


A Comparison of the Effects of Music Therapy Interventions on Depression, Anxiety, Anger, and Stress on Alcohol-Dependent Clients: A Pilot Study

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Abstract

The purpose of this study was to investigate the immediate and short-term effects of 3 different types of music therapy interventions on the levels of depression, anxiety, anger, and stress in clients with alcohol dependence. Thirty-six male clients participated in 30-minute music therapy sessions twice a week over a period of 6 weeks. The music therapy program was comprised of singing, music listening, and playing instruments. Each activity was conducted for 2 weeks and for 4 sessions. A repeated measures pretest–posttest design was used. An analysis of variance indicated no statistically significant differences in the effects of the 3 types of music therapy interventions on the levels of depression, anxiety, anger, and stress; however, participants' scores in depression, anxiety, anger, and stress were significantly reduced after participating in the music therapy sessions. In the singing activity, significant differences in depression and stress levels were found between participant-selected songs and therapist-selected songs.

Keywords

alcohol dependence, anger, anxiety, depression, music therapy, stress

Because of rapid economic growth, the average Korean lifestyle has shifted toward achieving greater convenience and efficiency. At the same time, issues of adjustment have surfaced as many individuals attempt to adapt rather quickly to this sudden and shifted environment. Recent sudden social societal adjustments present a psychological burden that can increase individuals' risk of developing mental health problems such as anxiety, depression, and stress.¹⁻³

Studies have shown increased rates of alcohol dependence due to the aforementioned adjustment issues.^{4,5} Many Koreans seem to have a permissive attitude regarding alcohol, and some believe that the use of alcohol facilitates social relationships. As a result, this culture of drinking may be prone to alcohol abuse or dependence.⁶

According to the data presented in 2010 by statistical census in Korea, 73.2% of Korean adults over the age of 20 consume alcohol. Among those, 31% reported that they drink 2 to 3 times a month, 24.4% reported drinking 1 to 2 times a month, and 5.3% reported drinking on a daily basis. Further, research from the Ministry of Health and Welfare⁷ showed that the prevalence of alcohol dependence in Koreans was 5.6%; this equates to approximately 1.8 million people—a higher rate than other East Asian nations such as Japan and China. Drinking has therefore become a serious social problem with an associated socioeconomic cost.

People drink socially, but they also drink to help them manage psychological issues such as anxiety, depression, and guilt,⁸

and when they fail to properly manage stress.⁹ The drinking habits that were first initiated to help manage stress and negative feelings can eventually develop into excessive or binge drinking. In turn, as it directly affects the organs and areas of the brain that control stress, such as the hypothalamus, pituitary gland, and adrenal gland, alcohol itself can become a stressor.¹⁰

Individuals who develop alcohol dependence because of heavy drinking can also suffer from mental illnesses such as mood disorders, anxiety disorders, personality disorders, and abuse of other substances. However, depression is the most common comorbidity among alcohol-dependent clients.^{11,12} A meta-analysis has identified a significant correlation between alcohol dependence and depression¹³: approximately 77% of the alcohol-dependent clients studied also exhibited mental illness, and depression was the most common.¹⁴ Furthermore, among clients with alcohol dependence, 30% to 40% are diagnosed with severe depression and 70% with moderate depression.¹⁵ According to Yu,¹⁶ 67% of individuals diagnosed with alcohol dependence are depressed throughout their lives, and people with

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comorbid addiction and depression can become suicidal. Therefore, this has become a social issue.

Individuals with alcohol dependence can become anxious without reason when they cannot solve even minor problems. This constant anxiety is accompanied by feelings of inferiority and an avoidance of responsibility, which can lead them to drink.¹⁷

Aggression, explosive emotional outbursts, and similar behavior can be seen in alcohol-dependent clients,¹⁸ and anxiety is also a typical effect of alcohol dependence. According to Song,¹⁹ clients with alcohol dependence often have the faulty belief that alcohol is beneficial for calming anger; therefore, they drink alcohol to diffuse their angry feelings.

