



(RESEARCH ARTICLE)



Effects of music therapy on social skills of educable children with intellectual disability

Ahmad Mansouri ^{1,*} and Ali Naseri ²

¹ General Psychology, Islamic Azad University of Shiraz, Shiraz, Iran.

² Department of Psychology, Islamic Azad University of Firozabad, Firozabad, Iran.

International Journal of Science and Research Archive, 2023, 09(02), 749–759

Publication history: Received on 03 July 2023; revised on 12 August 2023; accepted on 15 August 2023

Article DOI: <https://doi.org/10.30574/ijrsra.2023.9.2.0650>

Abstract

Music therapy and other music-based interventions are employed extensively in clinical treatments for children worldwide. This quasi-experimental research adopted a pretest-posttest control group design to analyze the effects of music therapy on the social skills of educable children with intellectual disability (ID). The statistical population included all female elementary students of special needs schools in Shiraz, Fars Province (Iran) in the academic year 2022–2023. The random sampling method was employed to select 80 students as the sample. They were then randomly assigned to a test group and a control group (n= 40 per group). The research data were collected using the Social Skills Rating System (SSRS)–Teacher Version (Gresham & Elliott) 15. The statistical analysis of data was performed using the analysis of covariance (ANCOVA) and the multivariate analysis of covariance (MANCOVA) in SPSS 26. The research questionnaire was completed as the pretest by all participants in both groups before the intervention. Then participants in the test group attended a 12-session music therapy intervention program, whereas those in the control group received no intervention. At the end of the intervention, all participants once again filled out the research questionnaire as the posttest. The pretest and posttest data were statistically analyzed using ANCOVA and MANCOVA in SPSS 26. According to the results, music therapy improved the social skills of educable children with ID. Analyzing the dimensions of social skills indicated that the greatest effect of music therapy on social skills was related to “cooperation”, whereas the smallest effects were left on “self-control” and “assertion”. In conclusion, music therapy is a group intervention that can positively affect social skills. Therefore, special needs schools are recommended to benefit from the potential of music therapy in specialized and clinical training interventions for children with ID.

Keywords: Social skills; Music therapy; Educable children with ID

1. Introduction

Music therapy is an evidence- and art-based intervention in which the music therapist employs a methodical therapeutic process to meet the physical, emotional, cognitive, and social needs of clients (American Music Therapy Association, 2018). According to different studies on music therapy conducted worldwide, this intervention has been used in a variety of fields such as mental health, the elderly, and children with disorders. The global rankings of disorders show that most studies in this field have focused on autism spectrum disorder (ASD), developmental disabilities, and depression (Li, Weng & Wang, 2021)²². Since the increased prevalence of ID has turned into a challenge for society, families, and individuals, there is a need for further studies to propose creative strategies to solve the problems caused by this disorder, something which highlights the research rationale of this study. There are different definitions of DI based on different approaches; primary definitions emphasized biological and medical criteria, whereas the recent definitions of ID focus on the restrictions of intellectual functioning and adaptive behavior, according to the criteria proposed by international organizations, including American Psychological Association (APA), American Association on Intellectual and Developmental Disabilities (AAIDD), and Diagnostic and Statistical Manual of Mental Disorders. The

* Corresponding author: Ahmad Mansouri

abovementioned restrictions are caused by a wide range of environmental and genetic factors and lead to cognitive and social dysfunction (Lee, Cascella & Marwaha, 2022)²³. Fortunately, the data published by international organizations, including UNESCO, demonstrate that individuals diagnosed with ID are categorized as “educable mentally retarded” who need special education programs. Therefore, DSM-5 has defined ID based on adaptive functioning in three areas: conceptual, practical, and social, instead of intelligence quotient (IQ). Accordingly, individuals with ID have difficulties in developing their social skills. Moreover, the social skills which contribute to the socialization process of children can be learned and strengthened (Gillis, Vener & Polson, 2022)¹⁴.

