative journal method, drawing, painting, application etc.) were used. The art works were made individually and in small groups.

In the first stage of art therapy, intervention activities were chosen to recognize stressful situations, learn to transform and cope with them. The first session was focused on identifying the most important emotions and stress factors participants have in daily life as well as on informing participants about cognitive behavioural art therapy and rules in the group. The first art work was application of the "Tree of emotions" where participants had the opportunity to express their emotions and even painful feelings. The second session was focused on identifying the exact body parts where strain and pain were accumulated and promoting to release them through art therapy and relaxing exercises. The second-session art work was drawing "Colors and sounds (heart beats and breathing) of body" when participants felt their body, drew what stress looked like in their body, relaxed and then drew body without strain. The third session focused on identifying stressful situations of the participants, on expressing their emotions, on promoting problem-solving skills to encourage coping skills, and on finding the best possible solutions. The third art work was a collage, "Stress situations and solutions" when participants had a chance to look at their stress situations from different aspects and think about changing their attitude, finding other possibilities to react differently and cope with stress. Thus, the participants had the chance to learn transform negative image into positive in the second and third sessions. The first stage ended with the home work "Positive situations in daily life" when participants had to find and drew a positive event every day.

The second stage was more focused on cognitive restructuring and acquiring methods of stress reduction and overcoming of anxiety. The fourth session gave a chance to disengage from strain and acquire a short-term method of stress and anxiety reduction. The fourth art work was spontaneous painting on a large sheet of paper while listening to music after which participants fixed their feelings and wrote a story of the painting. For home work, participants were en-

couraged to make scribbles on a sheet of paper in daily life to reduce anxiety. The fifth session was focused on finding positive resources in the work place and recognizing the needs of employees, reducing dissatisfaction with job and encouraging collaboration. The fifth art work was a collage, “Sources of satisfaction and resources in working place”: divided in small groups, participants had to ask several questions such as: How do we get satisfaction from our job? Do we get satisfaction from clients, colleagues, superiors and other sources? What does give us harmony and strength? What is the reality and what we need in future? Afterwards each group created an art work on this theme and shared their version with others. The sixth session gave a chance to work with a stress factor such as lack of time and to think about the self-concept of each participant. The sixth art work, “Time”, helped to identify which activities were missing every day and which could be reduced. Participants came to conclusions about the necessity to think more about themselves, and therefore, another art work, “Mandala” allowed them to concentrate and dispose of needless thoughts. The participants were asked to colour one more mandala at home.

The third stage was focused on participant self awareness, symbolism and positive emotions. The seventh session provided an opportunity to strengthen self-confidence and identity of each participant. The seventh art work, “My name in the stars of the Sun”, reminded the participants about their achievements, helped them notice colleagues’ strong points and tell the positive thoughts to each other. The eighth session was focused on strengthening of the self-conception of each participant while finding their own symbol, which expressed the resources and promoted positive emotions. The art work “My symbol” was helpful in finding the personal meaning of the symbol and in such a way strengthening participant self-confidence, self-awareness and self-esteem. The ninth session was focused on the conclusion of art therapy and resources which participants had found through art works and sessions. The art work “Telegram” helped to clarify the achievements of participants during art therapy sessions and to express their emotions.

The final (post-art therapy) measurement was done in both groups after the art therapy programme for the study group was concluded.

The statistical processing of the study results was conducted using SPSS 14.0 software (company SPSS Ltd., USA). In the statistical data analyses, adequate methods were used (Altman, 2003; Teibe, 2007).

RESULTS

The results of the questionnaire are presented as mean values of total scores for study and control groups before and after art therapy (Fig. 1). The mean indicators did not reach heightened stress level (174 scores) in either group (Fig. 1). Also, the mean values were not significant in the study group between the pre- and post- art therapy measurements.

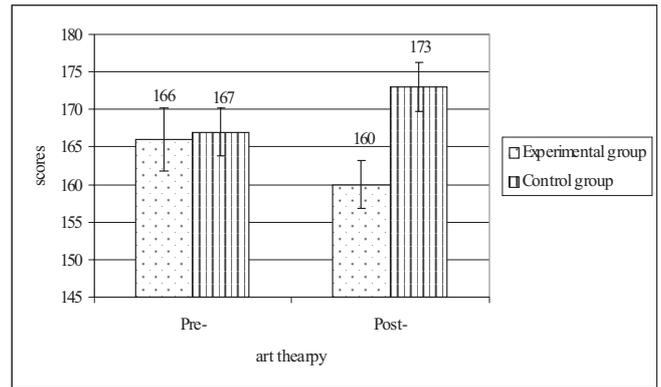


Fig. 1. Mean stress level values (scores) according to results of a questionnaire comparing pre- and post- art therapy measurements in the study and the control groups.

