Original Article

Zahedan Journal of Research in Medical Sciences

Journal homepage: www.zjrms.ir

The Effectiveness of Hypnotherapy in Treating Depression, Anxiety and Sleep Disturbance Caused by Subjective Tinnitus

Seyed Mahmoud Mirzamani,*[1] Hadi Bahrami,[2] Shirin Moghtaderi,[2] Maryam Namegh[2]

1. Department of Counseling, Islamic Azad University, Islamshahr Branch, Islamshahr, Iran
2. Department of Psychology, Science and Research Branch, Islamic Azad University, Tehran, Iran

Article information

Article history:
Received: 7 Nov 2011
Accepted: 7 Dec 2011
Available online: 14 Apr 2012

Keywords:
Subjective tinnitus
Hypnotherapy
Depression
Anxiety
Sleep disorder

*Corresponding author at:
Department of Counseling,
Islamic Azad University,
Islamshahr Branch, Islamshahr,
Iran.
E-mail:
Mirzamani2003@gmail.com

Abstract

***Background*:** Patients with tinnitus encounter many problems, including depression, anxiety, insomnia, increased sensitivity to sound, and negativity. The aim of this study was to evaluate the efficacy of hypnotherapy on the depression, anxiety, and insomnia caused by tinnitus.

***Materials and Methods*:** This study was a pilot research with a pretest-posttest and control design. The statistical population included individuals who suffered from tinnitus and its associated symptoms. Twenty patients with tinnitus were selected through available sampling. The subjects were divided randomly into two experimental and control groups. Both groups completed the Beck Depression Inventory, Spielberger's State-Trait Anxiety Inventory, and the Pittsburgh Sleep Quality Index in both pretest and post-test phases. Only the experimental group received 10 sessions of hypnotherapy. In this study, independent and dependent *t*-tests were used to obtain the data.

***Results*:** The two groups were similar in terms of tinnitus severity and age range. The results of independent and dependent *t*-tests at p=0.05 level in all three variables of depression, anxiety, and insomnia showed a significant difference between the scores of pretest and post-test as well as the post-test scores of control and experimental groups.

***Conclusion*:** The results indicated the effectiveness and usefulness of hypnotherapy in the reduction and treatment of the depression, anxiety, and insomnia caused by tinnitus in the experimental group.

Introduction

Tinnitus comes from the Latin word «Tinnire», that means to ring or to sound like bells, and is the perception of an unusual noise in the head without any proportional relation to external sources of the sound [1]. Tinnitus is divided into two types; subjective and objective. Subjective tinnitus implies on noises in the ears without a known physiological reason. This type of tinnitus is heard only by the patient and leads to hearing loss, lack of concentration, depression, anxiety, and sometimes sleeping problems [2].

Based on previous studies, there is a direct relationship between tinnitus and various psychological disorders [3]. Patients whose chief complaint is tinnitus encounter with many problems such as insomnia, impaired concentration, increased sensitivity to sound, and negativity [4]. Folmer et al. cited that subjective irritations caused by tinnitus are associated with depression [5]. Cai stated that patients with tinnitus have high scores in factors that measure depression, anxiety, and psychosomatic problems [6].

Zoger et al. showed that out of the 80 patients they studied, all had signs of depression in their lifetime and 39% of them experienced a persistent depression. Other diagnoses were rare, except anxiety with 45% prevalence [7]. Salonen et al. studied 583 individuals of the 70-85 age groups who suffered from tinnitus and concluded that depression was directly related to tinnitus [3].

In the study conducted by Folmer and Martin in the United States, 160 patients complaining of tinnitus were evaluated by completing Spielberger and Beck inventories for assessing anxiety and depression, respectively. This study had shown that these patients encountered many problems such as insomnia, anxiety, and depression [8].

Croctti et al. performed the Beck Depression Inventory, the Tinnitus Inventory, and the Anxiety Inventory on 180 patients suffering from tinnitus. Their results showed that 35% of these individuals had anxiety disorders, and 13% had depression. Also, there was a significant relationship between the scores obtained from the anxiety and tinnitus inventories. A significant relationship was also observed between depression and tinnitus [9].

In a study by Rutter and Stein on 95 patients with tinnitus, it was found that 44.6% of them had anxiety [10]. Andersson et al. found that 153 persons (71%) of a population sample consisting of 216 patients suffered from sleep problems, which was higher than other research reports, which usually ranged between 25 and 50% [11, 12].

