The Effectiveness of Emotion Regulation on Quality of Life and Social Adjustment of the Deaf
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ABSTRACT
Considering the significance of social adjustment and quality of life in the deaf and the need for intervention to improve such variables, the objective of the present study is to investigate the effectiveness of emotion regulation training on quality of life and social adjustment in the deaf. Firstly, by informing all the deaf who had registered in Mashhad Center of the Deaf, 39 subjects agreed to participate in the study. Then 24 volunteers who had diploma and higher education and were suitable for getting emotion regulation training were selected. These deaf people were randomly divided into control (12) and test groups (12). The test group received emotion training and the control group did not receive any treatment. The questionnaire of quality of life and social adjustment were completed as pre-test and post-test in both the test and control groups. Finally, for analyzing the data, covariance analysis and SPSS 18 software were also used. The present study indicated that emotion regulation training significantly increased the quality of life and social adjustment of the deaf. In other words, the quality of life and social adjustment of the deaf who were in the test group increased significantly compared to the deaf who were in the control group.

Key Words: emotion regulation training, quality of life, social adjustment, the deaf.

INTRODUCTION
Deafness is known as silent disability. International studies reveal that in 2004, more than 275 million people worldwide, 80% of whom are in low and middle income countries, have moderate to severe hearing impairment and are deprived of complete hearing. The number for disabling hearing impairment was 360 million in 2013 (WHO, 2013). The results of the study by Biabangard (2006) indicated that social skills of deaf and blind students are significantly lower than those of normal students. Most of these people are suffering from deficiencies in the processing of social information. They often upset friends, acquaintances, and others due to ignorance and choosing the wrong way of self-expression and inability to do simple tasks such as requesting and negotiating. This often makes them less socially adaptable. The concept of compromise and adjustment has become important in the theory of transformation since the early nineteenth century. According to Mark, each creature adapts itself to the outside environment. Individual and social adjustment as the most important mental health feature is one of the major attributes that psychologists and sociologists have paid particular attention to in recent decades. Adjustment is a useful and effective behavior in adjusting to the physical and psychological environment in such a way that it does not conform to environmental changes only, but it can also affect the environment and change it appropriately. On the other hand, the cultural, familial, economic and psychological pressures of this disorder, directly and indirectly, lead to a decrease in the quality of life of these individuals. Quality of life is a complex set of individual reactions to physical, psychological and social factors that affect the natural life. In fact, it is an indicator that is widely used to evaluate clinical and social interventions, the effects and complications of treatment and diseases, and its use is increasing day by day. The World Health Organization (1998) defines quality of life as the result of a variety of life issues such as determining factors of health, happiness, education, social achievements, intelligence, freedom of action, justice, and lack of oppression. In the meanwhile, the quality of life cannot be directly measured, so it is indirectly determined by asking a set of questions. Quality of life covers the major concepts that make life more satisfactory. These concepts include health, decent housing, employment, personal and family security, education, and leisure time. In fact, quality of life is defined as a conscious cognitive judgment of the individual’s satisfaction of life. That is why, when a
person has a particular disorder, his physical symptoms, prognosis of treatment, psychosocial-supportive needs and related issues can have severe effects on the overall understanding of life satisfaction. Regarding the sensitivity of the research subject and the need of the deaf to increase social adjustment and quality of life and due to the effect of regulation and management of emotions on various psychological structures, as well as the lack of coherent and applied research on the subject, the researcher managed to reply the following question: Does emotion regulation training affect the quality of life of the deaf and their social adjustment?

Materials and methodology
The current study is a semi-experimental applied research (pre-test, post-test with one test group and one control group). In this project, the subjects are selected as peers and are included in the group. Before implementing the independent variable, the subjects selected in the group are examined by a pre-test. In this study, the test group is subjected to an independent variable (emotion regulation training), but the control group does not receive any type of treatment. Emotion regulation training is consisted of 8 training sessions that are performed weekly by a therapist on the test group. In addition, dependent variables in this study are quality of life and social adjustment that are measured by relevant questionnaires. The statistical population included all the deaf who had registered in the Mashhad Center of the Deaf. At first, 39 subjects were ready to participate in the study, then 24 volunteers who had diploma and higher degrees and were suitable for receiving emotion regulation training were selected. These deaf people were randomly divided into control (12) and experimental groups (12).

