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The Program for Coping Methods to Improve Auditory Hallucinations Among Patients with Psychiatric Disorders: A Randomized Controlled Trial

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Abstract: Auditory hallucinations are hearing experiences that happen in the absenteeism of an external stimulus. When auditory hallucinations in the patients with a psychotic disorder happen, they affect their lives. Thankfully, many coping approaches that be used to challenge these voices and regain some control. Aimed to evaluate the effectiveness of a training program on coping methods, to improve auditory hallucinations among patients with psychiatric disorders. A randomized control design was employed. Fifty patients were engaged. It was implemented at the inpatients of the Psychiatric Hospital in Beni-Suef, Egypt. A constructed interview schedule to collect data of socio-demographic, clinical characteristics, the Psychotic Symptom Rating Scales for Auditory Hallucination and Self-Management Strategies to Control the Auditory Hallucinations. The program contained 10 sessions. The means of cognitive, behavioral and physiological coping methods have increased among participants in the experimental group from before to follow up observations. The training program on coping methods was effective in improving auditory hallucinations among psychiatric patients. The most common was used behavioral coping methods. The nursing staff should apply training programs for patients with psychiatric disorders who suffer from auditory hallucinations and teach them how to use cognitive, behavioral and physical coping methods to deal with the hallucinations.

Keywords: Auditory, Coping, Disorders, Hallucinations, Methods, Psychiatric

1. Introduction

Hallucinations are sensation experienced in the non-existence of external stimuli that can distress one or more of the senses: hearing, sight, touch, smell, and taste [1]. Hearing sounds in the psychiatric field mean auditory hallucinations; it is psychopathological experience and the main symptoms of psychiatric disorders [2]. Auditory hallucinations are a significant symptom of psychotic disorders, like schizophrenia, schizophrenia spectrum, and mood disorders; also they can extend alongside other psychiatric disorders such as anxiety and conduct disorders, as a response to stress and to substance abuse [3], estimated range from 60% and 75% schizophrenia, bipolar disorder (10% to 25%), major depression (6%), Post-traumatic stress disorder (40% to 50%) [4].

Auditory hallucinations are intense perceptions of hearing voices that occurs without congruent external stimuli and have a strong sense of reality [5]. The auditory hallucinations (or 'voices') are a painful experience that can destructively distress the lives of people with psychosis [6]. Earlier researches discovered that > 60% of voice hearers were severely depressed and > 75% reported higher levels of distress [7]. Also, Cangas et al., who explained that patients who experience auditory hallucinations expressive poor social and emotional performance, resulting in loss of employment and distress in creating social interactions [8]. The continuation of hallucinatory experience; most individuals experience a hallucination at some time, for instance, in association with sleep deprivation or on waking or falling asleep, ranging to those who are significantly disabled by repetitive and stressful psychotic episodes [9].

Auditory hallucinations are the greatest common, so the nurse must observe certain signs, such as taking a listening

position, uninterested laughter, talking to himself, and blocks in thinking, lack of attention and distraction. Nurses' obligation shows an attitude of appreciation to help the patient participate in the content of the hallucination [10]. The nurses should attend to patients' reported concerns, assist them to comprehend what is happening and detecting better ways to cope if the problem exists [11]. The coping approaches have been exposed to be an effective therapy and can significantly decrease the negative features of this hurting indicator, divert patients' attention away from the voices, help patients regain some control over hallucinated voices, help patients follow regular daily activities more effectively as well as assist them not to use maladaptive manners to cope with auditory hallucinations [12]. The nursing approach states the nursing identification of auditory hallucination control as the progression of safety, well-being and the hallucinating patient's orientation towards reality [13].

