CHAPTER IV

METHOD

Design

The aim of the present investigation was to study the effect of music therapy on anxiety, pain, fatigue, sleep quality and affect in oncology inpatients. Female and male patients, who had been diagnosed with cancer for at least six months and were under chemotherapy or radiation therapy, and were hospitalized for these treatments were identified for the study.

A pretest-posttest experimental design was used in this study. The music therapy groups were compared with a control group, which was not given any music therapy intervention. Two main types of music therapy were used in this research viz. receptive and active music therapy. Ten sessions of either active and receptive music therapy were accomplished in experimental groups. Every session was 15-30 minutes separately for each individual. Receptive music therapy consisted of listening to pop recorded music that was selected by patients for themselves. Music was played for each individual by using MP3 player (depending on their choice of songs). In one pre-session, they were asked about their top 10 favorite songs of pop music and in the first session the music therapist instructed them how to use MP3 players. In active music therapy, participants were actively involved in the music-making by playing guitar and singing. Subjects were randomly chosen for the music therapy intervention method (active or receptive). The active music therapy also was conducted in individual format. In a pre-session of active music therapy group one Persian pop song was chosen by the patients and during all ten sessions a guitar player specialist trained the patients how to play their selected song on guitar, and the patients sang the song during the sessions. Variables that were studied in cancer patients before and after music therapy treatment, were anxiety, pain, fatigue, sleep quality, positive and negative affect. Efficacy of active and receptive music therapy in comparison to control group was investigated in males as well as females.
Method

Sample

The sample was drawn from all inpatients, meeting the inclusion criteria, and those who have been admitted for cancer treatment through chemotherapy or radiation therapy at hospitals in Golestan province of Iran. In this province, the rate of cancer patients coming to the hospitals was very high at any time of observation. The initial sample for the study was approximately 700-800 cancer patients under treatment in Golestan province hospitals. The final sample comprised of 240 male and female cancer inpatients in the age range of 20-40 years, who met the inclusion criteria. The samples were selected based on purposive sampling. Participants were randomly assigned via a computer program to either the experimental groups or control group. Then the experimental group participants were randomly assigned to either of the two therapies viz. active or receptive music therapy groups. Fifty-six patients (30 males and 26 females) dropped-out for the following reasons: leaving the chemotherapy sessions, not being interested to participate anymore, physical inability, death, and incomplete questionnaires (figure 4). The final left out sample was 184 (97 males and 87 females) (figure 5).

Inclusion criteria:

- 20–40 years of age.
- At least six-months of cancer diagnosis.
- Being under chemotherapy or radiation therapy.
- Interested in playing one of the traditional musical instruments.
- Literate and having knowledge of Persian and English.
- Negative history of psychiatric disease.
- Mentally alert person.
- Appreciable deficits in hearing or vision.
- Voluntarily consented to participate in the study.

Exclusion criteria:

- Current use of antipsychotic medications.
- Inability to see sufficiently to mark the Visual Analogue Scale (VAS)
Method

240 cancer patients assessed for eligibility

- 113 female cancer patients
- 127 male cancer patients

26 excluded:
- 11 left the hospital
- 6 did not like to continue to participate
- 4 incomplete questionnaires
- 4 physical inability to continue
- 1 passed away

30 excluded:
- 13 left the hospital
- 7 incomplete questionnaires
- 5 did not like to continue to participate
- 5 physical inability to continue

Eligible sample for the study:
- 87 female cancer patients
- 97 male cancer patients

Figure 4. Flow chart showing the eligibility of the sample
Figure 5. Flow chart showing the constitution of the sample
**Method**

*Locale*

Survey of hospitals for individuals with cancer in Golestan province of Iran was done to have an idea about the number of patients reporting to the hospitals, cancer care clinics and chemotherapy and radiation therapy centers, regularity of coming for cancer treatments such as chemotherapy and radiation. 5Azar hospital, Sayadeshirazi hospital and Falsafi hospital in Gorgan were the hospitals used for collecting data.

*Ethical consideration*

- The confidentiality of the information given by the participants was ensured.
- Informed consent of the participants has been obtained.
- Participants have been given the freedom to withdraw from the study at any stage.

*Test and tools*

The study variables chosen for this study were anxiety, pain, fatigue, sleep quality and affect. All these variables were measured using standardized test and tools (Persian medium) as mentioned below:

- **Beck Anxiety Inventory -BAI-** (Beck, 1993):

  This is a multiple-choice self-report inventory that is used for measuring the severity of an individual's anxiety. The BAI consists of twenty-one questions about how the subject has been feeling in the last week, expressed as common symptoms of anxiety (such as numbness and tingling, sweating not due to heat, and fear of the worst happening). It is designed for an age range of 17–80 years old. The BAI has a high internal consistency (Cronbachs $\alpha = 0.92$) and a test-retest reliability over one week of 0.75 (Beck et al., 1988). Findings of Kaviani & Mousavi (2008) showed that the Persian version of BAI had a good reliability ($r=0.72$, $p<0.001$), a very good validity ($r=0.83$, $p<0.001$), and an excellent internal consistency (Alpha=0.92).