Data collection tool and its reliability and validity
Bell Adjustment Inventory: The adult form of this questionnaire contains 160 questions in 5 levels of individual and social adjustment. In the present study of social adjustment level, 32 questions were used. The validity of this questionnaire was first obtained by selecting each of the sections in the range where the difference between the upper and lower values in the distribution of adult grades was 0.50. On the other hand, by the efforts of adult counseling experts, groups of individuals were selected and adapted in the very good and very weak range. The coefficient of validity was performed based on the social scale of Bahrami on 200 subjects who were randomly selected using Cronbach’s alpha 0.89. Concerning social adjustment of the above questionnaire, high scores indicate distance and resignation from social contact. Quality of life questionnaire: World Health Organization’s Quality of Life Scale: This questionnaire was designed by the WHO to assess the quality of life. The short form of this questionnaire consists of 26 articles and evaluates four areas of physical health, mental health, social relations, and environmental health with 24 questions (including 7, 6, 3 and 8 questions respectively). Nejat, Montazeri, Halavvee, Mohammad, and Majdzadeh (2006) applied this scale to 1167 people in Iran. The reliability of the questionnaire was obtained by Cronbach’s Alpha for healthy population in the field of physical health 0.70, mental health 0.73, social relations 0.55, and environmental communication 0.84. The reliability coefficient was reported 0.7 percent by test-retest method after 2 weeks.

Methodology
Test group: At first, the quality of life and social adjustment questionnaires were implemented in the pre-test and the subjects were randomly assigned to the test and control groups. The test group with 12 members was started by the therapist and the control group was on the waiting list. Control group: This group did not receive any treatment. In the control group, the questionnaire, the method of selecting and assigning the members of the group were considered as the experimental group. After the treatment, the questionnaires were received from the two groups in the post-test, and eventually, the data was analyzed.

Data analysis method
The data of the present study have been analyzed in two descriptive and inferential sections. In the descriptive study, descriptive statistical indicators such as frequency, mean and standard deviation were performed for both groups (test and control groups). Covariance analysis was used in the inferential statistics section. The SPSS 18 software is used to expedite the results.

Results
Descriptive analysis of data
In this section, the data from the implementation of quality of life and social adjustment questionnaires on the members of the two groups are analyzed descriptively. The information provided in this section includes the mean and standard deviation of the results of implementation of quality of life and social adjustment questionnaires of the deaf of the control group in the pretest and posttest stages. These data are first briefly summarized using a descriptive table and then analyzed in detail in the inferential analysis stage.
Table 1: Descriptive indexes of data from pre-test and post-test of quality of life and social adjustment

<table>
<thead>
<tr>
<th>Group</th>
<th>Variable</th>
<th>Number</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Standard deviation</td>
<td>Mean</td>
</tr>
<tr>
<td>Test</td>
<td>Quality of life</td>
<td>24</td>
<td>38/04</td>
<td>59/09</td>
</tr>
<tr>
<td>Control</td>
<td>Quality of life</td>
<td>24</td>
<td>39/07</td>
<td>40/80</td>
</tr>
<tr>
<td>Test</td>
<td>Social adjustment</td>
<td>24</td>
<td>26/41</td>
<td>18/12</td>
</tr>
<tr>
<td>Control</td>
<td>Social adjustment</td>
<td>24</td>
<td>25/43</td>
<td>26/31</td>
</tr>
</tbody>
</table>

As it can be observed, the quality of life mean score of the test group subjects increased significantly in the post-test phase compared to the pre-test. This change cannot be observed in the control group. Furthermore, as it can be observed, the mean score of social adjustment for test group subjects decreased significantly in the post-test phase compared to the pre-test. This change is not observable in the control group. It should be noted that the low score in this questionnaire is a sign of social adjustment.