Since individuals with ID have more problems in social interaction and adaptation than their normal peers, they need special programs to solve their problems. Studies show that both educational and interventional strategies have been effective in improving social skills; however, interventional programs have been reported to be more effective (Jacob, Edozie & Pillay, 2022)²¹. Social skills help personal development in interaction with others. These skills also allow individuals with ID to successfully communicate with others both verbally and non-verbally (Wu, Chen, Ma & Vomocilova, 2020)³⁹. Considering the importance of social skills in improving individual and social behavior, on the one hand, and scientific and technological achievements, on the other, many researchers and therapists have recently analyzed the effects of social skills on social adaptation in order to find solutions to these challenges. The findings indicate that theoretical and practical education programs employ a variety of methods, e.g., skills training, therapeutic intervention, and experiencing real social interactions, to improve the social skills of individuals (Blanky-Voronov, 2019)⁸. Moreover, biological psychologists have benefited from knowledge and research on behavior in their studies and emphasized the role of educational and interventional methods in this field (Wu, 2023)⁴⁰. Despite all different approaches, studies have demonstrated that music therapy in combination with other educational programs and interventions can be one of the best and most effective ways to improve the social skills of educable children with ID (Mehrafza, Nokhostin Goldoust & Kiomarsi, 2021)²⁵.

According to a review of domestic and foreign psychology and neuroscience studies, music therapy is an intervention or child-centered learning method focusing on hearing, motor, and communication abilities that can meet physical, emotional, cognitive, and social needs and improve social skills for human relationships (Stegemann et al., 2019)³⁷. Studies have also demonstrated that music therapy is one of the effective interventions to improve social skills (Zyga Russ, Meeker & Kirk, 2017)⁴². Considering the development of new music methods, music therapy can effectively improve social relationships and interactions as well as the adaptive performance of children with ID (Blanky-Voronov & Giboa, 2022)⁷. Considering the limitations as well as the traditional, non-scientific, and non-specialized applications of music in Iran, the therapeutic functions of music have been addressed less often in this country. In addition, different and sometimes contradictory policymaking views have caused uncertainty and confusion among researchers in this field. Studies, nevertheless, have shown that music therapy can improve the social skills of children with ID. Therefore, professionals can use music therapy to not only solve social problems but also increase their understanding of music therapy as an effective method of improving social skills. Considering the importance of music therapy in improving ID, it is necessary to address music therapy as a therapeutic method based on theoretical and practical psychology, especially for individuals with ID. Hence, this study aims to recommend the Iranian scientific community include music therapy in theoretical and practical education programs and employ it as an effective way of solving the problems of the disabled.

1.1. Theoretical Foundations and Research Background

Scientometrics, i.e., outlining the structure of science based on scientific texts, was employed in this study for literature review. Referred to as the quantitative interpretations of developments, scientometric analyses are necessary for and support the advancement of science. To this end, studies about music therapy conducted by (Li, Weng & Wang, 2021)²², Mayer-Benarous, Benarous, Vonthron & Cohen (2021)²⁴, Rushton, Kosyvaki, & Terleksi (2022)²⁹, and Mayer-Benarous (2021) over the past 20 years were reviewed and analyzed in terms of different indicators such as the frequency of keywords, reputation of journals, and research findings through the Web of Science and the H-Index, which is a measure of ranking researchers and scientific journals. The data were then analyzed in VOSviewer. The findings showed a positive trend in studies on music therapy and indicated that they could provide useful information for music therapy researchers to identify new directions related to colleagues, common issues, and future research frontiers. As a result, the literature review of this research, which provides an analytical view of the existing knowledge structure using scientometrics and the findings of this study are expected to be highly credible and provide useful information for researchers attempting to fill the knowledge gap. Figure 1 presents an example of the research literature analysis.

As a relatively novel therapeutic intervention in Iran, music therapy faces numerous challenges and limitations. Despite the global advancement of music in all economic, social, and cultural dimensions, particularly in terms of various preventive and therapeutic functions, the therapeutic functions of music have been less addressed in Iran due to limitations as well as the traditional, non-scientific, and non-specialized applications of music in this country. Therefore, it is necessary to address music therapy as a therapeutic method based on theoretical and practical psychology, especially for individuals with ID. In recent years, many studies have been conducted on children with special needs and those who suffer from various disorders such as ASD.