In general, clients with alcohol dependence cannot quiet their negative emotions such as depression, anxiety, anger, and stress, so they use alcohol to manage those negative feelings. To treat their problems, therefore, they need to adopt appropriate methods of managing the negative feelings that induce them to drink.

Listening to preferred music and participating in various musical activities are considered effective ways to manage negative feelings of anxiety, anger, and depression.²⁰⁻²² Music activities are used as an effective means of dealing with problem behaviors in alcohol-dependent individuals. Improvisation is effective in reducing anger and stress in male clients with alcohol dependence, and various other music activities are effective in managing depression and stress. Cognitive-behavioral music therapies are effective in anger management for alcohol-dependent clients,²³ and participating in music activities helped those with alcohol dependence to resolve social disputes and increase self-efficacy in abstinence from alcohol.²⁴ Bednarz and Nikkel²⁵ reported that group music activities, such as listening to music and group discussion, are effective in dealing with issues affecting the feelings of clients with alcohol dependence. Further, De l'Etoile²⁶ claimed that listening to music and participating in musical activities are effective means of relaxation for clients with addiction.

However, the key to achieving the therapeutic goal is the active participation of the client. Some researchers have emphasized that the client's active involvement and preference for the activities influence the results of the therapy program.^{27,28} When participating in music activities they enjoy, people tend to participate more actively and with higher expectations; thus, listening to music by choice was more effective in reducing depression and anxiety.²⁹⁻³¹ Furthermore, people with a positive attitude toward music activities participated more actively and effectively, thereby achieving their therapeutic goals.³²

Cevasco, Kennedy, and Generally³³ compared the effects of 3 different musical activities (movement to music, rhythm activities, and competitive games) on negative feelings in women in substance abuse rehabilitation, but little research has been conducted in Korea, comparing the effects of individual music therapies such as playing instruments, singing, and listening to music. In the present study, the researcher examined the musical activity (singing, playing instruments, or music listening) that was the most preferred and engaged the

most active client participation and then analyzed the effect of each music activity on participants' mood in order to develop music therapy programs based on the results to meet clients' needs and demands.

The purpose of this study was to determine the most effective musical experience to reduce the negative effects of depression, anxiety, anger, and stress in patients with alcohol dependence.

According to the purpose of the study, the following hypotheses were established:

1. There will be significant differences in the effects of individual music activity (singing, music listening, or playing instruments) on depression, anxiety, anger, and stress.
2. There will be significant differences between depression, anxiety, anger, and stress based on whether the therapist or the participant selected the individual music activity.

Methods

Participants

Among 42 hospitalized alcohol-dependent clients referred to the music therapy program by a psychiatrist at Seoul Metropolitan Eunpyeong Hospital, 36 male clients diagnosed with alcohol dependence participated. To participate, the volunteers had to meet the following selection criteria: (1) a diagnosis of alcohol dependence by 2 psychiatrists according to *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Edition, Text Revision) criteria, (2) no sensory (auditory and visual) impairment, (3) cognitively capable of expressing their emotions, and (4) no psychiatric symptoms such as auditory hallucinations or delusions.

Design and Procedure

This study comprised a total of 12 sessions; 2 sessions took place per week over the course of 6 weeks at Seoul Metropolitan Eunpyeong Hospital. A repeated measures pretest-posttest design was used. First, the researcher explained the purpose of this study and asked participants to provide informed consent via a consent form. Each session consisted of 3 parts: the pretest (10 minutes), the musical activities (30 minutes), and the posttest (10 minutes). In the pretest, each participant was asked to indicate his emotional state on a 10-point Likert scale that ranged from 1 (*strongly disagree*) to 10 (*strongly agree*).

Each participant attended 2 30-minute musical activities (singing, music listening, and playing instruments) per week. Sessions were conducted by a certified music therapist.

