**Abstract:**

**Introduction:**
Highly aggressive individuals experience more problems and pressure which affect their personal, professional, educational and physical health. This study aimed to determine the effect of combined relaxation and music therapy on aggression of male high school students.

**Materials and Methods:**
This is an experimental study on two experimental and control groups. The statistical population of this study included all of students of the high schools of Ashkanan selected through cluster sampling. Of the six high schools in Ashkanan, one was randomly selected. Among the school’s first grade classes, two were randomly selected. They were divided into the experimental (30) and control (30) groups randomly. First, the two groups filled out AGQ (pretest). Then, the intervention programs were carried out through 10 sessions of music and relaxation therapy, consisting of imagery, music, progressive muscle and breathing relaxation for the experimental group but the control group did not receive any intervention. In the next step, the two groups filled out AGQ again as posttest. The data were analyzed using SPSS software. In order to prevent any contact among the groups, the sessions were conducted during school holidays.

**Results:**
The results of the analysis showed that combined relaxation and music therapy is effective on aggression of male students. The aggression mean scores of the experimental group was significantly reduced as compared to the control group (P<0.001).

**Conclusion:**
The use of combined relaxation and music therapy is effective on reducing aggression in male students.

**Keywords:** Relaxation, Treatment, Music, Aggression

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**Introduction**
The industrialization process and the higher number of stressors in the current world are constantly increasing the incidence of abnormal behaviors such as aggression and thus damage social relations (1). Research has suggested aggressive behavior as a precursor of crime, drug abuse, depression, and academic failure (2). Statistics have also revealed elevated levels of anger and aggression in recent decades and experimental evidence has confirmed the harmful effects of anger on human
relations (3). This problem has attracted the attention of all experts, especially psychiatrists and counselors. While aggression can adversely affect a person both internally and externally, inability to manage aggression will lead to personal distress, threaten public health and interpersonal relationships, and finally cause conflicts and other deleterious consequences (4). On the other hand, many students are faced with educational and psychological disorders influencing their academic performance due to aggression or fear of aggression in school (5). In other words, aggressive behavior yields nothing but huge economic costs and loss of potential talents. Following aggressive behaviors, an aggressive student will be isolated from his/her peer group and hence develop psychological and social adjustment disorders (6). Such students are also a major challenge for physical education instructors, teachers, and parents (7).

Physical and verbal aggression have been found to be significantly related to a number of variables including sociological characteristics, irrational beliefs, thoughts, and emotions, parental aggression, maternal parenting style, family relationship especially parent-child relations, and academic performance. Therefore, researchers have used such techniques as rational-emotive education on anger and aggression management skills to lessen the negative effects of anger and aggression (2, 8-13, 14).

There is a global perspective about the therapeutic effects of music (15). Man has always used music to express his thoughts and feelings and seeks to use it in different areas like treatment, healing, and creating peace (16). Recent studies have also mentioned the benefits and therapeutic effects of music (17). Despite the existing controversies, many studies indicate the impact of music on people’s thoughts, emotions, and behaviors (e.g. verbal and physical aggression) (18). Not only light, instrumental music, but also the recitation of poems and Quran verses can efficiently decrease physical and verbal aggression and anger (19-20). However, violent and fast music videos and lyrics can increase aggressive thoughts, emotions, and behaviors (21-24).

Relaxation, another technique to create peace and health (25), soothes the muscles and physical pressures to reduce mental distress and evoke feelings of lightness and comfort. Relaxation with music decreases blood pressure, blood glucose and acid levels, heart and respiration rates, and oxygen intake and shifts brain waves from beta (showing stress) toward alpha (showing relaxed alertness). This series of changes causes general inertia and lethargy and thus lowers physiological and organ stress (26,27). This technique is effective in many situations, e.g. insomnia and social anxiety, and helps people regain their ability to control their emotions and behaviors. Relaxation with music has also been reported to reduce aggressive behaviors in students with psychiatric disorders (28-31).