The patients with psychiatric disorders suffer from painful auditory hallucinations. The auditory hallucinations often include "hazardous content" such as commanding patients to hurt themselves or others. The voices are serious if patients don't utilize coping methods in a successful manner and the only means they can manage them is by following them. The coping methods allow individuals to manage with auditory hallucinations and help them to succeed in dealing with their own symptoms. Nurses and other health care providers who would like to sustain people in dealing with auditory hallucinations should train those patients to cope with auditory hallucinations. Cognitive, behavior and physical coping methods allow patients to cope with their own symptoms. Therefore, the researcher planned and implemented the program to train patients with psychiatric disorders how to deal with auditory hallucinations.

In this study, the researcher evaluated the effect of the program for coping methods to improve auditory hallucinations among patients with psychiatric disorders, and reduced all dimensions of auditory hallucination after and at the follow-up implementation of the program in comparison to before the program and with the patients receiving usual care from the hospital.

2. Subject and Methods

2.1. Design

The design of this study was a randomized control trial. This trial is a practical, external comparing guided program based on coping methods to a wait-list control using 1:1 allocation ratio Figure 1. Both groups during the study received usual treatment.

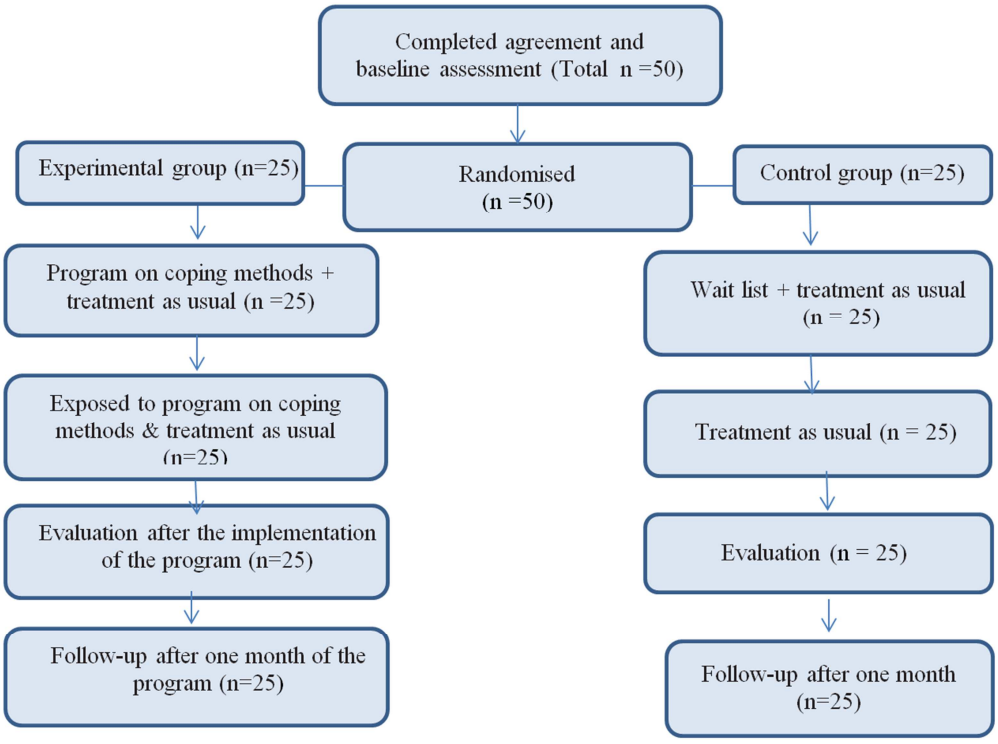

Figure 1. *Profile of work plan distributed through the study trial.*

2.2. Sample

The study sample included 50 patients with psychiatric disorders distributed into two equal groups that were experimental and control.

2.3. Inclusion and Exclusion Criteria

2.3.1. Inclusion Criteria

According to Garralda, who stated that auditory hallucinations found to be the major psychotic symptom in

people with psychotic conditions as, schizophrenia, manic-depressive, schizo-affective or unspecified diagnoses [14]. Participants recruited in this study were patients with psychiatric disorders (e.g., schizophrenia, bipolar disorders, mania, depression, and schizo-affective) concurrence to the Diagnostic and Statistical Manual of Mental Disorders "DSM-IV" edition and according to the patients' sheet. At least the duration of illness 2 years, patients have the insight about auditory hallucinations, their age ranged, between 18 to 65 years of both sexes, and agreeing to participate in the study.

