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Effects of Aromatherapy and Play on Intellectually Disables' Aggression

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ABSTRACT

The purpose of the present study was to compare the effects of aromatherapy, play, and the combination of those on aggression of adolescents with educable intellectually disability. Therefore, 50 students (23 girls, 27 boys) aged 12-16 years with educable intellectually disability were selected from a special elementary school as convenience and were assigned randomly to 4 groups, including aromatherapy, play, combination, and control. The B.D.GH aggression inventory was used to measure the amount of aggression in pretest and posttest. During 8 weeks (2 sessions per week), aromatherapy group inhaled Lavender essence, play group performed the selected plays, combination group inhaled Lavender and performed the selected plays, and control group did not perform any activities. Two-way (group*test) analysis of variance with repeated measures of last factor were used to analyze data in $p < .05$. According to the results, the amount of aggression and verbal and nonverbal aggression to others subscales decreased after 8 weeks of aromatherapy, play, and combination of those, but there were no significant differences between the effects of various interventions. Thus, Interventions of aromatherapy, play or the combination of those can be similarly effective to reduce aggression in adolescents with educable intellectually disability.

Keywords: game, Lavender, mental disable, violence

INTRODUCTION

Aggressive antisocial behaviors are the most common reasons why children and adolescents are referred to mental health clinics [1]. Aggression affects destructively on social competence, self-efficacy, and interpersonal relationship and impedes forming correct identity. Aggressive actions include physical and verbal behaviors such as threatening, verbal dispute, and damaging property [2]. Regarding to special limitations of children and adolescents with intellectually disability, it can be expected more aggressive behaviors. They face several failures because of different cognitive limitations and weakness in physical, sensory, and motor abilities that will result aggression. The aggression is the instrument being used to meet a need by children and adolescents with intellectually disability because of lack of behavioral repertoire and physical activities. Thus, aggression is one the most common problems for sport trainers, teachers, and parents of these special individuals [3]. Unfortunately, since teachers don't have enough awareness and cognition about intellectually disable children and adolescents' behaviors, they show negative reactions to these behaviors and caused disillusionment in them [4]. Dekker, Koot, van der Ende, and Verhulst in 2002 reported that children with intellectually disability present behavioral problems as weak relations with peers, low self-confidence, robbery, escaping from home, aggressive behaviors, lack of attention, and antisocial behaviors [5]. Aggression is a common problem in children and adolescents which searching about solving it is a great challenge for researchers and theorists [6].

Scientists have been founding ways to decrease aggression. Aromatherapy is one of the methods has developed in many countries in recent years. Aromatherapy with aromatic plants oil has used from thousand years ago in India and China to treat different diseases. It alleviates depression, anxiety, and stress, causes relaxation, and stimulates psyche and body refreshing by penetrating to central nervous system [7], but the influences of aromatherapy have not proved exactly and mechanism of its effectiveness have not recognized [8]. Some studies have investigated the psychological effect of aromatherapy result of absorbing by skin or respiratory system [9]. For example, Babashahi, Fayazi, Aghel, and Haghizadehin 2010 indicated the effect of aromatherapy inhaling with lavender on reducing anxiety in patients before surgery [10]. Ballard, O'Brien, Reichelt, and Perry in 2002 found that aromatherapy with oil is a safe and effective treatment to control anxiety in dementia people [9]. Lee in 2005 found the effect of aromatherapy on reducing aggressive behaviors of elderly with dementia [11].

On the other hand, sport is an important factor in treatment of lots of physical problems and psychological disorders like anxiety and depression [12]. According to previous studies, such as Kazei in 2010 [13] and Sagha in 2007 [14] physical activity is impressive for reducing aggressive behaviors in children and adolescents with developmental and intellectual disabilities. Play is a natural and enjoyable activity [15] that constitutes the basis of child's affective-social, psycho-motor, and cognitive development [16]. Bratton, Ray, Rhine, and Jones in a review of 82 experimental studies about play therapy in 2005 reported its effective results on self-concept, behavioral changes, cognitive ability, social skills, and anxiety [17]. Baggerly and Parker in 2005 suggested that group play therapy is effective on improving self-control, responsibility, feelings expression, reverence, self- and others-acceptance, social skills, and self-esteem, and reducing depression and anxiety [18]. Ghaderi, Asgharimoghadam, and Shaeiri in 2006 indicated the effect of behavioral-cognitive play therapy on reducing aggression of children with conduct disorder [19] and Ray in 2008 showed the effect of play therapy on parent-child relationship stress at a mental health training setting [20].

Although the effect of sport and physical activity on reducing aggression in children with intellectual disability is clear, this effect in adolescents with intellectual disability is not obvious. Also the effect of aromatherapy on intellectual disabled adolescents' aggression has not studied. Thus, the present study compared the effects of aromatherapy, play, and their combination on intellectual disabled adolescents' aggression.