For example, the findings reported by Mehrafza (2021), Rahmanian et al. (2021)²⁸, Hemati & Mullally (2019)¹⁹, Barzegar et al. (2017)⁵ showed that music therapy could effectively improve social and communication skills of autistic children. In addition, many quantitative studies have been conducted on individuals with ID in Iran; Ahmadi (2015)², Hashemian & Mohammadi(2015)¹⁸, Bohlouli Khayavi(2018)⁹, Ebrahimpour and Izadi(2018)¹², Mehrafza(2021). Numerous studies have also dealt with this subject, e.g., the studies conducted by Jacob Edozie & Pillay (2022)²¹, Xiong (2020), Blanky- Voronov (2019)⁸, and Duffy & Fuller (2020)¹¹. For instance, Duffy & Fuller (2020) reported that the use of music therapy as an intervention could effectively improve five social skills. Galińska (2015)¹³ prioritized music therapy over other methods for the rehabilitation of various dimensions of social skills. These studies introduce music therapy as a simple, safe, and methodical family-centered intervention for improving the social skills of children with ID (Stegemann et al., 2019)³⁷.

Based on theoretical foundations and the research background, children with ID are among the groups that face many problems with learning, social relationships, and behavior. Previous studies have also shown that music therapy can improve the social skills of educable children with ID. Hence, this study aims to analyze the effects of music therapy on the social skills of educable children with ID.

2. Material and method

This applied fundamental quasi-experimental study adopted a pretest-posttest design with a control group. The statistical population included all female elementary students of special needs schools in Shiraz, Fars Province (Iran) in the academic year 2022–2023 (N=327, according to the General Directorate of Special Education of Fars Province). The random sampling method was employed to select 80 eligible students as the research sample. They were then randomly assigned to a test group and a control group (n= 40 per group). The inclusion criteria were as follows: being elementary students with ID and not suffering from physical disabilities or Down's syndrome based on academic records. The exclusion criteria were as follows: unwillingness to continue the study, simultaneous participation in other interventions, and absence in more than two intervention sessions. The intervention was based on the research literature and the DI music therapy training guide prepared by the State Welfare Organization of Iran. Its content validity was then assessed by eliciting the views of professors and experts (Doustdar, 2009)¹⁰.

The intervention was implemented in twelve 30-minute group sessions in compliance with ethical and hygiene principles. The pretest and posttest data were collected using the Social Skills Rating System (SSRS)–Teacher Version (Gresham & Elliott, 1990)¹⁵. They were then analyzed statistically using descriptive statistics and inferential statistics. In fact, descriptive statistics were used for calculating measures of central tendency and measures of variability, including mean, standard deviation, maximum and minimum, skewness, and kurtosis. In addition, multivariate analysis of covariance (MANCOVA) and analysis of covariance (ANCOVA) were employed to analyze the primary and secondary hypotheses of this study, respectively, in SPSS 26.

2.1. Experimental Design

Before the intervention, the necessary permits for music therapy were acquired from the Department of Education of Fars Province and respective legal authorities. In addition, the consent of the participants' parents was obtained. This study was approved by the Ethics Committee of the Islamic Azad University. In the first step, 80 students were randomly selected as the sample (based on the inclusion criteria), and they were then randomly assigned to the test and control groups (after they were matched). In the second stage, all participants were measured as the pretest by completing the teacher version of SSRS. Then participants in the test group were invited to attend a music therapy intervention, whereas those in the control group received no intervention (they were monitored throughout the study to ensure that they still meet all the inclusion criteria). At the end of the intervention, all participants in both groups once again filled out the research questionnaire as the posttest. The data were statistically analyzed in SPSS. Finally, the SPSS outputs were interpreted and discussed and then presented as the research findings. Moreover, the entire research process lasted 6 months, and the intervention was performed in twelve 30-minute group sessions (twice a week) within 6 weeks.