2.3.2. Exclusion Criteria

A patient with an organic brain disorder, with age younger than18 years or older than 65 years. A patient has no insight on his/her auditory hallucinations, and patient suffering from substance abuse, and mental retardation.

2.4. Setting

The study was applied at the Inpatients of a Mental Hospital, affiliated to the Ministry of Health at Beni-Suef Governorate, Egypt. It contributes care to participants of both sexes and outpatient mental services.

2.5. Tools: Three Tools Were Involved in This Study

Tool I: A constructed interview, which contains two parts as follow:

Part 1: Developed by the researcher, it was used to collect the demographic data as; age, gender, residence, occupation, marital status, living status, and educational level.

Part 2: It includes clinical characteristics of data: The psychiatric history as diagnosis, duration of illness, number of previous psychiatric hospitalizations, history of the beginning of hallucinations (in years), effect of hallucinations on the patients' life and history of receipt antipsychotic medications (in years). Based on a review of the literature the researchers developed this tool.

The tool II: The Psychotic Symptom Rating Scale for Auditory Hallucination (PSYRATS-AH). It was developed by Haddock, McCarron and Tarrier [15] in order to measure various elements of auditory hallucinations. The concurrent validity and the reliability coefficient = 0.99 were measured in the parent language by Drake et al. [16]. It contains 11 items, each recorded in a five-point Likert scale from zero to four, as zero presenting the lowest severity, and four demonstrating the highest severity, where "There were no sounds" or to "Sounds not existing or existing less than once a week" = 0; "Sounds happen at least once a week" = 1; "Sounds happen at least once a day" = 2; "Sounds happen at least once an hour" = 3; and "Sounds occurred constantly or all time of the day continuously" = 4. It measures several aspects of hallucinations, extent (frequency, duration, loudness, and beliefs about the origin of voices, the quantity of negative content of voices, the quantity of distress, the level of negative content of voices, the intensity of distress, disruption, and control level of voice). The hallucination severity score, therefore, ranged from 0 to 44. A panel of five experts in the psychiatric nursing, psychology, and medical field inspected the tool content and tested for its validity in Arabic format. Cronbach's α reliability coefficient of the tool was reported r =0.89.

The tool III: A Structured Interviewing Sheet of Self Management Strategies to Control the Auditory Hallucinations: Developed by Abd El-Hay [17]. It was used to elicit information in relation to self-management of auditory hallucinations. It comprises 36 items of coping approaches that are separated into three classes: (1) Physiological coping strategy: It contains 7 items to diminish the patient's arousal, such as sleeping, lying down, taking extra medication and resting, and strategies to increase patient's arousal, such as, listening to music, exercising, smoking cigarettes, etc. (2) Cognitive coping strategy: It encompasses 11 items of acceptance of voices, such as debating with the voices, accepting and remaining with voices peacefully, acting as the voices say, speaking to the voices, requesting self to calm down, and declined attention to voices, such as; ignoring them, confirming voices, etc. (3) Behavioral coping strategy: It comprises 17 items, such as blocking ears, watching television, looking for help from the nurse and doctor, conversation with others, praying, singing, going to crowded places, separating self, eating, crying, leaving the place, etc. The patients reply with a four-point Likert scale for each item (0=not used, 1=did not help, 2=helped to some extent, or 3=helped a lot). This scale was tested for content validity by a panel of five experts in the psychiatric nursing and medical field. The categories of this tool proved to be strongly reliable, physiological strategy (r=0.88), cognitive strategy (r=0.97), and behavioral strategy (r=0.86) [18].

2.6. Ethical Considerations

A verbal agreement from each patient who accepted to participate in the study was reserved. The researcher clarified the aim of the study to the patients. The researcher assured privacy participants, data that will be used for research purposes only. The patient's were also informed that participation is voluntary, and they had the right to withdraw from the research work at any time without giving any reason.

