The effect of sensory stimulations of hand on rate of behavioral disorders
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Abstract
This study has review effect of hand sensory movements in reduction of behavior disorders. The method of this study according to nature of subject has used method of semi-experimental and random block plans. The statistical society of this study consists of whole males and females 5-9 years old group by behavior disorder at 12 district in Tehran city were 30 individuals and by use of simple sampling method 24 of them were put randomly in two experimental and control group. In this study we have used Rater questionnaire for measuring health and habit and csi4 questionnaire for measuring morbid symptoms. In data analyzing this study has used covariance analyzing ANOVA. Findings: the effect of sensory stimulations of hand is effective on rate of finger sucking disorder. The effect of sensory stimulations of hand is effective on rate of nail biting disorder Conclusion: the results have shown that sensory stimulations in nail biting, finger sucking, respectively is 0/32 and 46% and in this study the effect of sensory stimulations on finger sucking was desirable and sensory stimulations on nail biting was in half of desirable rate.

Keywords: sensory movements, behavior disorders, nail biting disorder, finger sucking disorder

Introduction
Most of children by behavioral disorder quickly show unexpected behavior and we can not evaluate simple work without developmental norms. The rate of education and growth of skills, knowledge and social behaviors can be a grate help for evaluating of social defects and finally the mental sense of others also must be counts as a factor for recognizing problems of exceptional children. Typically the children's disorders were recognized by adults, so attitude and way of behaviors, bear and ability of dealing with problems of exceptional children besides adults, is very effective in how understanding and confrontation with child. (Kactow and Kactow, translate by Pour Afkari 2006).

Central nervous system, is the center of information and issuing of relative order for doing suitable behaviors for existed compatibility with environment and keeping its survival and also this fact that this tool for performing its duties, needs receiving massages and information from environment till based on its requirement, program suitable behavior and perform it, so a suitable behavior for compatibility and existed survival, needs appropriate and correct performance of three parts, sensory receptors, directions and interstitial centers and data processing center and planning behavioral strategies (Zaeer, 2009).

For explaining mechanism of effectiveness of sensory stimulations, up to this time different opinions and views are mentioned that consist the hypothesis shape of this research. On the other hand, sensory processing has role in evolution of different moving (motor) levels and creating excellent performances of mind. Mostly within beginning of first two years of child's life he receives and integrates different input data sensory especially deep and tactile vestibular sensory from environment. Processing and integrating and above input data and interaction of this sense with visual and auditory sense, causes creation of primary levels from motor skills (Kimbal,J.G. 1999, Chu,s. 2003).

Ayrez (1979) believes that this growth is happen quickly during first seventh year of life and continues till adulthood (Parha, L.D&Mailloux, Z, 2005). Ayrez has recommended that neurological works are happen by some treatments consist of vestibule stimulations, muscle receptors and touch. The vestibule
stimulation is pointing out to stimulation that is planed for promotion of correct performance of vestibule system and by equilibrium- audio nerve transfers the information to centers of high cortical equilibrium. The device has receives the muscles and joints receptors and transfers sensory information related to moving (Pour Mohammad, 2001).

Based on Ayrez hypothesis (2008), the behavioral and social problems, children for doing work have sensory integration and trend to fuss and they are too sensitive and probably they are confronted with some problems in their social relationships. Dr. Ayrez believes that many children by bad sense have shown tactical defensiveness mood, it means that they issue negative and emotional reaction toward any emotional contact that many people have normal behavior toward it (Angersel B till translation of Saheb Jamie, 2002).

The equilibrium stimulations based on Ayrez opinion may ready the nervous system for delivering consistent response and if this system has not correct and suitable performance, the description of other senses will are impaired. Therefore vestibular stimulation has a deep effect on growth of nervous system (Abotaleb, 2000).

Another neurophysiologic treatments are using from controlled sensory stimulations. Many researchers have found that by absence of deep sense information that transfers via spinal cord, some laboratory animals couldn't predict the necessity of performing a movement. And also couldn't perform some activities that can make them compatible with their environment (Jameie, 1992).

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Gaithersburg knows the sensory stimulations the organized conduct, light and calm touch of skin by skin that consisted from head to toe (Gaithersburg, 2000) Huband (2000) also knows the sensory stimulations as healing art that is suitable for creating physiologic and mental changes (Fing, 2004).