Complaints about sleep, insomnia, and tinnitus are general in the elderly and all of these conditions increase with aging. Tinnitus severity also is related to the bothering degree of sleep [8]. Thus, it seems that tinnitus causes daily insomnia, both directly or through its effects

on sleep. In addition, the increased use of hypnotics means an increase in complaints of sleep in patients with tinnitus. Given the above subjects, most patients with tinnitus seek treatment to get rid of this problem. According to Kellerhals, tinnitus can be a psychosomatic disorder and its rehabilitation and treatment is like chronic pains [14]. Psychotherapy is such a treatment that acts in this direction.

This type of therapy aims to help patients to control their anxiety and stress, to create relaxation and concentration, and to increase personal effectiveness. In this regard, hypnotherapy can be named. Hypnotherapy is an advanced concentration condition in which the individual focuses on a specific stimulus and does not advert to other stimuli such as environmental or somatic stimuli [5]. Since hypnotherapy is an efficient method in reducing and treating subjective tinnitus, it seems that it can also be effective in the relief and treatment of psychosomatic disorders associated with tinnitus, which lead to irritation and reducing of life quality of patients. The present study deals with this issue. Therefore, this study aimed to evaluate the efficacy of hypnotherapy in the treatment of the depression, anxiety, and insomnia caused by subjective tinnitus.

Materials and Methods

This research was an experimental study with pretest-posttest and control group design that was performed to determine the efficacy of hypnotherapy in treatment of mental disorders associated with subjective tinnitus, including depression, anxiety, and insomnia. In this study, the Beck Depression Inventory to assess depression, Spielberger's State (apparent)-Trait (hidden) Anxiety Inventory to assess anxiety, and the Pittsburgh Sleep Quality Index to assess sleep quality were used.

The sample individuals consisted of 20 persons selected through available sampling from patients referred to the ear, nose, and throat clinics in the city of Tehran, and they were randomly divided into two groups. Ten patients were assigned in both experimental and control groups, with an age range of 30-50 years. All subjects were randomly selected from outpatients who were referred to the ear, nose, and throat clinics for treatment and subjective tinnitus were diagnosed by a specialist physician. In addition, they had no serious medical problems such as diabetes, hypertension, and heart disease. Their CT scan results were also normal.

After the completion of relevant inventories, the experimental group underwent hypnotherapy for 10 sessions by the researcher, and after training on self hypnosis was provided to this group, the post-test was performed on them. In the control group, at first the pretest was carried out; then, after a time interval equal to the time between the pretest and post-test in experimental group, the post-test was also performed in this group.

The program of hypnotherapy sessions for patients in the experimental group were as follows: hypnosis relaxation, creating numbness in the ears, direct dictation of numbness in the ear area, reminding pleasant memories which indirectly affects pain, assuming problem-solving that indirectly communicates with patients' problems, direct dictation of relaxation and comfort sense, and creating a forgetfulness of tinnitus.

For statistical analysis in order to compare the data between the pretest and posttest as well as a comparison of the experimental and the control groups, dependent and independent *t*-tests were used.

Results

The background characteristics for the experimental and control groups were investigated. The experimental group consisted of 8 women and 2 men in the age range of 31-46, whereas the control group consisted of 7 women and 3 men in the age range of 33-49. Tinnitus was subjective in all patients, and none had serious medical conditions. The means scores of tinnitus severity on the pretest was 7.85 in the experimental group and 7.80 in the control group, which showed the uniqueness of the two groups. In addition, the information in table 1 confirms the matching of the two groups in four research variables ($p\leq0.05$).

As seen in table 2, the mean for the research variables scores at post-test showed a noticeable decrease, particularly in the apparent and hidden anxiety variables, which demonstrates the effectiveness of hypnotherapy in the treatment of disorders associated with subjective tinnitus. Also, a comparison of post-test scores in the experimental and control groups indicated the reduction of subjects’ scores in the experimental group compared to the control group, which in terms of descriptive statistics confirms the effectiveness of hypnotherapy in the experimental group (Table 3).

The obtained results indicated that there was a significant difference in the mean scored for depression at pretest and post-test ($p\leq0.05$) and between the experimental and control groups ($p\leq0.05$), which represents the effectiveness of hypnotherapy in reducing and treating the depression caused by tinnitus.

Regarding patients' anxiety, a comparison of the mean scores for pretest and posttest (apparent anxiety and hidden anxiety) and also a comparison of the mean scores for the control and experimental groups (apparent anxiety and hidden anxiety) were significant at level $p\leq0.05$, that show the effectiveness of hypnotherapy in the treatment of anxiety brought about by tinnitus.

As for patients' insomnia, a comparison of the mean scores for pretest and posttest and also a comparison of the mean scores for the control and experimental groups were significant at level $p\leq0.05$, that implies the effectiveness of hypnotherapy in the treatment of insomnia resulted by tinnitus.