2.7. Pilot Study

In order to ascertain that the tools of the study are clear, feasible and applicable, a pilot study was done on 5 patients (10%). No modifications were made; therefore, they were included within the study sample.

2.8. Field of Work

Data collection was done through the period from the beginning of January 2018 to the end of June 2018. The researcher collected data from the selected setting.

2.9. Training Program Construction: Involved Four Phases

1. Assessment phase: The researcher revised all psychiatric inpatients' sheets to select patients who meet inclusion criteria. The patients were demanded to participate in the study after establishing a trusting relationship and clarifying the purposes of the study. The procedure sustained until the wanted number (50 patients) was reached. The recruited patients were submitted to a pre-test utilizing the tools of the study to assess the patients' history and adapting approaches of hallucinations. This was applied through interviewing patients in a separate manner by the researcher, each patient took 35-50 minutes, whenever the patient needed rest time the researcher gave him/her more time. The patient's medical data were double-checked from the clinical records.

2. Preparation phase: According to the results achieved from interviewing, observation and patients' records, as well, review of the literature, a training instruction was developed by the researcher. It was applied immediately after the pretest. The contents of the program: Handouts were designed to meet patients' needs and to fit into their interest and levels of understanding. They consisted of different elements of coping methods, cognitive, physiological, and behavioral and were used to reduce auditory hallucinations and improve their features. Methods of teaching: All the experimental patients have given the same training program content, and utilized the same instruction methods, these were: Lectures/discussions, demonstration, and re-demonstration. Media of teaching: They included handouts, videos, pictures, and the slide showed on the researchers' computer.

3. Implementation phase: The researcher visited the psychiatric Inpatients of the Psychiatric Hospital, two days a week for six months from 10.00 a.m. to 2.00 p.m. Immediately after completion of the assessment and preparation phases, the training program was implemented. The sample of 50 patients was classified into two equal groups (control & experimental). The program was applied to the experimental group that was divided into five subgroups who took the program in a parallel manner. Every session lasted 1.30 hours within 10 minutes, break. The distribution of the program sessions was as follows:

First session: It included welcome, the identification between the researcher and a group that emphasizes approval between the group members (5 patients). As well, the researcher presented an introduction and a clarification of the program objective and importance of coping methods to ensure that the patients apprehend the program.

Second session: It deals with the physiological and cognitive coping methods, explaining the application of such methods. Some methods were supported by movies film. In addition, the researcher assisted the patients to practice physical exercises with listening to stimulating music.

Third session: Training the patient and the caregiver use techniques that will help in controlling auditory hallucinations, such as talking to someone "nurse", expression of the content of the voices, and the physical act of talking or using the vocal cords in other means, such as singing which restricts the process that creates voices, thus decreasing the intensity of the hallucinations.

Fourth session: Training the patients about behavioral coping method clarification and its applications, it was supported by videos. Group activity such as; playing cards, dominoes, puzzles and any preferable activity as watching TV and something that moves, and praying are used" to distract them from hallucinations.

Fifth session: Teaching the patients and the caregivers the technique to control hallucination, such as; saying stop and you are not real; changing his or her position and going away. In this session the researcher, organized drawing/painting, singing competition with patients to reward them to active participation in the program.

Sixth session: Instructing the patients to use earplugs to control hallucination and prescribed medication as doctor order and instructed them not to stop it abruptly.

Seventh session: Encourage patient to concentrate on carrying out the exercises, thereby engaging in the activity, reducing anxiety and contributing to a reduction in the intensity of the auditory hallucinations.

Eighth session: Training the patient relaxation techniques such as rest, exercise, to cope with auditory hallucination, it was supported by videos and photos about it, demonstration and remodeling of these exercises.

Ninth session: Encourage patients to practice relaxation exercises, and promote constructive criticism about other patients' behavior in doing relaxation exercises under the researcher observations.

