Key points
• A Memory Clinic model set up to diagnose and treat Alzheimer's Disease early in the course of the illness delayed time to institutionalisation by a median of 9 months compared to controls.   • Treatment included pre and post diagnostic counselling, and psychosocial interventions.

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to suggest that intervening early in AD improves outcome, by delaying institutionalisation up to 9 months. Prospective studies of early intervention, and a quantitative analysis of which psychosocial interventions are most effective, are awaited.

Conflict of interest

None known.

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The effects of music therapy on reducing agitation in patients with Alzheimer's disease, a pre-post study

One of the important challenges in nowadays societies is the increasing number of people who suffer from Alzheimer's disease (AD) and related problems. Common intrusive behaviors such as agitation place burden on patients, caregivers, and health care providing system. Many treatments, medical and non-medical, are suggested for coping with these behaviors. Among those interventions music therapy seems to be the most effective and the least harmful one. The purpose of this study is to examine the effect of various methods of music therapy on reducing agitation in patients with AD. The sample consisted of 26 AD patients from Behzisti of city of Shahriar who lived in four nursing homes. They were selected according to DSM IV criteria and Mini Mental Status Examination (MMSE) scores. Ten patients were assigned to control group and 16 to experimental group. The experimental group was divided into four sub-groups: the group that was exposed to listening to preferred music individually, the group that was exposed to group listening to preferred music, the group that was exposed to group listening to non-preferred music, and the group that was exposed to group singing of preferred music.

Following sample selection, the study was described to the patients and their caregivers and then written informed consent was obtained. Preferred music were chosen by participants, their family, and their caregivers and non-preferred music which were chosen by experimenter were similar to Vivaldi's four seasons (Thompson and Moulin, 2005) with minor scale and slow theme.

The instruments used in this research were Cohen–Mansfield agitation inventory (CMAI) and MMSE. CMAI consists of 16 likert-form items from 1(never) and 7(many times in 1 h). The caregivers score this inventory according to patient's behaviors in recent 2 weeks. The content validity of this inventory in Iran has been measured with good inter-rater consistency of three experts and the test–retest reliability of the scale in a sample of 100 AD patients and 100 normal elderly persons yielded a score of 0.98 within 1-week period. MMSE is standardized in Iran with reported test–retest reliability of 0.73 (Bohairayee, 2000).

Table 1 Difference between pre-test and post-test scores of CMAI in four experimental groups

Groups	Mean	SD	df	t	p value
Preferred music individually	32.03514	1.0725	3	6.696	0.007
Preferred music	21.24461	4	3	3.766	0.033
Non-preferred music	45.79301	7.45	3	3.254	0.047
Singing	17.0196	5.45	3	6.404	0.008

The procedure was performed in three stages: at the beginning, caregivers filled Cohen–Mansfield agitation inventory, then music therapy methods were conducted for all four groups in 1 month duration, and at the end of 1-month period caregivers were asked again to fill CMAI. This was the final part of the procedure.

The t-test statistical method was used for data analysis. The results of the comparison of agitation in control and experimental group by CMAI were statistically significant in post-tests ($t = 1.081$, $p < 0.005$). The difference between mean scores of CMAI in follow-up was also significant ($t = 3.925$, $p < 0.005$). Therefore, we concluded that music therapy reduced the agitation in AD patients.

In the group which was exposed to group listening to non-preferred music, Table 1 shows that the differences between means of CMAI in pre-test and post-test are statistically significant. In the group which was exposed to group singing of preferred music, the table shows that the difference between means of pre-test and post-test is statistically significant ($\alpha < 0.005$). The result of the group which was exposed to listening to preferred music individually shows that the difference between means of pre-test and post-test is statistically significant ($\alpha < 0.005$). In the group which was exposed to group listening to preferred music Table 1 shows that the difference between means of pre-test and post-test is statistically significant ($\alpha < 0.005$).

Although the sample size of the study does not allow us to generalize these findings to geeral population, we found that music therapy has positive effects on reducing agitation, which is one of the most intrusive behaviors in AD. This result is consistent with some previous studies (Jennings and Vance, 2002; Remington, 2002; Helmes and Wiancko, 2006). This study suggests that if nursing homes or other caring centers use music therapy as a daily program for people with AD, it may reduce intrusive behaviors in patients and decrease the levels of stress and burnout in caregivers. Better quality of life is another probable outcome.

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