MATERIALS AND METHODS

Participants. Fifty students with educable intellectual disability and physical health in range of age 12-16 years old and intelligence quotient 55-70 were selected in convenience from two schools in Qazvin city. Written informed consent was received from all participants and their parents after verbal explanation of the experimental design. The adolescents were divided randomly to 4 groups and participated in a pretest-posttest randomized-groups design: aromatherapy, play, combination, and control.

Measures. A demography questionnaire including information like age, height, weight, and questions about allergy, migraine, chronic headaches, disorders in sense of smell and using tranquilizer drugs was filled in by parents. Aggression questionnaire of mentally retarded children (B.D.GH) (Bahrami, Davarmanesh, Ghezelsefloo) included 78 close-ended questions that use a 4-point scale on a Rating question ranging from 0 = never to 3 = always. The questionnaire had 4 subscales: verbal aggression to self, nonverbal aggression to self, verbal aggression to other, and nonverbal aggression to other [21].

Procedures. At first, teachers of every group answered separately to aggression questionnaire. Then, experimental groups received intervention for 8 weeks (2 sessions, one hour weekly) and control group did not perform any activity during the period. Aromatherapy group inhaled lavender by their smell which was distributed by vaporizer machine in class. Play group performed selective plays in school yard [22]. Combination group performed selective plays and inhaled lavender.

Statistical analysis. Two-way ANOVA with repeated measures of test factor and one-way ANOVA were used to analyze data in $p < .05$.

RESULTS

Figure 1 shows aggression mean of pretest and posttest in different groups. There were significant differences between pretests of total aggression and verbal and nonverbal aggression to others subscales and regression slopes was not equal ($p < .05$), therefore one-way ANOVA for gain scores was used. For verbal and nonverbal aggression to self subscales 4(group) * 2(test) ANOVA with repeated measures of last factor was used.

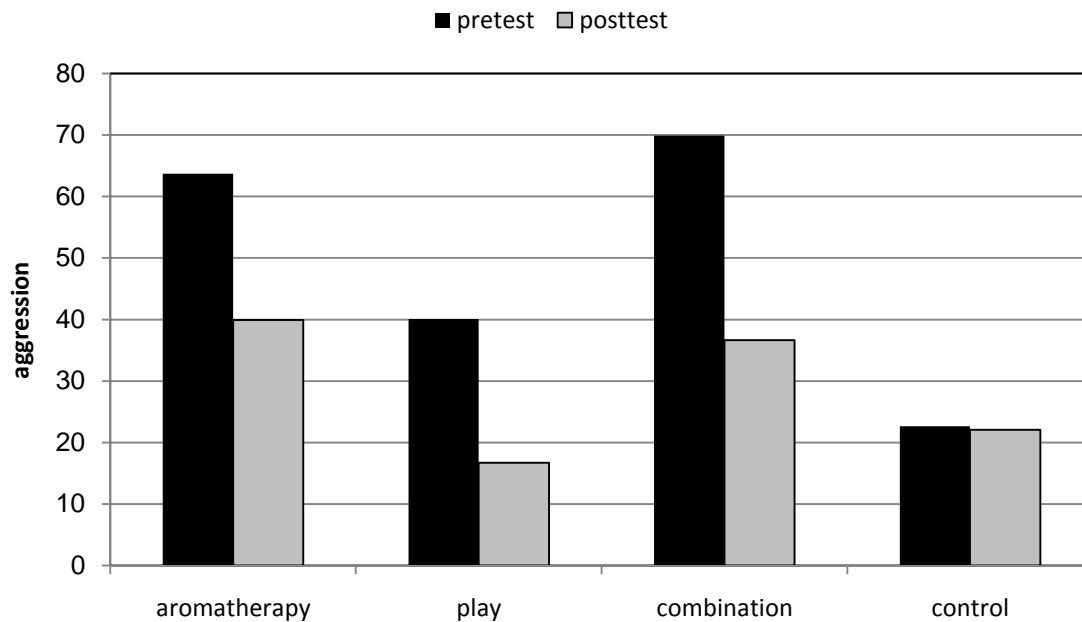


Figure 1. Aggression means of different groups in pre-test and post-test.

Results of one-way ANOVA indicated significant differences for total aggression ($F_{(2,46)}=9.789$, $p=.0001$), verbal aggression to others ($F_{(2,46)}=5.924$, $p=.002$), and nonverbal aggression to others ($F_{(2,46)}=9.414$, $p=.0001$). Pairwise comparisons by Games-Howell post hoc test indicated that the changes of total and verbal and nonverbal aggression to others in control group was significantly less than experimental group ($p<.05$) and there was not significant differences among experimental groups. The result of paired t test with Bonferroni correction for within groups comparisons showed significant decrease in total and verbal and nonverbal aggression to others for experimental groups ($p<.012$), but there was no significant difference between pretest and posttest of control group ($p>.012$).