2.2. Research Tool Standardization and Validity and Reliability Assessment

The internal reliability of the teacher version of SSRS ranged between 0.74 and 0.95 (Gresham & Elliott, 1999)¹⁵. However, this topic has received little attention in non-American cultures. Shahim (2001)³⁴ standardized this tool in Iran and reported the reliability coefficient to be 0.87, 0.76, 0.72, and 0.86 for the social skills of children with ID, cooperation, assertion, and self-control, respectively. The reliability coefficient for the whole tool was 0.81, which is considered relatively high (Shahim, 1999)³³. Other researchers have also confirmed the reliability of this tool, e.g., Shahim (2004)³⁵, Abdi (2010)¹, and Sabzevar, Abedi, & Liaghatdar (2013)³¹. Since teachers are the most important sources of information for students' behavior and competence, the teacher version of SSRS consisted of two subscales: social skills (cooperation, assertion, and self-control) and behavioral problems (endogenous behaviors and exogenous behaviors). Previous studies have shown the high validity and reliability of this version.

2.3. Main Topics of Music Therapy Intervention

The main focus of music therapy in this study was based on a methodical intervention process by a music therapist with a combination of four methods of improvisation, listening, re-creation, and composition using the voice, body, musical activities, and musical instruments in a group form based on the method proposed by Orff Schulwerk (Mohammadzadeh, 1995, 2002)^{26, 27}.

3. Result and discussion

Demographic data showed that 24 (46.2%), 10 (19.2%), 14 (26.9%), and 4 (7.7%) participants in the test group were studying the first, second, third, and fourth grades of elementary schools, respectively. The figures for the control groups were 37 (71.2%), 4 (7.7%), 9 (17.3%), and 2 (3.8%), respectively. The data indicated that 46 (88.4%), 3 (5.8%), 1 (1.9%), and 2 (3.8%) participants in the test group were suffering from memory and learning problems, hyperactivity, Down's syndrome, and hearing impairment, respectively. These figures for the control group were 33 (63.5%), 16 (30.8%), 2 (3.8%), and 1 (1.9%), respectively. In terms of age, 5 (9.5%), 43 (82.7%), and 4 (7.6%) participants in the test group aged 7–9, 10–12, and 13–15 years old, respectively. The figures for the control group were 8 (15.4%), 25 (48.1%), and 18 (34.6%), respectively. In this group, there was only one participant aged 16 years (1.9%).

Descriptive data on the research variables were analyzed to achieve a clear picture of the performance of participants in these variables. For this purpose, the mean, standard deviation, minimum, and maximum of each variable in each group were calculated and then the zero-order correlation matrix of each variable was examined (Table 1).

Table 1 Descriptive statistics of the research variables

Group	Test	Variables	Mean	Standard deviation	Minimum	Maximum	skewness	Kurtosis
Test	Pretest	Social skills	65/32	11/53	40	85	00/41	00/59
		Behavioral problems	32/08	7/71	19	47	00/22	00/91
		Total	97/30	8/97	79	116	00/08	00/64
	Posttest	Social skills	68/72	11/24	42	89	00/39	00/25
		Behavioral problems	31/43	7/81	18	54	00/27	00/08
		Total	100/54	9/96	83	142	1/44	1/90
Control	Pretest	Social skills	66/03	11/25	38	900	00/05	00/32
		Behavioral problems	32/09	7/28	19	54	00/48	00/18
		Total	97/98	11/22	69	141	00/96	1/68
	Posttest	Social skills	64/51	10/92	37	88	00/07	00/34
		Behavioral problems	32/14	6/37	21	46	00/33	00/85
		Total	96/87	10/34	70	122	00/43	00/49

According to Table 1, the kurtosis and skewness of the research variables were in the acceptable range, i.e., -2 to +2, indicating the normal distribution of the scores. Therefore, parametric tests were performed for data analysis. Before hypothesis testing, the normal distribution of data was examined by using the Kolmogorov–Smirnov test. Since the results revealed a significance level greater than 0.05 for all variables and all the basic assumptions were established, it was possible to use parametric tests for testing the hypotheses (Table 2).