Table 1. Scores of research variables at pretest phase of the control and experimental groups

variable	Control group Mean±SD (range)	Experimental group Mean±SD (range)	*p*-value
Depression	3.23±21 (17-27)	3.65±21.7 (16-27)	0.001
State anxiety	8.97±51.5 (40-64)	5.92±57.8 (52-68)	0.001
Trait anxiety	11.59±50.9 (34-65)	5.03±57.6 (48-65)	0.001
Insomnia	3.95±15.1 (9-20)	2.75±17.4 (12-21)	0.001

Table 2. A comparison of variable scores in the experimental group at pretest and posttest

Variable	Pretest Mean±SD (range)	Posttest Mean±SD (range)	*p*-value
Depression	3.65±20.7 (27-16)	3.52±13.3(9-18)	0.001
State anxiety	5.92±57.8 (52-68)	4.07±21.8(15-28)	0.001
Trait anxiety	5.03±57.6 (48-65)	2.21±21.3(18-24)	0.001
Insomnia	2.75±17.4 (12-21)	1.33±5.7(4-8)	0.001

Table 3. A comparison of post-test scores of variables in the experimental and control groups

Variable	Control group Mean±SD (range)	Experimental group Mean±SD (range)	*p*-value
Depression	4.76±19.3 (13-29)	3.52±13.3 (9-18)	0.001
State anxiety	7.72±48.8 (35-60)	4.07±21.8 (15-28)	0.001
Trait anxiety	9.94±48.5 (30-60)	2.21±21.3 (18-24)	0.001
Insomnia	5.44±14.5 (5-20)	1.33±5.7 (4-8)	0.001

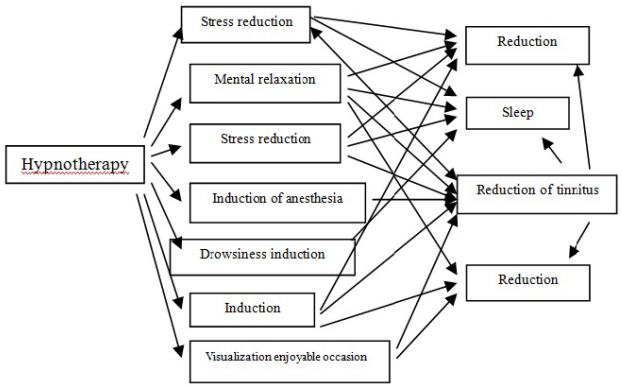

Figure 1. The proposed model for the effect of hypnotherapy in the treatment of depression, anxiety, and insomnia associated with tinnitus

Discussion

The existence of significant difference between the scores of pretest and posttest in the experimental group in the depression scale means that patients' depression scores had reduced after 10 sessions of hypnotherapy. In addition, this significant difference between the depression scores of the control group and the experimental group also reflects this fact that hypnotherapy was effective in reducing patients' depression. It seems that inspiring positive thoughts and creative visualization of enjoyable positions along with relaxation which is proposed in hypnotherapy probably played a significant role in the reduction of depression in patients. In addition, it seems that the reduction of patients' tinnitus was the facilitating factor of depression reduction in them.

Spielberger's Anxiety Inventory was used in this study. This inventory assesses two types of apparent and hidden anxiety in patients. According to the existing findings, we found that the scores of both types of anxiety in the experimental group patients at post-test were significantly reduced in comparison with pretest scores, and that there was a significant difference between pretest and posttest scores; this showed that 10 sessions of hypnotherapy had been able to reduce patient anxiety. In addition, there was a significant difference in the scores of both types of anxiety in the experimental and control groups, and this represents the impact of hypnotherapy on patients' anxiety. It seems that hypnotherapy may reduce anxiety by decreasing stress, creating mental relaxation, the dictation of positive thoughts, and muscle relaxation.

Also, the scores of patients' insomnia showed a significant difference at pretest and post-test as well as between the experimental and control groups. In other words, examining the scores obtained from the post-test of the experimental group and its comparison with pretest scores indicated that during 10 sessions of treatment, patients reported more comfortable sleep. In addition, the comparison of the experimental and control groups indicated that hypnotherapy was probably useful in the treatment of patients' insomnia.

Hypnotherapy proved able to produce more comfortable sleep by creating mental relaxation, muscle relaxation, stress reduction, and drowsiness induction. Also, it seems that the reduction of tinnitus severity in patients is an important factor in improvement of patients' sleep.