After completing each activity, the participants were asked to indicate their mood again using the same scale. For each test, the therapist read the directions and test questions to the participants.

Music Therapy Program

This study compared participants' responses to 3 brief musical activities: singing, music listening, and playing instruments.

Although each activity was incorporated into the music therapy sessions held at the hospital, the researcher designed the program separately in order to investigate participants' response to the individual activity. Therefore, a typical music therapy session consisted of clients reporting their current emotional states, clients participating in the musical activities, and clients reporting their emotional states upon finishing the session.

The 12-session music therapy program consisted of 4 sessions of music listening, singing, and playing instruments. Among the 4 sessions of each activity, 2 sessions utilized music and methods selected by the therapist and the other 2 sessions utilized music and methods chosen by the participants. These activities were randomized and presented in alternation to reduce any potential influence of the order of activities presented. Thus, singing activities were conducted in sessions 1, 2, 7, and 8. Listening activities were conducted in sessions 3, 4, 9, and 10. Playing instrument activities were conducted in sessions 5, 6, 11, and 12.

For the singing activities, the participants sang a song chosen by the therapist (sessions 1 and 7) or the clients (sessions 2 and 8). To make it easy to sing, songs were selected from the Korean pop song literature. The therapist accompanied their singing by playing along on the piano or the guitar.

For the music listening activities (sessions 3 and 9), the therapist selected calming, melodious music at slow tempi (refer to a study conducted by Gabrielsson and Lindstrom³⁴). On the other hand, for the music listening activities of sessions 4 and 10, one of the participants selected his favorite song and everyone listened to the music, if they agreed to, by using the speaker. Usually, popular music as well as classical music was used.

For the instrument-playing activity, the therapist chose improvisation and the performance of existing songs with both melodic and unpitched instruments, which was similar to a study conducted by Cevasco et al.³³ Participants chose the instruments within the structure provided by the therapist. Participants played both Western instruments, such as paddle drums, maracas, tambourines, and claves; and Korean traditional drum, such as *chango*, *jing*, *buk*, and *k'waenggari*, which is called *samulnori*. *Samulnori* is a Korean traditional percussion quartet. It is played using the 4 basic Korean percussion instruments: the *ggoenggwari* (a small gong), the *jing* (a large gong), the *janggo* (an hourglass drum), and the *buk* (a barrel drum). Although derived from traditional Korean farmers' music, *samulnori* itself is highly creative, exhilarating, and joyful music.

The detailed program is presented in Table 1.

Data Analysis

The data were analyzed using SPSS 19.0 to compare means and standard deviations (SDs) of negative emotions between pretest and posttest at each music activity session. Paired *t* tests were also used to investigate mood changes between pretest and posttest, respectively. A 1-way analysis of variance (ANOVA) was used to investigate the influence of each activity on

changes in negative mood. Finally, a nonparametric analysis was applied to investigate the differences between activities chosen by the therapist and the participants.

Results

The purpose of this study was to investigate the immediate effects of singing, music listening, and playing instruments on the negative mood states of depression, anxiety, anger, and stress in clients with alcohol dependence. The findings were as follows.

Characteristics of Participants

Forty-two clients participated in this study. Of the 42 participants, 6 were excluded because they exhibited cognitive impairments due to other substance abuse, alcoholic dementia, or psychiatric conditions; thus, scores from 36 participants were used for data analysis. Because of frequent hospitalizations and discharges, the researcher was not able to randomly assign clients to the control group. The number of participants varied each time, but no limit was placed on the clients who wished to attend music activities. The mean number of participants per session was 14; the largest session comprised 17 participants and the smallest had 11. Participants were all men who had been diagnosed with alcohol dependence. The average age was 50.2 years (SD = 9.82), with a median of 48; the oldest client was 73 years old and the youngest was 31 years old.