Tenth session: Give revision in all over the program and provide patients a chance to express the benefits from the program and their feeling about it.

4. Evaluation phase: Evaluation of the program was done through promptly after the eventual application of the program functionality a post-test survey, which was the same as the pre-test to evaluate the effect of the program. One month later, after post-test, the follow-up test was performed using the same tools in orders to assess the degree of retention through comparison of results with pre-post-tests.

2.10. Statistical Analysis of Data

Data collected were coded by the researcher, transformed and entered into a designed form, then analyzed by utilizing SPSS version 22 (the Statistical Package for the Social Sciences). Data of quantitative form were analyzed by mean and standard deviation (SD). Data of qualitative form were presented in the form of number and percentage. It was analyzed by Chi-square (χ^2) test. If an expected value of any cell in the table was less than 5, the Fisher Exact test was utilized. The ANOVA test was applied to compare between the two means, between before, after and follow up in the experimental and control patients. P-value <0.05 was considered significant and p-value <0.001 was considered highly significant.

3. Results

Table 1. *Demographic characteristics of the studied patients with psychiatric disorders (n=50).*

Demographic characteristics	Control group (n=25)		Experimental group (n=25)		χ^2	P value
	n	%	n	%		
Age (in years)						
- 20-	13	52.0	13	52.0		
- 30-	10	40.0	8	32.0	0.889	0.641
- 40 - 65	2	8.0	4	16.0		
Gender:						
- Male	21	84.0	18	72.0	1.049	0.306
- Female	4	16.0	7	28.0		
Residence:						
- Rural	16	64.0	15	60.0	0.085	0.771
- Urban	9	36.0	10	40.0		
Occupation:						
- Don't work	12	48.0	8	32.0		
- Farmer	7	28.0	9	36.0		
- Employed	4	16.0	4	16.0	1.717	0.633
- Skilled worker	2	8.0	4	16.0		
- Non skilled worker	0	0.0	0	0.0		
- Housewife	0	0.0	0	0.0		
Marital status:						
- Single	9	36.0	11	44.0		
- Married	7	28.0	4	16.0	1.109	0.775
- Widowed	5	20.0	6	24.0		
- Divorced	4	16.0	4	16.0		
Living housing:						
- Alone	3	12.0	5	20.0	0.900	0.638
- With family	15	60.0	12	48.0		
- With relative	7	28.0	8	32.0		
Educational level:						
- Illiterate	8	32.0	8	32.0	1.092	0.896
- Read and write	5	20.0	7	28.0		
- Primary education	4	16.0	4	16.0		
- Preparatory education	5	20.0	3	12.0		
- Secondary education	3	12.0	3	12.0		
- University education	0	0.0	0	0.0		

Table 1 shows that the highest percentages of patients were males (72% of the experimental patients and 84% of the control patients). The high equal percentage of the experimental and control groups (52%) were in the age group ranging between 20 - < 30 years. Regarding the patient's occupational condition, 48% of the control subjects were jobless, and 36% of the experimental subjects were farmers. As for the educational level, an equal percentage (32%) of the control and experimental groups were illiterates. As regards residency, 60% of the experimental group and 64% of the control group were living in rural areas. Regarding their marital status, 36% of the control group and 44% of the experimental patients were singles. In addition, it reveals that 60% of the control group and 48% of the experimental group were living with their families.