The disorder of finger sucking also is counts as one of the prevalent disorders among students. Sensory stimulation can effect on chemical metabolism, tonicity, muscles, gland movements and bowels and duration of sensory stimulation, is when that the initiate contact is established and disconnected. Sensory stimulation with short duration has more effect on sub-cortical mechanisms than brain cortex, because this time is not enough for understanding, shaping and formulizing in the brain.

On the other hand, long sensory stimulation allows neurological mechanism that completes the feeling and it associates with touching stimulations. The longer sensory stimulations increase the body's knowledge and develop sense of recovery. Because the nerve endings, especial sense and other mechanical receivers, most of the time have gradual accommodation (Kermak3, 1991).

Bomin and Kayhan (2000) by a study have compared intervention of two programs (individual and group) sensory integration on elegant motor skills among two separate groups and one comparing group (without treatment) among diplegia spastic in CP children (N=41) and the obtained results have shown that any group and individual treatment program has meaningful effect on elegant motor movements according to expected outcomes of the research.

Sheida Javadi Pour (2008) by a study has reviewed relationship between visual selective attention with handwriting quality in 18 to 22 years old students in rehabilitation sciences and Medical sciences colleges. In this research, the researcher by doing a field study has obtained different results and believes that the most important factors that have intervention in handwriting are as follow:

- Visual skills, visual-motor coordination, motor planning, recognizing skills, sense of movement, hand manipulation and working factors.

Although we didn’t obtained up to this time any especial relationship between writing performance and type of catching writing device and unusual catching of writing device necessarily has not effect on speed and readability of writing.

The various exaggerate, chronic and perverted behaviors that their limits consist of aggressive acts or sudden arousal to depressed and reclusive acts and their happening is out of observer's expectation and we can say that the observer wishes stopping of theses acts (Seyf Naraghi and Naderi, 2002).

The behavioral disorders consist of morbid symptoms and these signs are collection of symptoms that measure attention deficit –ADHD disorder, impulsive ADHD disorder, synthetic attention deficit –ADHD disorder, pertinacity and disobedience disorder, conduct disorder, pervasive anxiety, schizophrenia, major depression, temperamental depression, autistic disorder, Asperger disorder, social phobia, separation anxiety disorder and severity of symptoms (Kaplan, 2006).

Stimulation of sense can have positive effect on learning and sensory and social growth of child and its meaning in learning is those activities that cause challenge in quintet sense (www.dravlipour.ir).

The purpose of sensory stimulations in this study is type of performance that by use of especial glove containing charged electricity and works like a vibrate machine transfers electricity flow to the hand of the child. The description of place and time dimensions of tactile stimuli will be connected and basically
related to part of posterior column. Lack or reduction in tactile stimuli, mostly counts as a deficit in the process of this system and about neuro-anatomic structure (Madani, 1998).

The aim of this study is the effect of sensory stimulations of hand on rate of behavioral disorder of children.

Method

The method of research based on this fact that it wants to use results of study, is application type and because this research wants to reviews the effect of a method for improvement of one disorder, so the conditions of study is in the control of researcher and this is a quasi experimental study that reviews effect of hand's tactile stimulations on rate of behavioral disorders of children.

The statistical society of this research consists of whole 5 to years old children in 12 zone of Tehran during first three months in the year of 1390 due to risk of behavioral disorders have referred for treatment.

The sampling method is purposeful method and will be selected by recognizing their documents and by use of Rater and CSI4 behavioral disorders test as sample of study.

This study was performed during three months by three sessions each week in the consulting center of Dordar and from environment variable consisted of (temperature, light, sound) and physiologic variable (time, eating and so on) was similar for all children.

The sample group consisted of 16 individuals, 8 experimental groups and 8 control groups consisted of 5 to 9 years old peoples. 8 of children had nail biting disorder, (4 males and 4 females) and nail sucking disorder, (4 males and 4 females).