According to results of 4*2 ANOVA with repeated measures of test factor, the main effects of test were significant for verbal aggression to self ($F_{(1,46)}=17.936$, $p=.0001$) and nonverbal aggression to others ($F_{(1,46)}=29.197$, $p=.0001$). The main effects of group were not significant for verbal aggression to self ($F_{(2,46)}=1.767$, $p=.191$) and nonverbal aggression to self ($F_{(2,46)}=.768$, $p=.518$). Interaction of group by test for nonverbal aggression to self was significant ($F_{(2,46)}=2.864$, $p=.048$), but for verbal aggression to self was not significant ($F_{(2,46)}=19.136$, $p=.091$). The result of paired t test with Bonferroni correction for within groups comparisons showed significant reduction in verbal and non-verbal aggression to self for experimental groups ($p<.012$), but the difference between pretest and posttest of control group was not significant ($p>.012$). The results of one-way ANOVA for between groups comparisons of nonverbal aggression to self did not indicate significant differences in pretest and posttest ($F_{(2,46)}=1.594$, $p=.204$; $F_{(2,46)}=.096$, $p=.962$, respectively).

DISCUSSION

The purpose of present study was to compare the effects of aromatherapy, play, and combination of both on aggression of adolescents with educable intellectually disability. The results indicated the aggression reduction was significant after 8 weeks of lavender inhaling. This finding was consistent with the results of Lee in 2005 that observed the effect of lavender aromatherapy on the reduction of aggressive behaviors in older people with Dementia [11]. Although the mechanism of aromatherapy effectiveness has not recognized, it has been proposed that aromatherapy can be impressive from psychological and physiological aspects. It seems to smell of aromas activates smell nervous cells. These signals are transferred to limbic system of the brain which is control center for feelings and emotions and influence the nervous and Hormonal systems. These signals affect heart rate, stress, blood pressure, breathing, memory, ingestion, and immune system. So the smells are able to change feeling in human [8]. It seems Linalool and Linalyl acetate in this plant can stimulate parasympathetic nervous system and Linalyl acetate has narcotic effects and Linalool acts like tranquilizer drugs [23].

In this study, the effects of aromatherapy on the reduction of verbal aggression to others and nonverbal aggression to self and others confirmed. Aromatherapy had no effect on verbal aggression to self, because verbal aggression to self among students with intellectual disability observes rarely. These students often display a nonverbal aggression

to others. Although results indicated low levels of verbal aggression to self in children with educable intellectual disability when investigating validity and reliability of B.D.GH questionnaire, this subscale has not been omitted for precaution [21].

According to results, the reduction of aggression in adolescents with educable intellectual disability after 8 weeks of play was significant. This finding was consistent with Asgarnia's study in 2001 in which was resulted the effect of cognitive-behavioral play therapy using the self-teaching method on reduction of aggression in children [24]. Also, this finding was consistent with Karcher and Lewis in 2002 that found the pair counseling play therapy is effective on reducing aggressive behaviors in children with behavioral disorders [25]. Packman and Bratton in 2003 showed the significant effect of school-based group play/activity therapy intervention on learning of disabled preadolescents exhibiting behavior problems [26]. Schumann in 2004, consistent with the present findings, showed child-centered play therapy is an effective method on the behaviors of children referred for aggression in an elementary school setting [27]. At last, the finding was consistent with Zaare and Ahmadi in 2007 that found the effectiveness of play therapy using behavioral-cognitive method on reduction of behavioral problems in children [28]. Most of these studies have investigated the effect of cognitive play therapy. The studies on physical activity are limited and the present findings are consistent with them. For example, Ghobaribonab and Nabavi in 2003 indicated the significant reduction of aggression after 3 months of morning exercise in children aged 10-13 years with intellectual disability [29]. Shojaei and Hemati Alamdarloo in 2007 showed the significant effect of one month exercise on reduction of aggression in educable intellectual disabled boys aged 9-17 years [3]. Sagha in 2007 found the significant effect of exercise on aggression control in adolescents with intellectual disability [14]. Kazee in 2010 indicated the significant effect of physical activity on reducing the aggressive behaviors in people aged 8-11 years with developmental disabilities [13]. Exercise causes to secrete natural opiates which result physical calmness and aggression reduction [29]. In addition, exercise helps the psychological relaxation and aggression reduction by regulating the cardiovascular system. People learn the psychological, social, behavioral, and necessary communication skills in group sport which cause their constituent response to others' behavior and reduce the aggression [3].

The results indicated the effect of play on reducing of verbal and nonverbal to others. Play was not effective on verbal aggression to self. The possible reason of this finding was to appear verbal aggression to self rarely in intellectual disabled students [21]. Moreover, Play had not the significant effect on reduction of nonverbal aggression to self in intellectual disabled adolescents. Further studies are needed to explain the reason of this finding.

CONCLUSION

The results of the present study indicated that motor plays, smelling aromatherapy with lavender essence, and combination of both have significant effects on reduction of aggression in adolescents with educable intellectual disability, but there were no significant difference between these methods. Since the aggressive behavior is one of the main problems in intellectual disabled adolescents, their school teachers and parents could select a proper intervention among these according to present facilities, adolescents' interests, and their sensory, physical, and motor problems. Further studies are needed to find more effective strategies to reduce aggression in intellectual disabled.

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