Inferential analysis of data

In this section, the data from the implementation of quality of life and social adjustment questionnaires are analyzed inferentially on the subjects in two stages of pre-test and post-test. To measure the effectiveness of emotion regulation training on quality of life and social adjustment of the deaf in the research, multivariate covariance analysis method is applied. In multivariate covariance analysis, the difference between groups is measured in several variables by controlling one or more other variables that may affect the results. To compare the mean scores of quality of life and social adjustment of the subjects in the two groups in post-test, multivariate covariance analysis is used, so that the effects of the pre-test are controlled as a variable. In this stage, we compare the mean scores of quality of life and social adjustment in the two groups in the post-test using the multivariate covariance analysis method. Before the implementation of multivariate covariance analysis, the homogeneity assumption of variables was investigated using the box test. The results of this test are reported in Table 2.

Table 2: Box test to ensure the homogeneity of quality of life and social adjustment

<table>
<thead>
<tr>
<th>Indexes</th>
<th>F</th>
<th>Degrees of freedom 1</th>
<th>Degrees of freedom 2</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values</td>
<td>87/35</td>
<td>21</td>
<td>124/715</td>
<td>0/257</td>
</tr>
</tbody>
</table>

As it can be observed, the results indicated that the box test was not significant (P = 0.256, F = 87.85), which indicates that the variances are homogeneous. Therefore, the multivariate covariance analysis test is applicable. The overall results of multivariate covariance analysis are presented in Table 3.

Table 3: General results of multivariate covariance analysis

<table>
<thead>
<tr>
<th>Test type</th>
<th>Value</th>
<th>Hypothetical DF</th>
<th>Error DF</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai’s Trace</td>
<td>0.915</td>
<td>6</td>
<td>23</td>
<td>76/149</td>
<td>0.000</td>
</tr>
<tr>
<td>Wilks’ Lambda</td>
<td>0.085</td>
<td>6</td>
<td>23</td>
<td>76/149</td>
<td>0.000</td>
</tr>
<tr>
<td>Hotelling’s Trace</td>
<td>247/13</td>
<td>6</td>
<td>23</td>
<td>76/149</td>
<td>0.000</td>
</tr>
<tr>
<td>Roy’s Largest Root</td>
<td>247/13</td>
<td>6</td>
<td>23</td>
<td>76/149</td>
<td>0.000</td>
</tr>
</tbody>
</table>

The significance of multivariate test indexes such as Wilk’s Lambda, Hotelling’s Trace, Roy’s largest root and Pillai’s Trace (P <0.0005, F = 76.149) suggest that there has been created a significant difference in one of the variables.
the variables of quality of life and social adjustment; therefore, each of these variables was examined. The results of this study are presented in Tables 4 and 5. The first hypothesis of the study indicated that emotion regulation training is effective in improving the quality of life of the deaf.

**Table 4: The results of covariance analysis for the effectiveness of emotion regulation training on improving quality of life**

<table>
<thead>
<tr>
<th>Trace source</th>
<th>Degrees of freedom</th>
<th>F</th>
<th>Significance level</th>
<th>Trace coefficient</th>
<th>Statistical power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>1</td>
<td>0/357</td>
<td>0/509</td>
<td>0/025</td>
<td>0/030</td>
</tr>
<tr>
<td>Group</td>
<td>1</td>
<td>33/53</td>
<td>0/0001</td>
<td>0/776</td>
<td>0/871</td>
</tr>
<tr>
<td>Error</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As it is displayed in Table 4, the results of comparing the post-test of quality of life in the two groups by controlling the pre-test effect indicate that after participating in the sessions of emotion regulation training, the quality of life of the deaf who participated in the test group, increased significantly compared to those in the control group (P = 0.0001, F = 33.53). Therefore, emotion regulation training is effective in improving the quality of life of the deaf.