As a result of recent increases in the worldwide application of relaxation and music therapy, music is now extensively used in relaxation practices (32). Since Iran’s population is predominantly young, evaluating the psychological and behavioral problems of its active population can improve the performance of the society. The present study reviewed the theoretical concepts and findings of previous research about the effects of music and relaxation on general and psychological health of people, especially students, and sought to provide teachers and educators with a scientific method to control aggressive students through investigating the efficacy of a combination of music therapy and relaxation on aggressive boy students’ aggression.

Materials and Methods

In this controlled trial with control and experimental groups, the study population comprised all high school students in the...
city of Ashkanan (Iran). According to the findings of previous studies and considering the sample size formula and a confidence level of 95%, the sample size was calculated as 60 students. In order to select the subjects using single-stage cluster sampling, one high school was first randomly selected out of the six schools in Ashkanan. Then, 60 students were randomly selected from the school’s five first grades. Finally, the selected individuals were randomly allocated to two equal groups of 30 (case and control groups). In the sampling process, each school in the city was treated as one cluster.

After random selection of the participants, the researchers visited the schools in person, gave directions on completing the questionnaires, and answered any questions asked by the subjects. To meet the ethical principles stated by the Declaration of Helsinki, necessary permissions were obtained from the relevant organizations and schools and all participants signed an informed consent form containing the objectives of the study and application of the results and ensuring the anonymity of the questionnaires and confidentiality of information. Moreover, contact between the two groups was prevented by holding the sessions on holidays. All subjects pledged not to leave the study until the end of the sessions.

Both groups filled out the questionnaires twice: once before the intervention and once after the case group had attended 10 sessions of relaxation with music (Rain of Love, a piece of light music which is not in conflict with Islamic values). The collected data was analyzed with descriptive and inferential statistics in SPSS for Windows 19.0 (SPSS Inc., Chicago, IL, USA). Data collection tool was the aggression questionnaire (AGQ). It contains 30 items to measure anger (14 items), offensiveness and insult (eight items), and obstinacy and grudge (eight items). Each item was answered on a four-point Likert scale from zero (never) to three (always). The only exception was item 18 whose options were scored reversely. Generally, scores greater and lower than the mean AGQ score represent high and low levels of aggression, respectively. The reliability of the questionnaire has been confirmed by calculating Cronbach’s alpha coefficient as 0.74 (11). The AGQ has been normalized for Iranian adolescents by Najarian et al. (33) and Alahyari (34).

**Results**

The mean age of the subjects was 16.3 ± 0.9 years and they were all natives of Ashkanan area. Half of their parents were public sector employees and others were self-employed. Among the employees, 6.6% had a master’s degree, 80.2% had a bachelor’s degree, and 13.2% had an associate diploma. Among others, 13.2% were high school dropouts, 52.8% had a high school diploma, and 39.6% had a bachelor’s degree.

Table 1 presents the two groups’ mean scores of aggression and its subscales in pretest and posttest. The high scores of overall aggression and all its three subscales at baseline indicate the aggression of both groups. Meanwhile, significant reductions in the scores of the case group were observed in the posttest (confidence level = 0.99; P < 0.001). No such significant differences were seen between the pretest and posttest scores of the control group.