In the control group in the first and end sessions, the questionnaire was filled by parents of children and in the experimental group in the first session the Router questionnaire and CSI$ questionnaire was filled by mother of child and in the first and second session the tactile stimuli was performed by hand of tester in 10 to 15 minutes and from third to twelfth sessions the tactile stimulations was done by planned sensory gloves. (According to this fact that this glove have two chassis that firstly four finger tips began to stimulating by turning on of one of the chassis and was turn off for a second and the next chassis was turn on and bottom of finger plus thumb was stimulated and after two seconds both chassis was turned on and stimulated. This work was done during 15 to 20 minutes).

From 13 to 17 session, according to some changes in glove the rate of voltage increased and it happened by a chassis, it means that firstly the stimulation was done for a second by hand of researcher and then by glove in 20 to 25 minutes and each three minutes it was done by glove and was turned off in 1 to 2 minutes. The other sessions of 17 to 20, the stimulations was done by hand and from 20 to 36 sessions it was done by the first planned glove. And in the final session, again the Rater and CSI4 questionnaire wad filled by mothers of children.

The used tool in this research is questionnaire of morbid symptoms of child by some characteristic like simplicity in performance and understanding. His questions are understood by simple method for parents and teachers and in this study we used parent form. Although, the group arrangement of questions by recognizing criterions DSM-IV makes easy the performing of a regular and general interview and helps greatly for decreasing of type of disorder and we can say that completing form of CSI4 by parents, longs about 10 to 15 minutes. Questionnaire of morbid symptoms of child was reviewed in various studies by clinical experts and researchers and in one of studies by Grayson & Karleson (1991) that performed on the form of Estony Brok –CSI (SBC, CSI-3R), its sensitivity on pertinacit disorder, disobedience, conduct disorder, attention deficit disorder-ADHD respectively was reported as 0/77, 0/93 and 0/93 and other studies have reviewed this three disorders in the form of teachers and determined its sensitiveness for attention deficit disorder-ADHD, conduct disorder, pertinacit and disobedience disorder respectively in 0/58, 0/51, 0/62 its features respectively 0/91, 0/91 and 0/81.

Rater questionnaire is filled by mother of child and has especial structure and after issuing way of scoring we request mother that study the expressions of questionnaire and by considering her studies and observations from child's behaviors, scoring the questionnaire about child.

In the Rater questionnaire that used parent form consisted of three choice methods and for measuring reliability of averages comparing questionnaire with F, the ANOVA method of variance analyzing was used.

This questionnaire consists of subjects relating to health, habits and 18 expressions and there are three columns in front of each expression.

In a study by Vong (1988) on 124 Chinese children suffered from conduct disorder, excitement disorder and control group have shown that differentiation in the general score of parent's scale and teacher, is very satisfactory, as it was reported 0/96 for males and 0/93 for females.
Data analyzing method

For analyzing data, this study has used descriptive statistic method (central and dispersion index) and deductive statistic method from T-statistical models of two independent groups (in order to compare the homogeneity of variances) ANOVA and analyzing one-way covariance (in order to compare effectiveness of sensory stimulations of hand on rate of behavioral disorders).

Table 1. one-way analyzing relating to effect of sensory stimulation of hand on finger sucking

<table>
<thead>
<tr>
<th>Intensity effect</th>
<th>Meaningfulness level</th>
<th>Rate of F</th>
<th>Average of squares</th>
<th>Freedom degree</th>
<th>Sum of squares</th>
<th>Source of changes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1/36</td>
<td>1/39</td>
<td>1</td>
<td>1/39</td>
<td>Pre-test</td>
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<td>./47</td>
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<td>1/18</td>
<td>5/71</td>
<td>1</td>
<td>5/71</td>
<td>group</td>
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<td>7/94</td>
<td>1</td>
<td>7/94</td>
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<td></td>
<td></td>
<td>./24</td>
<td>7/29</td>
<td>1</td>
<td>7/29</td>
<td>Sum</td>
</tr>
</tbody>
</table>

According to above table and by emphasizing rate of obtained F amount, it is mentioned that there is meaningful relationship between dependent variable (finger sucking) and diffraction variable (pre-test), in the rate of 0/01. So based on this fact that the effect of meaningfulness of pre-test variable, is under diffraction and mentioned as control variable, we can emphasis on effect of experimental variable of sensory stimulations of hand as resource of changes.

