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THE EFFECT OF HOSPITAL GREENERY ON THE PSYCHOEMOTIONAL STATUS OF HOSPITALIZED CHILDREN

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ABSTRACT

Since ancient times people had been using natural resources to shake off psychoemotional tension. Visual and tactile contacts with flora help people to realize their place in the world, to relieve the psychoemotional tension, enhance healing processes.

The aim of the present research was to study the effect of hospital greenery on the psychoemotional status of children receiving long-term inpatient care.

A "Green Room" with specially selected house plants was created in the Pediatric Endocrinology Department of "Muratsan" Hospital at the Yerevan State Medical University. The psychoemotional status of randomly selected 2 groups of hospitalized children aged 6-13, who received standard medication and a 10-day art-therapy, were studied. The art-therapy of children enrolled in Group 1 (n=21) was conducted in the "Green Room" under the guidance of a specially instructed healthcare worker. Children of Group 2 (Control) received art-therapy by the same method but without visiting the "Green Room".

The psychoemotional status of 2 groups of children from the same department was tested using the "Wonderland of Feelings" method by T.D. Zinkevich-Yevstigneyeva [*Zinkevich-Yevstigneyeva T., 2006*].

The comparison of test results obtained in 2 groups of children demonstrated statistically significant difference: interaction of all colors was almost twice higher in Group 1. The second parameter was adequacy of feelings to the choice of colors that did not show significant difference in 2 groups. The third measurement regarded the degree of filling a human silhouette with colors that was significantly improved in Group 1 and could be interpreted as getting to know and accept the body.

Creating comfortable green environment in the hospital relieves tension, alleviates the traumatic effect of the hospital on children's psyche, and can eventually improve treatment outcomes.

Keywords: phytodesign of hospitals, psychoemotional comfort, art-therapy, ousting of color, emotion and colors.

INTRODUCTION

Provision of healthcare facilities with comfortable environment is of highest importance in hospital management. Human emotional feelings are an important factor influencing recovery process. However, the problems of patient's psychoemotional comfort as an important psychohygienic factor in healthcare facilities and in providing a medical aid are not properly considered.

For centuries people have been using natural resources to shake off psychoemotional tension. Visual and tactile contacts with flora help people to realize their place in the world due to a reflection process, directed both to themselves and the surrounding plants [*Baran V., Nikiforov Yu., 2008*].

Contemporary medical investigations prove that contact with plants has a favorable influence on the nervous system, decreases tiredness, restores working efficiency, etc. [*Rae W. et al., 1976; Ulrih R., 1984;. Lohr V. et al., 1996; Dijkstra K. et al., 2008; Grindle B. et al., 2009; Kline G., 2009*].

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Picture 1. *The process of therapy in Group 1.*

In order to study the influence of phytodesign on psychoemotional status of patients, we have implemented the "Wonderland of Feelings" (WLF) method by T.D. Zinkevich-Yevstigneyeva [*Zinkevich-Yevstigneyeva T., 2006*]. The selection of this method is justified by the fact that it gives a chance to reveal the complete picture of the psychoemotional status of the person undergoing the investigation. The basis of emotion and color associative conjugation was demonstrated in earlier studies [*Yanshin P., 1996; Dragunskiy V., 2000*]. Thus, according to B.A. Bazima emotions and color have some common conformity to natural laws: first. emotions and color are "interlaced" on a very deep base and present themselves as an objective realization of emotions and, secondly, a definite emotion is rather stricktly "allotted" to a certain color [*Bazima B., Kutko E. 1997; Adashinskaya G., 2003; Adashinskaya G. et al., 2005; Bazima B., 2007; Selchonok K., 2007*].