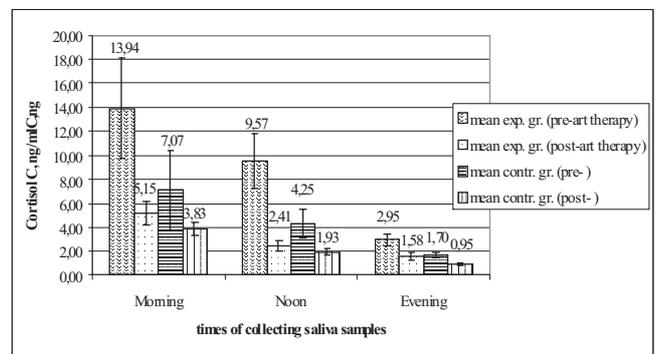


Fig. 2. Mean salivary cortisol level (C, ng/ml) values at pre- and post-art therapy times at morning, noon and evening in the study and the control groups.

However, the final level reached for the study group (160.2 ± 3.2) was significantly lower ($P < 0.05$) than that in the control group (172.7 ± 3.3), which indicates that art therapy likely influences the stress level.

The mean levels of salivary cortisol are presented in Figure 2. The cortisol concentration in saliva varied in a wide range: from 1.6 ng/ml to 66.9 ng/ml in morning, 0.8 ng/ml — 30.3 ng/ml at noon and 0.3 ng/ml — 8.1 ng/ml in the afternoon. The cortisol level decreased during the day in all cases, corresponding to a normal diurnal rhythm.

The mean stress hormone (cortisol) level differed between pre- and post therapy times for the study group (Fig. 2). Significant ($P < 0.05$) changes in the hormone analysis can be observed only in the study group in each time of analysis: in the morning the mean level of salivary cortisol before art therapy was 13.94 ± 4.15 but after art therapy — 5.15 ± 0.99 ; at noon the salivary cortisol levels were 9.57 ± 2.31 and 2.41 ± 0.38 , respectively; and in the evening — 2.95 ± 0.54 and 1.58 ± 0.28 , respectively. In the control group the cortisol levels did not significantly differ in morning, but were significantly different at noon and in the afternoon.

The results of S-anxiety and T-anxiety are presented in Table 1. There were significant changes in S-anxiety after art therapy, but no significant T-anxiety changes were observed

Table 1

S-ANXIETY AND T-ANXIETY VALUES (SCORES) AT PRE- AND POST-ART THERAPY TIMES IN THE STUDY (n = 30) AND CONTROL GROUPS (n = 30)

Groups	Mean values (scores) M ± SD		Range	
	S-anxiety	T-anxiety	min/max S-anxiety	min/max T-anxiety
Pre-art therapy study group	38.3 ± 11.0	41.3 ± 8.4	23 / 68	21 / 61
Pre-art therapy control group	41.7 ± 11.8	45.9 ± 8.5	22 / 66	31 / 64
Post-art therapy study group	28.6 ± 6.0	38.7 ± 7.7	20 / 49	24 / 55
Post-art therapy control group	39.3 ± 10.5	45.2 ± 9.0	21 / 63	28 / 62

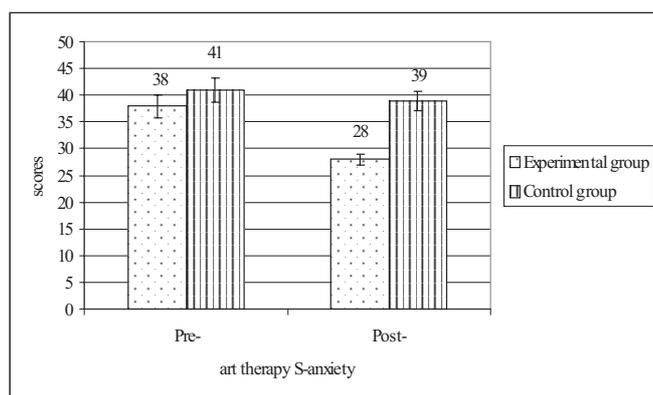


Fig. 3. Mean S-anxiety values (scores) at pre- and post- art therapy times in the study and the control groups.

in the groups. Mean changes of S-anxiety values are presented in Figure 3. Mean levels of S-anxiety decreased significantly between pre- and post-art therapy times ($P < 0.05$) for the study group but not for the control group.

DISCUSSION

There are numerous studies about physiological stress (Seljé, 1983; Kemper, 1990; Lazarus, 1999; Theorell, 2000), about the anxiety (Spielberger and Vagg, 1984): psychodynamic (Ådlers, 1992; Jungs, 1993; Freids, 2007), cognitive (Beck and Clark, 1997; Lazarus, 1999), behavioural (Изард, 1999; Bandura, 2006), and humanistic (Rogers, 1961). Influence of art therapy effect on stress and anxiety have also been studied, e.g. art therapy for coping with stress (Spanondis, 2003), for employees (Пурнис, 2008), art therapy in connection with brain functions, role in the personality growth and in the process of treatment (Lusebrink, 2004).