Table 2 The test of normality of research variables

Group	Test	Variables	Kolmogorov- Smirnov test	Degree of freedom	Sig.
Test	Pretest	Social skills	00/10	47	00/20
		Behavioral problems	00/14	47	00/10
		Total	00/06	47	00/20
	Posttest	Social skills	00/10	47	00/20
		Behavioral problems	00/08	47	00/20
		Total	00/10	47	00/20
Control	Pretest	Social skills	00/10	47	00/20
		Behavioral problems	00/10	47	00/20
		Total	00/13	47	00/30
	Posttest	Social skills	00/09	47	00/20
		Behavioral problems	00/13	47	00/20
		Total	00/13	47	00/20

Considering the proposed hypotheses, the research inferential results are as follows. Since this was a quasi-experimental study based on a pretest-posttest design with a control group, ANCOVA was employed to control the pretest effects. The equality of variance of groups and equality of covariance matrix are the preconditions of this test that should be established; an F-test was conducted to determine the equality of variances (Table 3).

Table 3 The F-test results on the homogeneity of the variances of experimental groups

F-value	First degree of freedom	Second degree of freedom	Sig.
2.55	2	102	0.11

According to the above table, the F-value was not statistically significant ($p > 0.05$). In conclusion, there were no significant differences between the test and control groups in terms of the variance of posttest social skills score. Therefore, the homogeneity of the variances was established. The Box’s M test results on the equality of covariance matrix is shown in the Table 4.

Table 4 The Box’s M test results on the equality of covariance matrix

Box’s M value	F- value	First degree of freedom	Second degree of freedom	Sig.
228.49	2.56	78	328	0.2

According to Table 5, the significance level of ANCOVA was smaller than 0.05 ($p < 0.05$). Therefore, the research hypothesis was confirmed, i.e., there was a significant difference between the test and control groups in social skills.

Table 5 ANCOVA results on the comparison of experimental groups in terms of social skills

Variations	Sum of squares	Degree of freedom	Mean square	F- value	Sig.	Eta squared (η^2)
Group	415.50	2	415.50	9.53	0.003	0.08
Error	4403.27	101	43.59			
Total	10249	104				

Another indicator that should be considered is the effect size, which is referred to as eta squared (η^2) in Table 6. This measure indicates variances of the dependent variable caused by the intervention. Since eta squared was equal to 0.08, then 8% of variances of scores on social skills were caused by the music therapy intervention. The Table 6 illustrates results of Wilks' lambda.

Table 6 The results of Wilks' lambda

Test type	Value	F-value	Sig.
Wilks' lambda	0.75	2.40	0.009

Since the significance level of Wilks' lambda was smaller than 0.05, according to Table 6, there was a significant difference between the two groups in at least one of the dependent variables.

The between-group ANOVA was employed to analyze the effect of music therapy on each social skill. The equality of variance of groups is the precondition of this test that should be established. An F-test was conducted to determine the equality of variances (Table 7).

Table 7 The F-test results on the homogeneity of the variances of experimental groups

Dimensions	F-value	First degree of freedom	Second degree of freedom	Sig.
Cooperation	00/04	1	102	00/75
Assertion	00/10	1	102	00/83
Self-control	00/53	1	102	00/46
Exogenous behavior	00/02	1	102	00/88
Endogenous behavior	00/94	1	102	00/33
Hyperactivity	00/96	1	102	00/32

Table 8 The results of intergroup ANOVA for each social skill

Dimensions	Sum of squares	Degree of freedom	Mean square	F-value	Sig.	Eta squared (η^2)
Cooperation	55/53	1	55/53	3/32	00/05	00/03
Assertion	31/24	1	31/24	1/75	00/18	00/01
Self-control	54/08	1	54/08	3/51	00/06	00/03
Exogenous behavior	00/77	1	00/77	00/06	00/79	00/001
Endogenous behavior	6/01	1	6/01	00/76	00/38	00/007
Hyperactivity	00/47	1	00/47	00/05	00/82	00/001

According to Table 7, the F-value was not statistically significant ($p > 0.05$). In conclusion, there was no significant difference between the test and control groups in terms of the variance of posttest social skills score. Therefore, the homogeneity of the variances was established. The results of intergroup ANOVA for each social skill is shown in Table 8.