Changes in Mood States

Depression. The average pretest score (with SDs in parentheses) was 3.92 (0.74), and the average posttest score was 3.03 (0.71), with an average decrease of 0.89 in participants' depression scores. To determine the differences between pretest and posttest scores, a paired *t* test was used. The results indicated a significant difference between pretest and posttest scores ($t = 5.108, P < .01$).

To investigate the score differences between each activity and to remove the influence of pretest scores, the pretest scores were subtracted from posttest results and were analyzed using a 1-way ANOVA, but no significant differences were found ($F = 1.017, P > .05$).

As shown in Table 2, the depression score in the singing group was reduced by 1.16, from 4.35 (0.83) to 3.19 (0.18), and by 0.95 in the playing instruments group, from 3.24 (0.21) to 2.29 (0.13). The depression score of the music listening group was reduced by 0.56, from 4.17 (0.55) to 3.61 (0.71).

As outlined in Table 2, the detailed comparison graphs are shown in Figure 1.

To determine the depression score differences between therapist-selected and participant-selected music and methods, the pretest scores were subtracted from posttest scores and analyzed using an independent *t* test, but no statistically significant differences were found ($t = -1.631, P > .05$).

The differences between therapist-selected and participant-selected music and methods in each activity were analyzed

Table 1. Music Activities and Selected Music.

Session	Activity (the Subject of Selection)	Content
1	Singing (therapist)	1. A Pigeon Loft (Sang-Lok Yu) 2. The Young Ones (Soo-Chul Kim) 3. Let's Smile (Suk-Joon Oh) 4. Hwagae Marketplace (Young-Nam Cho) 5. Hit the Road (Yong-Pil Cho)
2	Singing (participants)	1. Green Firewood (Chang-Mo Koo) 2. Weeds (Hoon-A Na) 3. The Azalea (Maya) 4. The Old Tress (Wook-Jo Chang) 5. The Man in Shinsa-dong (Hyun-Mi Ju)
3	Music listening (therapist)	1. Air on the G string (J. S. Bach) 2. We (Byung-Woo Lee)—guitar version and various instrument versions 3. Clarinet Concerto in A major (K. 622), 2nd movement, "Adagio" (W. A. Mozart) 4. A Walk in the Forest (Brian Crain)
4	Music listening (participants)	1. Nella Fantasia (Sarah Brightman) 2. Hotel California (The Eagles) 3. It Must Have Been Love (Chang-Sik Song) 4. The Thorn Birds (Sung-Mo Cho)
5	Playing instruments (therapist)	1. Melodic instruments (choir chime)—"Edelweiss" 2. Unpitched instruments—experiential improvisation 3. Unpitched instruments—paddle drum conversation
6	Playing instruments (participants)	1. Melodic instruments—recorder, melodeon, xylophone 2. Unpitched instruments— <i>samulnori</i> ^a
7	Singing (therapist)	1. The Spring of Home (Korean children's song) 2. With Love (Haebalagi) 3. You Can Do It (San-Ae Kang) 4. To the Happy Land (Dae-Soo Han) 5. It has Gotten Better (Yi Sisters)
8	Singing (participants)	1. Baby Living by the Sea (Korean children's song) 2. With My Darling (Jin Nam) 3. I'm a Happy Man (Moon-Se Lee) 4. Why Are You Crying? (Hoon-A Na) 5. My Beloved (Yong-Pil Cho)
9	Music listening (therapist)	1. Piano Sonata No. 8 Op. 13 in C minor, 2nd movement (Beethoven)—jazz arrangement 2. Mo Better Blues (film score) 3. Winter from <i>The Four Seasons</i> , 2nd movement, "Largo" (Vivaldi) 4. If I Could Meet Again (Pudding)
10	Music listening (participants)	1. The House of the Rising Sun (Sang-Guk Kim) 2. Treasures of My Heart (Haebalagi) 3. Let it Be (The Beatles) 4. Weep, the Hot Wind (Mi-Ja Lee)
11	Playing instruments (therapist)	Playing instruments with rhythm notations
12	Playing instruments (participants)	Samulnori

^aSamulnori is a Korean traditional percussion quartet.