**Table 5: The results of covariance analysis for the effectiveness of emotion regulation training on increasing social adjustment**

<table>
<thead>
<tr>
<th>Trace source</th>
<th>Degrees of freedom</th>
<th>F</th>
<th>Significance level</th>
<th>Trace coefficient</th>
<th>Statistical power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>1</td>
<td>0/721</td>
<td>0/615</td>
<td>0/014</td>
<td>0/040</td>
</tr>
<tr>
<td>Group</td>
<td>1</td>
<td>50/02</td>
<td>0/0001</td>
<td>0/643</td>
<td>0/689</td>
</tr>
<tr>
<td>Error</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As displayed in the table above, the results of the comparison of post-test social adjustment in the two groups by controlling the effect of pre-test (P = 0.0001, F = 50.02) indicate that after attending training sessions of emotion regulation, social adjustment scores of the deaf that participated in the test group, had a significant increase compared to those in the control group. Therefore, emotion regulation training is effective in increasing social adjustment of the deaf.

**Discussion**

Due to their special disability conditions, the deaf often have difficulty in establishing relationships with others. They have low social adjustment and are often weak in managing their emotions. As a consequence they either choose isolation and depression or experience conflict, aggression and ineffective relationships. Providing solutions for the management and regulation of their emotions could lead to their improved relationships with others, higher adjustment and, eventually, improvement in the quality of their life. Consequently, considering the above issues and the needs of the deaf to increase the adjustment and quality of their life and the positive effects of the ability to regulate and manage emotions as well as the above variables and due to the lack of coherent and applied research on the subject, the researcher has attempted to examine the effectiveness of emotion regulation training on the social adjustment and quality of life of the deaf. The first hypothesis of the study indicated that emotion regulation training is effective in improving the quality of life of the deaf. The results of comparing the post-test of quality of life in the two groups by controlling the pre-test effect indicate that after participating in the sessions of emotion regulation training, the quality of life scores of the deaf who participated in the test group significantly increased compared to the deaf who were replaced in the control group. Therefore, emotion regulation training is effective in improving the quality of life of the deaf.

This finding indicate that the deaf learn the proper way of expressing and controlling their emotions through emotion regulation training in an environment with a sympathetic atmosphere. As a result, they can communicate with others better and find more acceptance among people leading to higher quality of life. This finding is consistent with
the studies of Salehi, Baghban, Ahmadi (2011), Bahrami (2005), Azami, Sohrabi, Borjali and Choupan (2014)12,13,14. The second hypothesis of the study indicated that emotion regulation training is effective in increasing social adjustment of the deaf. The results of comparing the post-test of social adjustment in the two groups by controlling the pre-test effect indicate that after participating in the sessions of emotion regulation training, the social adjustment scores of the deaf who participated in the test group significantly increased compared to the deaf who were replaced in the control group. Therefore, emotion regulation training is effective in improving the social adjustment of the deaf. This finding, like the previous hypothesis, indicates the effectiveness of emotion regulation training and suggests that participation of the deaf in these sessions helps them to have better emotional control and adjustment. As a result, they communicate more successfully with others and show better social adjustment. This finding is consistent with the results of the study by Abolqasemi, Beigi and Narimani (2011), Malekri (1391), Garrous (2007), Yu, Matsumoto and Lorroko (2008) and Berking et al. (2010)15-19.

Conclusion

The objective of the present study was to investigate the effect of emotion regulation training on quality of life and social adjustment of the deaf. The results indicated that emotion regulation training significantly increased the quality of life and social adjustment of the deaf. Performing psychological interventions plays an important and essential role for such individuals that has been underestimated. One of these interventions is emotion regulation training which involves reducing and controlling negative emotions and how to use emotions positively. Emotion regulation is a fundamental process for all aspects of human performance, and plays a vital role in ways that people deal with stressful experiences. Emotion regulation is related to self-esteem and positive social interactions. Increasing the frequency of positive emotional experiences leads to effective encountering with stressful situations and even increases the appropriate behaviors and activities in response to social situations. By applying emotion regulation techniques, the deaf can help control and regulate their emotions and communicate with others more successfully. Moreover, their adjustment can increase which consequently leads to their quality of life to improve.

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