The analysis of each dimension of social skills separately demonstrated that there was a significant difference between the test and control group in “cooperation”, as its mean score was higher in the test group. However, there were no significant differences between the two groups in other dimensions of social skills. In other words, music therapy failed to change other dimensions.

4. Conclusion and recommendation

This study reviewed the literature and then analyzed the effects of music therapy on the social skills of educable children with ID. This study also proposed a new practical model that has received less attention in both theoretical and practical fields, although it is considered one of the most central areas and policy measures to improve social skills in children studying in special needs schools. Previous studies have demonstrated that governments and educational institutions are developing strategies to improve educational conditions and environments and also create incentives to provide a supportive environment for the disabled. However, they typically overlook things that directly relate to a person's innermost and most mental part and improve their social skills. The findings of this study and those of similar previous studies indicated that music therapy can be used as an intervention to affect the social skills of children with ID. This intervention, in combination with educational activities and family-centered approaches, can be used as a suitable solution to the problems of children with ID.

The research findings are consistent with the results of Hashemian & Mohammadi (2015)¹⁸, Ahmadi (2015)², Asadi Gandmani et al. (2015)³, Shafizadeh (2019)³², Mehrafza (2021), Bohlouli Khayavi (2019)⁹, Shahim (1999), Duffy & Fuller (2020)¹¹, Viviril Afiana (2017), Bai (2019)⁴, Xiong (2020),

Blanky-Voronov (2022)⁷, and Sharda (2019). Considering the study results indicating the effectiveness of music therapy in improving the social skills of children with ID, we can argue that music therapy, in combination with formal education and skill training, can improve the social skills of such children based on their capabilities.

A strength of this study was that it added to previous studies and scientometric investigations on music therapy around the world. It also included the citation analysis of relevant papers and documents. Furthermore, this was an applied study conducted in cooperation with the Department of Special Needs Education of Fars Province, the State Welfare Organization of Iran, and music schools supervised by the General Directorate of Culture and Islamic Guidance of Fars Province. Therefore, the study findings can clarify the knowledge and research gaps as well as applied issues for future studies.

Similar to any other research projects, this study faced some limitations. For example, there were a limited number of relevant studies in the research literature. Since this scientometric study searched Farsi and English papers on scientific databases and search engines, the author would have missed part of similar studies. Other limitations of this study were the use of a questionnaire for both data collection and measurement and the lack of a follow-up stage. Future studies are recommended to perform this intervention for other groups and individuals with special needs by adopting different methods and functional approaches.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

This study was extracted from a master's thesis in general psychology approved by the Ethics Committee of the Islamic Azad University (IR.IAU.SHIRAZ.REC. 163429424307922302011162725776).