Finally, according to rate of F=18/21 in the resource changes that is in the direction of recognizing effect of sensory stimulations of hand on rate of finger sucking disorder and it is meaningful in the level of 0/01 and we can say that effect of sensory stimulations of hand was effective on reduction of finger sucking. It is worth mentioning that because the rate of intensity effect is 0/46, so we can mention that tables number 2 – 4, effect of sensory stimulations of hand on rate of finger sucking disorder is desirable.

Table 2. one-way analyzing relating to effect of sensory stimulation of hand on finger biting

<table>
<thead>
<tr>
<th>Intensity effect</th>
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<th>Rate of F</th>
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<td>Sum</td>
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</tbody>
</table>

According to above table and by emphasizing rate of obtained F amount, it is mentioned that there is meaningful relationship between dependent variable (finger biting) and diffraction variable (pre-test), in the rate of 0/01. So based on this fact that the effect of meaningfulness of pre-test variable, is under diffraction and mentioned as control variable, we can emphasis on effect of experimental variable of sensory stimulations of hand as resource of changes.

Finally, according to rate of F=9/86 in the resource changes that is in the direction of recognizing effect of sensory stimulations of hand on rate of finger biting and it is meaningful in the level of 0/01 and we can say that effect of sensory stimulations of hand was effective on reduction of finger biting. It is worth mentioning that because the rate of intensity effect is 0/32, so we can mention that the effect of sensory stimulations of hand on rate of finger biting is semi-desirable (at least half of the favorable rate).

Discussion and conclusion

First hypothesis: the effect of sensory stimulations of hand on rate of finger sucking disorder Based on results of table 1-4, it was shown that there is relationship between sensory stimulations and finger sucking. The results of this research by findings of Vierson and Kaplan are a confirmation for stability of results of sensory integration treatment and proprietary education during time. Although these findings didn't confirm meaningful difference between the obtained results in two intervention groups in initiate study.

Hugo in a study reviewed the effect of sensory stimulations on behavioral disorders of exceptional children. In this study, children in 6 sessions and suddenly by performing undesirable behavior were put in sensory stimulations. The results of study have shown that anxiety disorders on these children had significant reduction.
**Second hypothesis**

The effect of sensory stimulations of hand on rate of nail biting disorder Based on results of table 2-4, it was shown that there is relationship between sensory stimulations and finger biting. The results of this research is consisted with findings of Sorob (2002) and he believes that by giving electrical shocks we can increase chemical materials release of dopamine and this subject will decrease signs. The research by Javadi Pour didn't show especial relationship between writing performance and type of catching of writing device. It is common in literature that using of electrical shock and punishment has not desirable result. The unsolved disorders, based on new neuro-science must be physiological (physiological shock) on involved organs. Emanuel Kant says that "hand is the outer brain" and stimulation of hand (todisgrammation) for this reason is important that the outer world enters to inner world. The sensory stimulations of part of organ by changes in autonomic system function in hypothalamus regions in reflex form are enjoyable. In this research we gave sense and we were worked based on sense till change the plan. We intervene in internal data. This is happening in this orbit in out put or inhibition or stimulation part based on performed stimulation of study. In the brain we are dealing with system and sub-system. In sub-system, moving to above systems moves toward organizational behavior. Because the system is consists of sense and moving, so in this study the stimulation of sensory system is happen. The performance of changed item was created by sensory internal data of reorganization neural. The orbits will change; result of output will decrease, so the used mechanism is nero rehabilitation, we are not doing mental consulting, in fact we intervene in this study with sensory stimulations for changing part of behavior. The limitations of this research are as follow: this study is happened about children by behavioral disorder and we cannot generalize its results to other children groups with other disorders. This study is done about children by behavioral disorder in daily clinics and we cannot generalize its results to other children groups who are in boarding institutes. We recommend that we measure the effectiveness of sensory stimulations in long time. Also in a study we perform comparing reviewing of delivering sensory stimulations on children by mental retardation disorder and children by attention deficit –ADHD disorder till possibility of comparing its results will provide better and methodological method in children with other disorders like autistic disorder will perform and be used for older children and also perform in biolytic mapping activity of brain till could review the organization of behavior quickly and in separate research reviewing the contemporary effect of giving group consultation to families of children by behavioral disorder and treatment of sensory stimulations will happen. In a study it organized for decreasing obsessive compulsive disorder with organized sensory stimulations by other stimulations like music and melody.

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