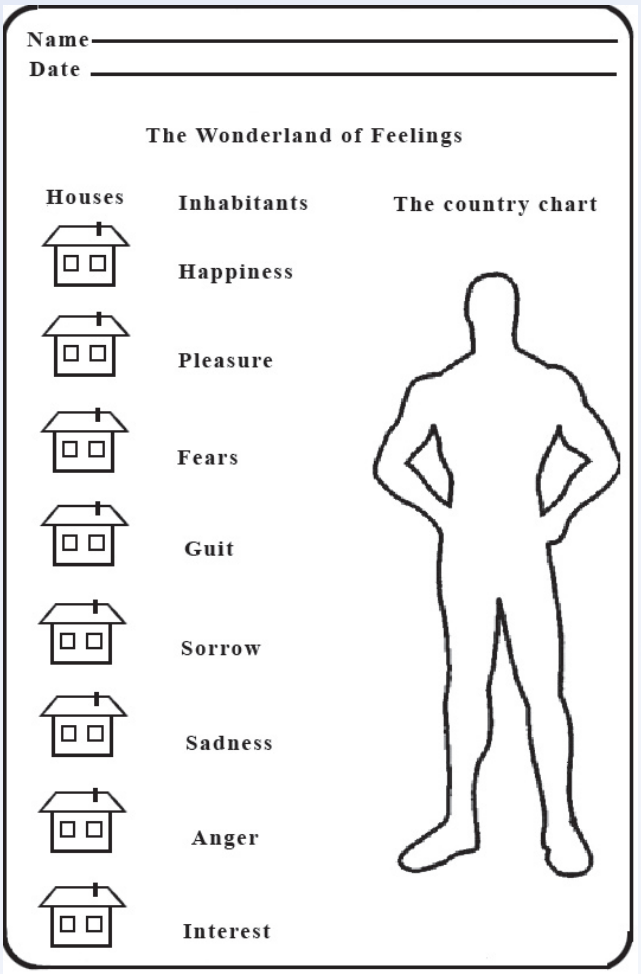
Since the age of 3-4, a mentally healthy person realizes the emotional content of main colors, alongside with the development of the ability to verbalize impressions, and is able to differentiate colors by the emotional sign [*Bazima B., 2001*].

Comprehension of the full spectrum of colors is the base of harmonic vision; e.g., in Japan education of children starts with identifying the absence of certain colors in pictures and then the comprehension of all the known colors is achieved. "Harmony in color – harmony in the soul – harmony in life" is one of the utmost important objectives of a Japanese teacher [*Orekhova O., 2002*].

MATERIAL AND METHODS

For this investigation, we created a "Green Room" in the University "Muratsan" Hospital implementing medical phytodesign technologies [*Kazarinova N., Tkachenko K., 2004; Vardanyan K., Hayrapetyan A., 2009*]. To fulfill the goal we examined two groups of children aged from 6 to 13; each group involved 21 patients receiving treatment in "Muratsan" University Hospital. Alongside with standard treatment protocols, the Hospital psychologist conducted a 10-day art-therapy in both groups.

Group 1 included children, who received art-therapy by the above-mentioned method in the "Green Room". Every day the patients spent an hour there, having the chance for visual and physical contact with the house plants. The children had the right to choose a blossoming green "friend" according to their color preference; those who were interested were taking care for the plants (Picture 1).



Picture 2. *The blank form used in the "Wonderland of Feelings" method*

Children of Group 2 (Control) received art-therapy by the same method but without visiting the "Green Room".

On the first day of investigation, the children from both groups underwent a test by the WLF method. The child was given colorful pencils (red, yellow, blue, green, violet, brown, grey, and black) and a blank paper where the main emotions were mentioned (happiness, pleasure, fear, guilt, sorrow, offence, fury, interest) in small houses and a human silhouette (Picture 2).

Diagnosis was made according to the following parameters:

1. whether all the colors were used;
2. if the choice of colors was adequate to painting the emotions in the houses;
3. color distribution in the human silhouette.

The silhouette is symbolically divided into 5 zones:

- the head and the neck symbolize mental activity;
- the trunk up to the waist: emotional activity;
- the hand up to the shoulder: communicative ability
- pelvic-femoral area: sexual and creative feelings
- legs: sense of confidence, as well as the possibility for "earthing" negative feelings.

On the 10th day, a second testing was conducted in both groups. The results of psychoemotional status examination in children from Group 1 were compared with the results obtained in Group 2.

For statistic analysis the packets of Excel 2007 and XLSTAT 2009 programs were used. We compared the results of the two groups on the first and tenth days of the investigation using Mann-Whitney's criteria.

RESULTS AND DISCUSSION

The analysis of obtained data (Figures 1-4) on color ousting both in emotions expression and human silhouettes filling has shown the greatest percentage for the ousting of black color in both groups before the course.