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

- [1] Abdi, B. (2010). Gender differences in social skills, problem behaviours and academic competence of Iranian kindergarten children based on their parent and teacher ratings. *Procedia-Social and Behavioral Sciences*, 5, 1175-1179.
- [2] Ahmadi, L., Salehi, M., & JafarJavadi, M. (2016). The Effect of Teaching Music on Active Memory of Educable Mentally-Retarded Children. *European Online Journal of Natural and Social Sciences*, 5(1), 163-171.
- [3] Asadi Gandamani, R., Pezeshk, S., Hashemi Azar, J., Sarami, G. (2022). Investigation Relationship between social skills and behavioral problems in students with Mild intellectual disability. *Journal of Disability Studies*, 11 (5), 22-28.
- [4] Bai, Y. (2019). The Use of Music Therapy towards Social Development in Children with Disabilities: A Rapid Review.
- [5] Barzegar B., K., Mirjalili, M., Shirjahani, A. (2017). The role of physical games, painting, and music in reducing behavioral-educational problems of children with learning problems. *Journal of Special Needs Education*, 195(7), 52-62.
- [6] Birch, J., & Thompson, G. (2023). Exploring Music Therapy Research in Preschool Settings that Include Children with Disabilities: A Scoping Review. *Journal of Music Therapy*, 60(1), 64-97.
- [7] Blanky-Voronov, R., & Gilboa, A. (2022). The “Ensemble”—A Group Music Therapy Treatment for Developing Preschool Children’s Social Skills. *International Journal of Environmental Research and Public Health*, 19(15), 9446.
- [8] Blanky-Voronov, R. (2019). Examining the Impact of the “Ensemble” Model of Group Therapy in Music and Arts on the Developing Social Skills of Preschool Children. Essay for the “Doctor of Philosophy”. Department of Music, Bar-Ilan University. Ramat-Gan.
- [9] Bohlouli Khayavi, E. (2019). Effects of music therapy on life expectancy, happiness, and quality of life of girls with intellectual disability in Meshkinshahr, Iran. Master's thesis, Islamic Azad University of Ardabil.
- [10] Doustdar, H. (2009). Guide to music and music therapy for individuals with intellectual disability; Tehran: the State Welfare Organization of Iran, Department of Rehabilitation.
- [11] Duffy, B., & Fuller, R. (2000). Role of music therapy in social skills development in children with moderate intellectual disability. *Journal of Applied Research in Intellectual Disabilities*, 13(2), 77-89.
- [12] Ebrahimpour, M., Yazidi, Z. (2019). Effects of musical activities on executive functions of students with mild intellectual disability. *Journal of Psychology of Exceptional People*, 33 (9), 201-169.
- [13] Galińska, E. (2015). Music therapy in neurological rehabilitation settings. *Psychiatr Pol*, 49(4), 835- 46.
- [14] Gillis, A. M., Vener, S. M., & Poulson, C. L. (2023). Teaching Social Skills. *Handbook of Applied Behavior Analysis: Integrating Research into Practice*, 979-997.
- [15] Gresham, F. M., & Elliot, S. N. (1990). Social skills rating system. *PsycTESTS Dataset*.
- [16] Hadar, T., & Rabinowitch, T. C. (2023). The varying social dynamics in orally transmitted and notated vs. improvised musical performance. *Frontiers in Psychology*, 14, 1106092.
- [17] Hickey, C. R., Reeve, S. A., Reeve, K. F., & Deshais, M. A. (2023). Greeting skills: A systematic review of the literature. *Behavioral Interventions*, 38(2), 456-476.
- [18] Hashemian, P., & Mohammadi, M. (2015). Effectiveness of music therapy on social skill growth in educable intellectual disability boys. *Open Journal of Pediatrics*, 5(04), 358.
- [19] Hemati, M. J. & Mullally, G. (2019). A review of the application of music therapy for improving social skills of children with autism spectrum disorder. *Iranian Journal of Psychology and Behavioral Sciences*, 19(2), 50-59.
- [20] Hergehan, B.R, Olson, M., H. (1999). An introduction to learning theories (translated by Aliakbar Saif). Tehran:(published in 2015).
- [21] Jacob, U. S., Edozie, I. S., & Pillay, J. (2022). Strategies for enhancing social skills of individuals with intellectual disability: A systematic review. *Frontiers in rehabilitation sciences*, 3, 968314.