The results of this part of the study are consistent with Marlowe's research [16]. He found that hypnotherapy reduces the symptoms of tinnitus and its complications such as insomnia, nervousness, and irritability of the patients. For future studies, we suggest that more attention be devoted to the follow-up of these patients. In addition, Maudoux et al. showed in a research that the hypnotherapy reduces tinnitus and other symptoms such as nervousness, irritability, and insomnia [17]. To evaluate the effectiveness of hypnotherapy, Cope conducted a research and concluded that 70% of those who underwent hypnotherapy found it useful in the treatment of this disease and its complications [18]. Meehan et al. also reported that patients had better general

feelings, higher moods, and lower stress after hypnotherapy [19]. In another study conducted by Andersson, it was shown that a variety of psychological treatment including relaxation, meditation, and hypnotherapy can be very useful for patients with tinnitus who suffer also from its complications [20]. According to the obtained findings, the following model can be suggested for the impact of hypnotherapy in the treatment of tinnitus and associated depression, anxiety, and insomnia.

Acknowledgements
This article is taken from the Master's thesis of Ms. Shirin Moghtaderi in Islamic Azad University, Sciences Research Branch. Conflict of interest: Ms. Shirin Moghtaderi has any relation with the editor in chief of the Zahedan Journal of Research in Medical Sciences.

Authors' Contributions
All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest
The authors declare no conflict of interest.

Funding/Support
Islamic Azad University, Islamshahr Branch.

References

1. Cummings CW, Haughey BH, Thomas JR, et al. Otolaryngology, head and neck surgery. 3th ed, USA Mosby; 1998: 3198-3210.
2. Mahmoudian S. Tinnitus: The Basics, diagnosis, treatment, prevention. Iran J Med Sci 1995; 24-48.
3. Salonen J, Johansson R, Joukamaa M. Alexithymia, depression and tinnitus in elderly people. Gen Hosp Psychiatry 2007; 29(5): 431-435.
4. Zoger S, Sveglund J, Holgers KM. Relationship between tinnitus severity and psychiatric disorders. Psychosomatics 2006; 47(4): 282-8.
5. Folmer RL, Griest SE, Meikle MB and Martin WH. Tinnitus severity loudness and depression. Otolaryngol Head Neck Surg 1999; 121(1): 48-51.
6. Cai Q, Li J, Tao Z, et al. [The psychological analysis of patients with tinnitus] [Chinese]. Lin Chuang Er Bi Yan Hou Ke Za Zhi 2004; 18(4): 219-220.
7. Zoger S, Sveglund J, Holgers KM. Psychiatric disorders in tinnitus patients without severe hearing impairment: 24 month follow-up of patients at an audiological clinic. Audiology 2001; 40(3):133-140.
8. Folmer RL, Martin W. Chronic tinnitus as phantom auditory pain. Otolaryngol Head Neck Surg 2001; 724(4): 394-400.
9. Crocetti A, Forti S, Ambrosetti U, Bo LD. Questionnaires to evaluate anxietyand depressive levels in tinnitus patients. Otolaryngol Head Neck Surg 2009; 140(3): 403-5.
10. Rutter DR, Stein MJ. Psychological aspects of tinnitus: A comparison with hearing loss and ear, nose and throat disorders. Psycho Health. 1999; 14: 711-8.
11. Andersson G, Lyttkens L, Larsen HC. Distinguishing levels of tinnitus distress. Clin Otolaryngol Allied Sci 1999; 24(5): 404-410.
12. Sanchez L, Stephens D. Tinnitus problem questionnaire. Ear Hear 1997; 18(3): 210-217.
13. Asplund R. Daytime sleepiness and napping among the elderly in relation to somatic health and medical treatment. J Intern Med 1996; 239(3): 261-267.
14. Kellerhals B, Zogg R. Tinnitus rehabilitation by retraining: A workbook for sufferers, their doctors, and other health care professionals. Basel: Karger; 1999: 23-24.
15. Mirzamani SM. Hypnosis training: Facts and myths. Tehran: Golban Press; 1984: 17-32.
16. Marlowe FL. Effective treatment of tinnitus through hypnothetapy. Am J Clin Hypn 1973; 15(3): 162-165.
17. Maudoux A, Bonnet S, Lhonneux-Ledoux F and Lefebvre P. Ericksonian hypnosis in tinnitus therapy. B-ENT 2007; 3 Suppl 7: 75-7.
18. Cope TE. Clinical hypnosis for the alleviation of tinnitus. Int Tinnituse J 2008; 14(2): 135-8.
19. Meehan T, Eisenhut M, Stephens D. A review of alternative treatment for tinnitus. Audiological Med 2004; 2(1): 74-82.
20. Andersson G. Prior treatments in a group of tinnitus sufferers seeking treatment. Psychother Psychosom 1997; 66(2): 107-110.

Please cite this article as: Mirzamani SM, Bahrami H, Moghtaderi S, Namegh M. The effectiveness of hypnotherapy in treating depression, anxiety and sleep disturbance caused by subjective tinnitus. Zahedan J Res Med Sci (ZJRMS) 2012; 14(9): 76-79.