By its psychological index the black color (data presented by column 7 in the diagrams) characterizes the attitude to the absolute (authority, fate, death), symbolizes refusal, full renunci-

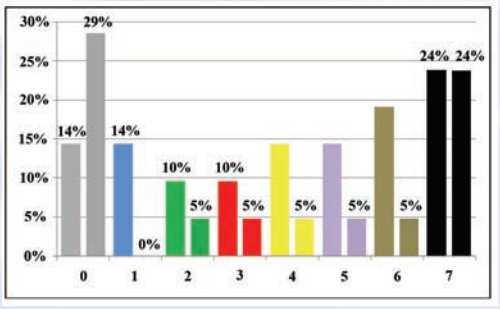


Figure 1. *Color ousting in the group of children visiting the "Green Room", before and after the course (emotions).*

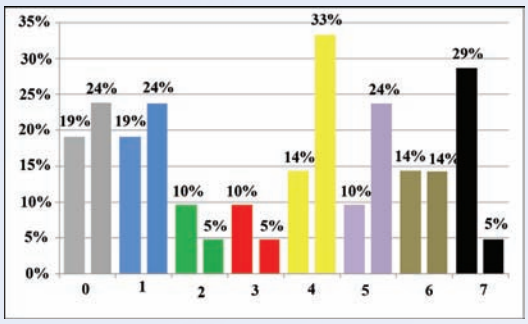


Figure 2. *Color ousting in the group of children not visiting the "Green Room", before and after the course (emotions).*

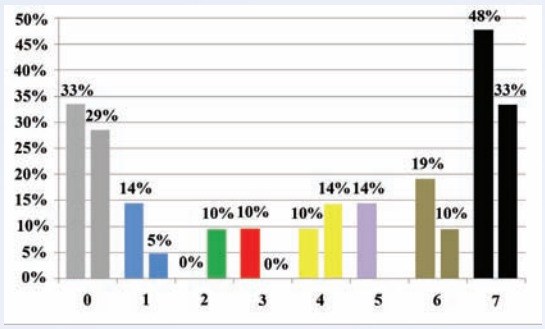


Figure 3. *Color ousting in the group of children visiting the "Green Room", before and after the course (human silhouette).*

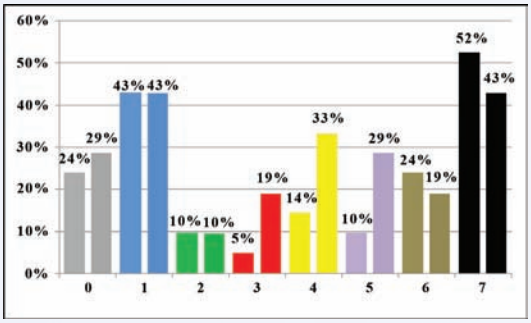


Figure 4. *Color ousting in the group of children not visiting the "Green Room", before and after the course (human silhouette).*

ation or rejection. Ousting of the black color is explained by fear for thinking about their state, unwillingness to realize the real state of their health [*Dragunskiy V., 2000; Selchonok K., 2007*]. This position excludes the patient's work on improving his/her state during the treatment course. On the 10th day of investigation in Group 1 the percentage of color ousting in emotions did not change, in the silhouette it decreased 1.5 times. In Group 2 a 5.9 times decrease was noted in emotions and 1.2 times in silhouettes.

The next most significant difference was reported for the ousting of the brown color (column 6 in the diagrams). In color diagnostics it characterizes the physical requirements of the organism. Not using this color characterizes ousting of fear, tiredness, overexertion, which are observed in children on admission to hospital. As a result of therapy significant changes were observed in emotions (3.8 times) and in human silhouettes (1.9 times) in Group 1, whereas in Group 2 no changes were observed in emotions, but a 1.3 times decrease was observed in the silhouettes.

In psychology, the grey color (column 0 in the diagrams) characterizes attitude to the collective body, integration. It is also separating, shutting off, releasing from the duties, hiding from external causes and effects. Grey color ousting can speak about isolation and estrangement. The reason for it can be child's fear that he/she is not like others, that other children's attitude to him/her can get worse because of his/her disease. In both 2 groups an increase was observed in emotions: twice in Group 1 and 1.3 times in Group 2. As to human silhouette, in Group 1 there was a 1.2 times decrease, whereas in Group 2, on the contrary, 1.2 times increase was observed.