All four measures (Hotelling’s trace, Wilk’s lambda, Pillai’s trace, and Roy’s largest root) of multivariate analysis of variance (MANOVA) suggested the difference between the variables to be statistically significant (P < 0.001). Therefore, the two case and control groups were significantly different in at least one of the two studied variables, i.e. the intervention could effectively reduce anger, offensiveness and insult, and obstinacy and grudge.
The impact of two methods of music therapy or relaxation on anxiety, depression, and other negative reactions which are both obstinacy and grudge will stimulate both the body and the soul. In psychological terms, relaxing music controls the mind through positive reinforcement of conditioning and creating pleasant stimuli. In fact, music can provoke inner joy that will replace anger and aggression. According to our findings, relaxation with music can efficiently reduce offensive and insulting behaviors. Likewise, Conrad and Roth, Ebnesahidi and Mohseni, and Wheeler and Baker introduced the combination of relaxation and music therapy as a method to improve mental health, decrease negative psychological symptoms and reactions such as anger, hostility, and anxiety, and increase positive emotional states including calmness, positive attitude, and general welfare. Music therapy may be applied as a complementary treatment in the rehabilitation of patients since it can enhance the patients’ communication levels and physical harmony. It can also improve the physical and mental performance of individuals with neurological disorders accompanied by physical and mental problems. Finally, the combination of relaxation and music reduced obstinacy and grudge among the participants of the current study. Similarly, Rafieeyan et al. and Raglio et al. reported the beneficial effects of music therapy or relaxation on anxiety, depression, and other negative reactions.

<table>
<thead>
<tr>
<th>Scale/subscale</th>
<th>Groups</th>
<th>Pretest Mean (SD)</th>
<th>Posttest Mean (SD)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall aggression</td>
<td>Case</td>
<td>53.5(7.3)</td>
<td>34.4(7.9)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>51(8.7)</td>
<td>50.7(8.7)</td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>Case</td>
<td>23.9(4.8)</td>
<td>16(5.6)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>22.6(7)</td>
<td>22.1(6.7)</td>
<td></td>
</tr>
<tr>
<td>Offensiveness and insult</td>
<td>Case</td>
<td>14.7(2.5)</td>
<td>9.1(2.7)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>14.1(2.7)</td>
<td>14.2(2.6)</td>
<td></td>
</tr>
<tr>
<td>Obstinacy and grudge</td>
<td>Case</td>
<td>14.9(2.6)</td>
<td>9.3(2.8)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>14.2(2.7)</td>
<td>14.3(3.3)</td>
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</tbody>
</table>

### Discussion
The present study aimed to investigate the effects of relaxation in combination with music on aggression reduction in students. Our findings showed the mentioned combination to significantly reduce the students’ overall aggression scores. Although no previous studies have evaluated the usefulness of relaxation accompanied by music in aggression management, Habibipoor et al. and Khoshkhou found relaxation with music to significantly decrease anxiety and blood pressure (which are both related with aggression) (26, 35). Similarly, Onieva-Zafra et al. and Greitemeyer concluded that a blend of music and other interventions can lessen aggression. They stated that the use of self-calming, positive self-talk, and self-restraint can not only promote the feeling of self-efficacy and social skills but also reduce aggression and psychological and social maladjustment (20, 35, 36). Moreover, Habibipoor et al. reported the efficiency of instrumental music in reducing aggressive behaviors (36). The results of none of the available studies in this field have been inconsistent with our findings.

The current study revealed the combination of relaxation and music to decrease students’ anger. This finding is in line with those suggested by Sadatpoor and Mansoor, Deghannayeri and Adibhajbagheri, and Jackson who emphasized on the biological and physiological connection between music and human brain (18, 31). With rhythm being a biological stimulus and melody stimulating the feelings of pleasure and fancy, even the slightest rhythmic acts and harmonic sounds will stimulate both the body and the soul (31). In psychological terms, relaxing music controls the mind through positive reinforcement of conditioning and creating pleasant stimuli. In fact, music can provoke inner joy that will replace anger and aggression.

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The impact of two methods of (39–40). Music will actually act through the brain and significantly affect stress and anxiety hormones and hormones like cortisol, adrenaline, and adrenocorticotropic hormone (41).

**Conclusion**

Considering the usefulness of our designed intervention, behavioral strategies such as relaxation can influence physical and mental symptoms, create a feeling of calmness, and thus reduce anxiety, confusion, and anger. In addition, our findings raise hope for the development of non-pharmaceutical pain-relief methods, especially relaxation. Generally, the results obtained in this study can be used to reduce anger and harmful behaviors, particularly among students and adolescents.

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**Conflict of interest**

None to declare.

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