Table 2. Average Scores of Depression by Activities.

	Singing		Music Listening		Playing Instruments		F	P Value
	Pre	Post	Pre	Post	Pre	Post		
Mean (SD)	4.35 (0.83)	3.19 (0.18)	4.17 (0.55)	3.61 (0.71)	3.24 (0.21)	2.29 (0.13)	1.017	.400

Abbreviation: SD, standard deviation.

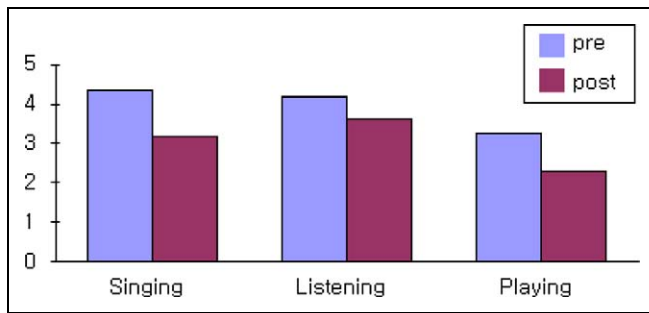


Figure 1. Average scores of depression by activities.

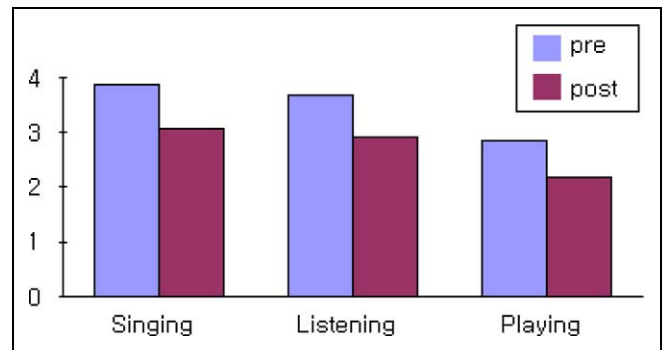


Figure 2. Average scores of anxiety by activities.

Table 3. Average Scores of Depression by Activities and the Subject of Selection.

	Therapist-Selected		Participants-Selected		P Value
	Pre	Post	Pre	Post	
Singing, mean (SD)	4.94 (0.68)	3.18 (0.36)	3.77 (0.43)	3.21 (0.51)	.03 ^a
Music listening, mean (SD)	4.32 (0.45)	3.38 (1.13)	4.03 (0.79)	3.83 (0.12)	.38
Playing instruments, mean (SD)	3.15 (0.12)	2.38 (0.11)	3.33 (0.28)	2.20 (0.09)	.23

Abbreviation: SD, standard deviation.

^a $P < .05$.

using a Mann-Whitney nonparametric test; and a significant difference was found in the singing group (see Table 3).

Anxiety. The average pretest anxiety score was 3.46 (0.69) and the average posttest score was 2.71 (0.59), representing a decline of 0.75 following the music activities. To examine the differences between total pretest and posttest scores, a paired t test was used. The results showed no significant differences between pretest and posttest scores ($t = 7.429$, $P < .01$).

To investigate the score differences in each activity and to remove the influence of the pretest scores, the pretest scores were subtracted from posttest scores and analyzed using a 1-way ANOVA, but no significant differences were found ($F = 0.098$, $P > .05$).

Examining the activities in detail, the anxiety score in the singing group was reduced by 0.80, from 3.87 (0.68) to 3.07 (0.36), and in the music listening group by 0.77, from 3.68 (0.67) to 2.91 (0.45). The anxiety score in the instrument-playing group was reduced by 0.68, from 2.84 (0.20) to 2.16 (0.24) (see Table 4 and Figure 2).

As outlined in Table 4, Figure 2 shows the detailed comparison graphs.