In color diagnostics the blue color (column 1 in the diagrams) characterizes tendency to rest, intensive requirement for pleasant contact and satisfaction, tendency to harmony. Quite a good result was obtained in Group 1: the ousting percentage decreased in emotions up to 0, and 4.8 times in silhouettes, i.e. after the contact with house plants all the children became quiet and confident, whereas in Group 2 emotions increased 1.3 times and no changes were seen in silhouettes.

The yellow color (column 4 in the diagrams) characterizes optimism, good mood, high-self-evaluation, tranquility, adaptation. Exception of this color from the whole spectrum of colors in children speaks about their decreased mood, they do not allow themselves to believe themselves, become happy, avoid being responsible for their state. In the Experiment Group color ousting percentage in emotions decreased 2.8 times, increased 1.4 times in the silhouette, whereas in the Control Group, just on the contrary, an increase of 2.4 times was observed both in the emotions and human silhouettes.

The violet color (column 5 in the diagrams) characterizes fantasy, sensitivity, esthetic aspiration. Presence of fantasy helps the patients to compose a full "internal picture of the disease". According to R.A. Luria "internal picture of the disease" is all that the patients experience and suffer, whatever they feel, not only local (painful), but also general: their being well, about their illness and its causes. It is also everything connected with their visit to the doctor, their emotions, affects, psychic feelings and traumas [*Luria R., 1977*]. In case of violet color ousting the patient loses the ability to fantasize, imagine and compose a full internal picture of the disease. Inhibition of the necessity to fantasize disturbs the patient to compose the picture of convalescence. In Group 1 the percentage of this color ousting decreased 2.8 times in emotions, in human silhouettes it was equal to 0, i.e. all the children of Group 1 have restored their ability to fantasize and esthetic tendency after contact with the house plants. On the contrary, in the control group a 2.4 times increase of color ousting percentage is observed both in emotions and human silhouettes.

The characteristics of the green color (column 2 in the diagram) is: self-affirmation, confidence, vanity, persistence, tension of the will-power. Ousting of these characteristic features in children allows us to consider them passive. They have low-level claims, cannot believe in themselves and their power. During the treatment process the percentage of green color ousting in emotions decreases twice in both

groups, in Group 1 (regarding human silhouettes) it decreased up to 0, i.e. all the children in Group 1 restored the capacity for fantasy and esthetic tendency, no changes were observed in Group 2.

In the end, red-orange color (column 3 in the diagram) characterizes tendency to bright emotions, participation and high activity. In case of this color ousting hyperirritation, sensation of weakness, fatigue, sense of helplessness can be observed in children. The rate of red-orange color ousting in emotions decreased twice in 2 groups: in Group 1 (regarding human silhouettes) it decreased up to 0; in Group 2, on the contrary, it increased 3.8 times. By the end of the treatment all the children in the first group begin to display tendency to bright emotions, active participation and high activity, which cannot be seen in children of Group 2.

Thus, the results of analysis by color ousting percentage have revealed statistically significant difference between the 2 groups on the 10th day of investigation, when painting the houses ($p=0.04$) as well as coloring human silhouettes ($p=0.002$), whereas before the investigation there was no difference either in painting emotions ($p=0.83$) or in filling human silhouettes ($p=0.69$). Moreover, more expressed results were recorded in the Group 1, as compared to Group 2. A decrease in color ousting, tending to 0, is observed in Group 1 (for the blue, red and violet), whereas in Group 2 such results had never been observed, indicating the usefulness of phytodesign for rehabilitation of hospitalized children. The psychoemotional state of children in Group 1 improved quicker compared to children of Group 2 who will need longer rehabilitation course with the psychologist.

CONCLUSION

The psychoemotional state of Group 1 children differs greatly from that of Group 2. An important conclusion is drawn: due to "Green Room" therapy for the hospitalized children the belief in recovery and inner abilities to overcome the disease are strengthened, optimism increased, mood and self-esteem improved.

Creating the green comfortable environment in the hospital promotes the relief of tension, relieves the traumatic effect of the hospital on children's psyche, and can ease the process of children's adaptation to the hospital. Eventually, it can have a significant influence on the treatment outcomes.

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