Generally, these researches in art therapy shows that art therapy can influence both genders, therefore, women and men were invited to participate in this research, but only women agreed to participate. According to researches, the cortisol level increases for both women and men but at the same time testosterone decreases for men but increases for women in stress situations (Kemper, 1990). Therefore, the results of this research are not be extrapolated directly to

men and additional researches should be made to determine whether art therapy has any effect on the stress and anxiety of men.

The study indicates significant changes in the study group in several indicators that are directly associated with stress and anxiety, with self-conception, and with communication and collaboration with others.

Changes directly associated with stress and anxiety. A significant decrease in mean indicators of the State-Trait Anxiety Inventory Form Y-1 in the study group suggests the influence of art therapy, particularly since no difference was shown in the control group. In the T-anxiety part the mean value of five indicators of 20 significantly changed in the study group but not in the control group. According to the Spielberger (1984) theory of anxiety, there is a correlation between S-anxiety and T-anxiety and both are characteristic to all people. S-anxiety changes according to the situation and is easier to change, but T-anxiety is more stable and difficult to change, which was shown also in the present study.

The results of the stress questionnaire showed no significant mean differences between the study and control groups with respect to stress level scores. However, comparing the scores at post-art therapy times of the groups, the scores of the mean stress level for the study group were lower than the scores for the control group. This indicates that art therapy can reduce employee stress level.

Tiredness as an indicator of stress and anxiety (Melamed *et al.*, 1999; Хорни, 2002; Warr, 2003) was significantly changed for all respondents, but remained close to the mean level and some participants of the study group mentioned tiredness even before the second last session, which is considered to be an indicator. This creates doubt about the possibility of reducing tiredness using art therapy in a short period of time.

Changes of the mean values of stress hormone cortisol at pre- and post-art therapy times in the study group suggest an effect of art therapy treatment. The condition of each participant of the study group at the time of therapy is important to consider. For example, the initial cortisol level in a participant of the study group was higher in the morning (66.96 ng/ml) in comparison to mean of the group (13.9 ±

4.2 ng/ml). Art therapy discovered painful, lasting feelings (personal and connected with work relations) and solutions were found. At the post-art therapy time, the cortisol level for the abovementioned participant was significantly decreased (in the morning 17.72 ng/ml), again indicating an effect of art therapy.

The cortisol level decreased during the day for both groups, demonstrating a normal diurnal rhythm (Melamed *et al.*, 1999; Hofman, 2001; Fujiwara *et al.*, 2004). Significant ($P < 0.05$) changes in the hormone level were observed before and after art therapy at all times only in the study group. The cortisol changes in the control group in morning at pre- and post-therapy times were not significant, but did significantly differ at noon and afternoon.

Changes in indicators of somatic reactions were significant after art therapy compared to levels before therapy only for the study group. An increased heart rhythm, which is called the indicator of anxiety and which is facilitated by physiological stress, can be reduced by art therapy (Davidson, 2000; Хорни, 2002; Lidholm, 2005). Thus, art therapy can preventatively help to maintain the well-being of employees.

The study considered also analyzed outside factors that could help to improve feelings. The results might have been affected by greater family support and assessment of the colleagues, as well as by an improved psychological environment, but evaluation of the respective indicators in the stress questionnaire showed that they did not affect the results. The age was not a factor affecting the results because the mean age of the groups was similar. Another confounding factor could be season; the study was started at the beginning of spring and concluded in summer. However, vacation times were similar in both groups. It was observed that in the study group vacations increased the effectiveness of art therapy because the participants had time to think about their feelings. In the psychotherapeutic process, therapeutic relationships have a significant role (Bergin and Gardfield, 1994). Therefore, the results can be influenced by the art therapist, but most important is the client's shared responsibility, motivation, readiness to change and psychological thinking. This means that the results, their stability and the sustainability of changes after art therapy are dependent on the participants.

The results of our study indicate **changes in indicators associated with self-conception** (self-efficiency, self-esteem and self-confidence) which is a significant factor for the reduction of distress and anxiety in the theoretical approaches on psycho emotional stress (Lazarus, 1999; Ozoliņa Nucho and Vidnere, 2004; Lu Chang-qin *et al.*, 2005; Sakai *et al.*, 2005) and anxiety (Rogers, 1961; Первин, 2001; Хорни, 2002). A stronger self-conception leads to greater stability against stress and anxiety. The art therapy group had higher self-esteem and self-confidence scores than the control group at the post-art therapy time. The significant ($P < 0.05$) changes indicate that, after art therapy sessions, the participants of the study group felt more confident, satisfied

and pleased, their feeling of loneliness was decreased and it was easier for them to concentrate. Self-confidence was one of the indicators that are significantly changed in the T-anxiety questionnaire part. This means that changed self-confidence was more stable and that art therapy can increase the self-conception of employees. Furthermore, art therapy has a significant role in personality growth (Lusebrink, 2004) and creating art increases self-confidence and self-esteem (Argyle and Bolton, 2005; Franklin, 1999).