To determine the anxiety score differences between therapist-selected and participant-selected music and methods, pretest scores were subtracted from posttest scores and analyzed using an independent t test, but no statistically significant differences between scores were found ($t = -2.102$, $P > .05$).

The differences between therapist-selected and participant-selected music and methods in each activity were analyzed using a Mann-Whitney nonparametric test, revealing no significant differences (see Table 5).

Anger. The average pretest anger score was 3.55 (0.79) and posttest score was 2.58 (0.66), representing a 0.97 decrease in participants' anger scores. To determine the differences between pretest and posttest scores, a paired t test was used. The results indicated a significant difference between pretest and posttest scores ($t = 5.083$, $P < .01$).

To investigate score differences in each activity and to remove the influence of pretest scores, pretest scores were subtracted from posttest scores and analyzed using a 1-way ANOVA, and no significant differences were found ($F = 0.327$, $P > .05$).

As shown in Table 6, the anger score in the music listening group was reduced by 1.18, from 3.72 (0.55) to 2.54 (0.75); and in the singing group by 0.95, from 3.97 (1.08) to 3.02 (0.71). The anger score of the instrument-playing group was reduced by 0.78, from 2.97 (0.27) to 2.19 (0.24).

As outlined in Table 6, Figure 3 shows the detailed comparison graphs.

To determine the anger score differences between therapist-selected and participant-selected music and methods, pretest scores were subtracted from posttest scores and analyzed using an independent t test, but no statistically significant differences were found ($t = -1.161$, $P > .05$).

The differences between therapist-selected and participant-selected music and methods in each activity were analyzed using a Mann-Whitney nonparametric test; no significant differences were found (see Table 7).

Stress. The average pretest stress score was 4.10 (0.86) and the posttest was 2.91 (0.61), representing a 1.19 decrease in participants' stress scores. To determine differences between pretest and posttest scores, a paired t test was used. The results indicated

Table 4. Average Scores of Anxiety by Activities.

	Singing		Music Listening		Playing Instruments		F	P Value
	Pre	Post	Pre	Post	Pre	Post		
Mean (SD)	3.87 (0.68)	3.07 (0.36)	3.68 (0.67)	2.91 (0.45)	2.84 (0.20)	2.16 (0.24)	0.098	.907

Abbreviation: SD, standard deviation.

Table 5. Average Scores of Anxiety by Activities and the Subject of Selection.

	Therapist-Selected		Participants-Selected		P Value
	Pre	Post	Pre	Post	
Singing, mean (SD)	4.05 (0.83)	2.90 (0.34)	3.68 (0.75)	3.23 (0.98)	.212
Music listening, mean (SD)	3.95 (0.58)	2.93 (0.61)	3.40 (0.85)	2.90 (0.47)	.302
Playing instruments, mean (SD)	2.98 (0.14)	2.36 (0.16)	2.70 (0.14)	1.96 (0.05)	.711

Abbreviation: SD, standard deviation.

Table 6. Average Scores of Anger by Activities.

	Singing		Music Listening		Playing Instruments		F	P Value
	Pre	Post	Pre	Post	Pre	Post		
Mean (SD)	3.97 (1.08)	3.02 (0.71)	3.72 (0.55)	2.54 (0.75)	2.97 (0.27)	2.19 (0.24)	0.327	.730

Abbreviation: SD, standard deviation.

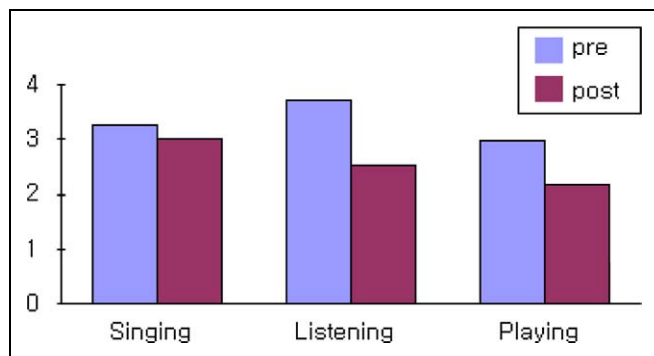


Figure 3. Average scores of anger by activities.

a significant difference between pretest and posttest stress scores ($t = 6.229, P < .01$).