- [22] Li, K., Weng, L., & Wang, X. (2021). The state of music therapy studies in the past 20 years: a bibliometric analysis. *Frontiers in psychology*, 12, 697726.
- [23] Lee, K., Cascella, L. K., Marwaha, R., (2022), *Intellectual Disability*. In: StatPearls. StatPearls Publishing, Treasure Island, PMID: 31613434.
- [24] Mayer-Benarous, H., Benarous, X., Vonthron, F., & Cohen, D. (2021). Music therapy for children with autistic spectrum disorder and/or other neurodevelopmental disorders: a systematic review. *Frontiers in psychiatry*, 12, 435.
- [25] Mehrafza. M., Nokhostin Goldoust. A, Kiomarsi. A. (2021). Effects of music therapy on attention and concentration, social adjustment, and aggression of students with intellectual disability. *Journal of Family and Health*, 29(11), 117-135.
- [26] Mohammadzadeh, A. (1995). *Applications of music therapy for children with intellectual disability*, Tehran: Publishing Workshop.
- [27] Mohammadzadeh, A. (2002). *Applications of music therapy in psychiatry, medicine, and psychology*; Tehran: Asrare Danesh Publication.
- [28] Rahmanian. M., Uraki. M., Amini Shirazi, N., Farzaneh, M., R (2021). A comparison between the effects of active music therapy and play therapy on social skills and eye contact of male children with level-2 autism; *Journal of Special Needs Children*, 3 (81), 126-113.
- [29] Rushton, R., Kossyvaki, L., & Terlektsi, E. (2023). Music-based interventions for people with profound and multiple learning disabilities: A systematic review of the literature. *Journal of Intellectual Disabilities*, 27(2), 370-387.
- [30] Sharda, M., Silani, G., Specht, K., Tillmann, J., Nater, U., & Gold, C. (2019). Music therapy for children with autism: investigating social behaviour through music. *The Lancet Child & Adolescent Health*, 3(11), 759-761.
- [31] Sabzevar. M., Abedi, A. & Liaghatdar, M., J. (2013). A comparison between social-emotional learning and social skills of students in no bag private schools and public schools; *Journal of Educational Sciences of Shahid Chamran University of Ahvaz*, spring and summer 20(1). 171-188.
- [32] Shafizadeh, S. (2019). Effectiveness of music therapy by Orff Schulwerk's method in improving social skills and reducing aggression of dyslexic students; Master's thesis, Islamic Azad University, of Marvdasht.
- [33] Shahim, S. (1999). Correlations between parents' and teachers' ratings of social skills for a group of developmentally disabled children in Iran. *Psychological Reports*, 85(3), 863-866.
- [34] Shahim, S. (2001). Reliability of the social skills rating system in a group of Iranian children. *Psychological Reports*, 89(3), 566-570.
- [35] Shahim, S. (2004). Reliability of the social skills rating system for preschool children in Iran. *Psychological reports*, 95(3_suppl), 1264-1266.
- [36] Silverman, M. J. (2022). *Music therapy in mental health for illness management and recovery*. Oxford University Press.
- [37] Stegemann, T., Geretsegger, M., Phan Quoc, E., Riedl, H., & Smetana, M. (2019). Music therapy and other music-based interventions in pediatric health care: An overview. *Medicines*, 6(1), 25.
- [38] Tiszai, L. (2019). *Community Music Therapy and Intellectual Disability*.
- [39] Wu, J., Chen, K., Ma, Y., & Vomočilová, J. (2020). Early intervention for children with intellectual and developmental disability using drama therapy techniques. *Children and Youth Services Review*, 109, 104689.
- [40] Wu, Y. (2023). *A Symphony of the Effects of Music Therapy on Children with Intellectual- Developmental Disabilities* (Doctoral dissertation, University of Minnesota).
- [41] Xiong, Z. (2020). *Music Interventions for a Child with Developmental Disabilities*. Unpublished Master's, Lesley University.
- [42] Zyga, O., Russ, S. W., Meeker, H., & Kirk, J. (2018). A preliminary investigation of a school-based musical theater intervention program for children with intellectual disabilities. *Journal of Intellectual Disabilities*, 22(3), 262-278.

Authors short biography

	<p>Qualification: PhD student in tourism management Academic rank: Ph.D. student of Allameh Tabatabai University, Department of Tourism E-mail address: mansouri_ahmad@atu.ac.ir Phone number: +989177121222 Research background: Researcher, consultant, master's degree in executive management, master's degree in public psychology, director of communications and telecommunications with 23 years of technical and managerial experience Research Interests: Rural tourism; Tourism development planning; Entrepreneurship in tourism; Hospitality: health psychology.</p>
	<p>Name and Surname: Dr. Ali Naseri Academic rank: Faculty member of Islamic Azad University, Firoozabad Branch. E-mail address: dr.alinaseri@yahoo.com Contact No: +989177180280 Research background: Researcher, consultant, Psychological counseling. Research Interests: Psychology; Health Psychology; Clinical Psychology.</p>