Besides self-improvement and self-cognition (56.67%), a "discovered way to solve stressful situations and change attitude to situations" (36.67%) was mentioned by the participants of the study group as the main gain of the art therapy sessions. Thus, art therapy increased the participants' skills to cope with stressful situations (Spanondis, 2003). According to the literature, an employee reevaluating the situation feels more peaceful and confident about his/her skills (Lazarus, 1999) but it requires cognitive and behavioural effort (Lazarus, 1999), which is necessary for effectively reducing distress and anxiety. This was also observed in the art therapy sessions.

In the gain of the art therapy sessions, 30% participants of the study group mentioned relaxation and good mood, 6.7% — positive emotions and 3.33% — positive thinking, as described previously: art therapy improves mood, decreases stress (Petrillo and Winner, 2005; Walsh *et al.*, 2005) and can be relaxing (Argyle and Bolton, 2005).

Art therapy also improved **communication and collaboration**, which in turn decreases stress and anxiety. Interpersonal relationships are known to decrease anxiety (Салливан, 1999). Participants of the study group felt as more belonging to the organisation. In addition, one-third of them mentioned that participation in the art therapy groups is a possibility to become more acquainted with colleagues, and the mutual understanding and encouraging atmosphere had a the significant role. This was confirmed by significant ($P < 0.05$) indicators that showed the study group to feel more harmonious with the environment, perceive more peacefully tense situations and feel less irritated about the presence of other colleagues.

The analysis of feelings expressed by the participants of the study group, and changes during each art therapy session indicate that feelings expressing a lower stress and anxiety have a tendency to increase in the period of art therapy. In turn, feelings expressing stress and anxiety have a tendency to decrease. Although before sessions the attitude was neutral or feelings negative, the tendency of their change to more positive was observed.

The conclusions are:

1. The study showed that art therapy has the following effects:

- reduces the level of the stress indicator cortisol, shown by changes during art therapy given at any time of day, as well

as by certain cases when during the art therapy process solutions to stress situations were searched for;

- reduces the stress level of employees, shown by mean scores of the respondent answers on the stress level questionnaire, compared to the control group, and the percentage indicators;

- reduces the S-anxiety, shown by the mean and the percentage indicators of the respondent S-anxiety statements on the anxiety test;

- improved employee feeling well shown by changes in indicators such as accelerated heart rhythm, headaches, feeling of pressure and pain in chest, and having become easier to fall asleep;

- strengthens self-conception and facilitates the growth of personality, shown by statistically significant changes in the T-anxiety indicator self-confidence and in the S-anxiety indicators: confidence about oneself, satisfaction, being more pleased and considering self-improvement and study to be the main gain of art therapy sessions;

- reduces indicators of strengthening of mutual cooperation, e.g. feel more in concordance with the environment, etc.

2. The effectiveness of art therapy, the stability and length of changes depend on man's motivation, readiness to change and psychological thinking, as well as on man's shared responsibility.

3. Strengthening of self-conception and mutual cooperation in art therapy may reduce the level of stress and anxiety.

4. Art therapy methods should be adapted to different situations, groups and employee needs, maintaining its stages. An art therapist is required to employ a flexible mode of thinking and actions appropriate for the specific group in the specific situation.

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MĀKSLAS TERAPIJAS IETEKME UZ STRESU UN TRAUKSMI DARBINIEKIEM

Pētījuma mērķis bija pārbaudīt mākslas terapijas ietekmi uz stresu un trauksmi organizācijas darbiniekiem. Pētījuma rezultāti parādīja, ka pirms un pēc mākslas terapijas eksperimentālajā grupā stresa hormona (kortizola) līmeņa visu diennakts mērījumu izmaiņu un situatīvās trauksmes rādītāji ir ticami samazinājušies. Eksperimentālajai grupai stresa līmeņa un situatīvās trauksmes beigu mērījuma vidējais aritmētiskais ir ticami zemāks nekā kontroles grupai. Mākslas terapija organizācijas darbiniekiem ir viens no faktoriem, kas samazina stresu un trauksmi un ir kā profilakses līdzeklis, lai cilvēks izprastu stresa situācijas un spētu vadīt savu trauksmainību, adekvāti tajās reaģētu un tiktu ar tām galā, tādējādi uzlabojot savu dzīves kvalitāti ar radošiem līdzekļiem.