To investigate the stress score differences in each activity and to remove the influence of pretest scores, pretest scores were subtracted from posttest scores and analyzed using a 1-way ANOVA, but no significant differences were found ($F = 0.204, P > .05$).

As shown in Table 8, the stress score in the music listening group was reduced by 1.36, from 4.30 (0.47) to 2.94 (0.46); and in the singing group by 1.18, from 4.64 (1.08) to 3.46 (0.52). The score of the instrument-playing group was reduced by 1.03, from 3.36 (0.43) to 2.33 (0.16).

As outlined in Table 8, Figure 4 shows the detailed comparison graphs.

In addition, to determine stress score differences between therapist-selected and participant-selected music and methods, pretest scores were subtracted from posttest scores and analyzed using an independent t test, but no statistically significant differences were found ($t = -1.464, P > .05$).

The differences between therapist-selected and participant-selected music and methods in each activity were analyzed using a Mann-Whitney nonparametric test, and the results indicated a significant difference (see Table 9).

Summary and Discussion

The purpose of this study was to determine the effect of singing, music listening, and playing instruments on the negative feelings of clients with alcohol dependence. The following results were revealed.

First, there were significant decreases in participants' posttest scores for depression, anxiety, anger, and stress. The remarkable difference appeared in the stress scores (1.19), followed by anger (0.97), depression (0.89), and anxiety (0.75). The largest decrease in scores by activity was as follows: stress after the music listening sessions, depression after the singing sessions, and anger after the music listening sessions. Although there were no significant differences found between the types of music activity, the largest decrease in anxiety appeared following the singing sessions.

The results of this study correspond with other investigations that reported positive outcomes. Among those, music

Table 7. Average Scores of Anger by Activities and the Subject of Selection.

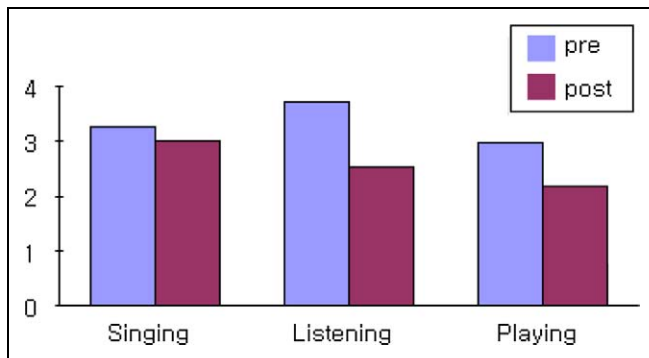
	Therapist-Selected		Participants-Selected		P Value
	Pre	Post	Pre	Post	
Singing, mean (SD)	4.68 (1.15)	2.88 (0.68)	3.25 (0.35)	3.15 (0.98)	.092
Music listening, mean (SD)	3.94 (0.46)	2.69 (1.09)	3.50 (0.71)	2.39 (0.64)	.791
Playing instruments, mean (SD)	2.77 (0.23)	2.27 (0.16)	3.17 (0.14)	2.11 (0.35)	.355

Abbreviation: SD, standard deviation.

Table 8. Average Scores of Stress by Activities.

	Singing		Music Listening		Playing Instruments		F	P Value
	Pre	Post	Pre	Post	Pre	Post		
Mean (SD)	4.64 (1.08)	3.46 (0.52)	4.30 (0.47)	2.94 (0.46)	3.36 (0.43)	2.33 (0.16)	0.204	.891

Abbreviation: SD, standard deviation.