- **Numeric Pain Rating Scale -NPRS-** (McCaffery & Beebe, 1989):

  The Numeric Pain Rating Scale (NPRS) is a uni-dimensional measure of pain intensity in adults (Childs, Piva & Fritz, 2005; Jensen & McFarland, 1993), including those with chronic pain due to rheumatic diseases (Rodriguez, 2001). The NPRS is a
segmented numeric version of the visual analog scale (VAS) in which a respondent selects a whole number (0–10 integers) that best reflects the intensity of his/her pain (Hawker, 2011). The 11-point numeric scale ranges from ‘0’ representing one pain extreme (e.g. “no pain”) to ‘10' representing the other pain extreme (e.g. “pain as bad as you can imagine” or “worst pain imaginable”). Recall varies, but respondents are most commonly asked to report pain intensity “in the last 24 hours” or an average pain intensity (Dworkin, Turk, Farrar, Haythornthwaite, Jensen, Katz et al., 2005). High test–retest reliability has been observed in both literate and illiterate patients (r = 0.96 and 0.95, respectively) before and after medical consultation. For construct validity, the NPRS was shown to be highly correlated with the VAS in patients with rheumatic and other chronic pain conditions (pain>6 months): correlations range from 0.86 to 0.95 (Ferraz, Quaresma, Aquino, Atra, Tugwell & Goldsmith, 1990).

- **Multidimensional Fatigue Inventory -MFI- (Smets, Garssen, Bonke & Haes, 1995):**

  A self-report instrument consisting of 20-item devised to measure fatigue, covering the dimensions of General Fatigue, Physical Fatigue, Mental Fatigue, Reduced Motivation and Reduced Activity. The instrument’s psychometric properties were tested and determined to have good internal consistency and construct validity in samples with Chronic Fatigue Syndrome (CFS). Meek, Nail, Barsevick, Schwartz, Stephen, Whitmer et al. (2000) found test-retest correlations were relatively reliable and Cronbach’s alpha scores were acceptable (0.70). The MFI was designed to capture differences in CRF over a period of time and demonstrated persistence of its constructs after completion of initial treatment in a range of cancers (Jean-Pierre, Fiscella, Freund, Clark, Darnell, Holden et al., 2011). Number of researches in Iran used the Persian version of this inventory (Ghajarzadeh, Jalilian, Eskandari, Sahraian & Azimi, 2012; Ghajarzade, Jalilian, Eskandari, Sahraian, Azimi & Mohammadifar, 2013; Ghaem & Haghighi, 2008).

- **Pittsburgh Sleep Quality Index -PSQI- (Buysse, Reynolds, Monk, Berman & Kupfer, 1989):**

  The Pittsburgh Sleep Quality Index (PSQI) is a self-report questionnaire that assesses sleep quality over a 1-month time interval. The measure consists of 19 individual items, creating 7 components that produce one global score (Buysse,
The PSQI has internal consistency and a reliability coefficient (Cronbach’s alpha) of 0.83 for its seven components. The PSQI is a subjective measure of sleep. Self reports by clients though empowering them, may reflect inaccurate information if the client has difficulty understanding what is written, or cannot see or physically write out responses. For those with visual impairments, the nurse can read the PSQI as written to the client. Farrahi-Moghaddam, Nakhaee, Sheibani, Garrusi & Amirkafi (2012) in a research assess reliability and validity of the Persian version of the Pittsburgh Sleep Quality Index. The Cronbach’s alpha coefficient was 0.89, and the item-total correlation of all the seven items were over 0.4 except for the acting out dreams (Farrahi-Moghaddam et al., 2012)

- **Positive and Negative affect Scale -PANAS-** (Watson, Clark & Tellegen 1988):

  The Positive and Negative Affect Schedule (PANAS) comprises two mood scales, one that measures positive affect and the other which measures negative affect. Used as a psychometric scale, the PANAS can show relations between positive and negative affect with personality states and traits. Reliability and validity reported by Watson et al. (1988) was moderately good. For the positive affect scale, the Cronbach alpha coefficient was 0.86 to 0.90; for the negative affect scale, it was 0.84 to 0.87. Over eight week time period, the test-retest correlations were 0.47-0.68 for the PA and 0.39-0.71 for the NA. In Persian version the internal consistency coefficient of the scale factor based on Cronbach's alpha coefficients for Positive affect is 0.81 and for negative affect is 0.80. The scale has subsequently been used in a number of studies in Iran (Golparvar & Karami, 2010; Naderi, Heydari & Mashal-Por, 2008; Mohammadi-Skrabady, Karami & Zakiei, 2015).

**Procedure**

For the present study, purposive sampling technique was used and initially 240 hospitalized cancer patients who met the inclusion criteria were selected and assigned to the groups (active music-therapy group, receptive music-therapy group and control group) randomly. After 56 dropped out during the intervention, the final number of participants was 184. Participants received ten sessions of active or receptive music therapy in two intervention groups in continuous ten days. Each session was for thirty
Method

minutes spread over ten days in morning time. It was decided to do the research on hospitalized patients due to their availability for the scheduled therapeutic sessions. In receptive music therapy, pop music was played for each individual by using MP3 player (depending on their choice of songs). In one pre-session, they were asked about their top 10 favorite songs of pop music and in the first session the music therapist instructed them how to use MP3 players. Active music therapy also was conducted based on individual therapy. In a pre-session, one Persian pop song was chosen by the patients of the groups and during all ten sessions a guitar player specialist trained the patients how to play their selected song by guitar, and the patients sang the song during the sessions. Scales were given once before and once after therapy. This study is an experimental research and every patient received individual sessions of receptive/active music therapy. In control group, participants received routine nursing cares. Pre-test and post-test design was applied in the present investigation. The trial was conducted in the oncology department of the governmental hospitals in Golestan province, where they are affiliated to the medical science universities of Iran.

Scoring and statistical analysis

Data was collected and raw scores calculated for all measures. Scoring for all the given tests was done as per the instructions provided in the respective scoring manuals of the tests. Normality of the data was assessed before conducting the statistical analyses. Keeping in view the objectives of study, Analysis of Covariance (ANCOVA) was applied. Descriptive statistics consisting of Mean, Standard Deviation, t-test and Post-hoc Analysis (Tukey) were also used.