**Figure 4.** Average scores of stress by activities.

listening was found to be effective for relaxation and stress reduction in persons with alcohol dependence,^{25,26} and singing was useful for reducing depression, while improvisation reduced anger. Stress as a mood state is a broad and subjective response,³⁵ which is perceived and expressed easily by clients. The music used in this study, specifically selected to promote relaxation, seemed to decrease the stress level of the participants during the music listening sessions.

High pretest scores of anxiety, anger, depression, and stress were recorded prior to the singing sessions. According to Austin,³⁶ singing may invite tension in the participants in making their own voice heard. Participants in this study also reported that they were nervous when they were informed of the singing activities—they felt self-conscious about performing. This may be the reason why the pretest scores for the singing activity sessions seemed to be higher than those for the other activities.

Although there were no significant differences in the total scores between therapist-selected and participant-selected music and instruments, there were, however, slight differences between the respective activities. In the singing sessions, a

significant reduction in stress and depression was reported when the music had been selected by the therapist. The therapist's expertise and ability to select music to suit the participants' needs seemed to drive effective results.²⁷

Furthermore, the music selected by the therapist was mostly familiar to the participants, while some of the participant-chosen music was not familiar to all of the participants because it was chosen by majority decision. Therefore, during singing sessions for which the music had been selected by the therapist, more of the clients were able to actively participate, influencing a positive outcome as previous research^{29,30} has noted.

The following is feedback received from participants in this study. Regarding the singing activities, participants commented, "I'm very happy and pleased to sing songs that I know," and "it was good to sing together." For the music listening activities, "music made me calm down," and "music relieved my stress." For the instrument-playing activities, some participants expressed dissatisfaction over dissonance, but there were positive responses as well, for example, "it helped me to forget my other thoughts," and "it got rid of suppressed feelings."

In conclusion, musical activities were effective in reducing the negative mood states of depression, anxiety, anger, and stress in persons with alcohol dependence. After music therapy sessions, participants were actively involved in the discussion and were able to express their feelings positively. There was some concern over the reliability of participants' cognitive ability to accurately express their feelings, but it seemed to be sufficient to evaluate participants' own responses.

According to the results of this study, there were slight but nonsignificant differences between individual activities' effects on mood state. Therefore, these factors should be considered when conducting a study on alcohol-dependent individuals. Because the researcher organized music activities in consideration of clients' needs and abilities, they showed more positive responses to the music and musical probes selected by the

Table 9. Stress Score Differences by the Subject of Selection.

	Therapist-Selected		Participants-Selected		P Value
	Pre	Post	Pre	Post	
Singing, mean (SD)	5.40 (0.85)	3.35 (0.31)	3.87 (0.69)	3.57 (0.82)	.046 ^a
Music listening, mean (SD)	4.50 (0.06)	2.84 (0.48)	4.09 (0.70)	3.04 (0.59)	.274
Playing instruments, mean (SD)	2.99 (0.10)	2.35 (0.27)	3.73 (0.01)	2.32 (0.06)	.071

Abbreviation: SD, standard deviation.

^aP < .05.

therapist. Based on the outcomes of this study, constructing music activities in consideration of the needs or performance levels of participants can be effective in achieving therapeutic goals.

Recommendations

The researcher recommends the following revisions before any future replication of the study is attempted.

First, the setting may have influenced the results of the study. The participants were asked to participate in only designated activities to meet the goal of comparison of the activities, but it was difficult to exclude the influence of other activities due to the environment of the facility. Therefore, it may be possible to develop a more effective program in a more objective setting, if future replications of the study are conducted. Composition was excluded in this study due to limitations of the facility, but it would be useful to compare participants' responses if composition was added as an activity.

Moreover, the sample size was quite small. There was much attrition due to personal events, so it was difficult to generalize the results. Therefore, a future study with a larger sample size is highly recommended.

Finally, considering the participants' abilities, a self-report instrument was used in this study to record mood states. More objective measurement tools should be considered to increase validity.

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