Table 2. *Clinical characteristics of the studied patients (n=50).*

Clinical characteristics	Control group (n=25)		Experimental group (n=25)		χ^2	P value
	n	%	n	%		
Diagnosis:						
- Schizophrenia	12	48.0	12	48.0		
- Mania	4	16.0	4	16.0	0.000	1
- Depression	4	16.0	4	16.0		
- Schizo-affective disorder	5	20.0	5	20.0		
Duration of illness (in years):						
- 2 - < 5	11	44.0	11	44.0		
- 5- < 10	7	28.0	7	28.0	0.000	1
- 10 +	7	28.0	7	28.0		
Number of previous psychiatric hospitalizations:						
- No hospitalization	0	0.0	0	0.0		
- Admitted once	10	40.0	10	40.0		
- Admitted twice	6	24.0	6	24.0	0.000	1
- Admitted thrice	6	24.0	3	12.0		
- Admitted four times and more	3	12.0	6	24.0		
A number of psychiatric hospitalizations in the previous year:						

Clinical characteristics	Control group (n=25)		Experimental group (n=25)		χ^2	P value
	n	%	n	%		
- No admission	0	0.0	0	0.0	0.000	
- Admitted once and still were since then	19	76.0	19	76.0		
- Admitted twice	6	24.0	6	24.0		1
- Admitted thrice	0	0.0	0	0.0		
- Admitted more than three times	0	0.0	0	0.0		
History of the beginning of hallucinations (in years):						
- <5	15	60.0	15	60.0		
- 5- < 10	6	24.0	6	24.0	0.000	1
- 10 +	4	16.0	4	16.0		
6- Age at the onset of hallucinations:						
- 20-	14	56.0	14	56.0		
- 30-	10	40.0	10	40.0	0.000	1
- 40+	1	4.0	1	4.0		
Effect of hallucinations on the patients' life:					**0.000**	**1**
- Work left	13	52.0	13	52.0		
- Influenced on the relation with the family	7	28.0	7	28.0		
- Let the patient fearful and anxious	8	32.0	8	32.0		
- Influenced on his body (e.g., pain & tremors)	3	12.0	3	12.0		
- Let the patient talk with oneself	3	12.0	3	12.0		
-All the above	4	16.0	8	16.0		
The number of voices heard before:	10	40.0	10	40.0	0.136	0.934
- One or two voices	6	24.0	7	28.0		
- Three or four voices	9	36.0	8	32.0		
- Five or more voices						
The number of voices heard presently:						
- No voices	0	0.0	0	0.0		
- One or two voices	9	36.0	12	48.0	0.781	0.677
- Three or four voices	8	32.0	6	24.0		
- Five v or more voices	8	32.0	7	28.0		
History of receipt antipsychotic medications in years:						
-< 5	9	36.0	12	48.0	1.408	0.495
- 5-	11	44.0	7	28.0		
-10+	5	20	6	24.0		

* Highly significant at p<0.001.

Table 2 presents the clinical characteristics of the studied subjects. It shows that 48% of the studied samples of both groups (control, & experimental) had schizophrenia, 20% had schizo-affective disorders. As for age at onset of the disease, an equal proportion of 44% of the studied subjects were in the age group ranging from two to less than five years. As for the history of the beginning of hallucinations for 60% of both groups, it was less than 5 years, and the onset of hallucinations was for 56% of the studied patients from 20 years to less than 30 years. Concerning the number of voices heard before, for 40% of the patients in both groups it was one or two voices heard before, and the number of voices heard presently was one or two voices (36% of control and 48% of experiential group). As regards the patient's history of receiving antipsychotic medications, 48% of the experimental groups and 44% of the control groups head 5- < 10 years. The Chi square (χ^2) in most of the items ranged between 0.000 & 1.408 and p-value between 0.495 & 1, which reveals homogeneity between the control and experimental of the studied sample.

Table 3. *Auditory hallucination as conveyed by patients with psychotic disorders among control and experimental groups according to (frequency and duration of hallucination).*

Items of auditory hallucinations	Control group (n=25)						Experimental group (n=25)						P value
	Before		After		Follow up		Before		After		Follow up		
	No	%	No	%	No	%	No	%	No	%	No	%	
Frequency of hearing the voice													
Continuously	14	56	12	48	11	44	14	56	0	0.0	0	0.0	0.000**
At least once an hour	7	28	5	20	5	20	7	28	0	0.0	0	0.0	
At least once a day	4	16	4	16	4	16	4	16	1	4	3	12	
At least once a week	0	0.0	4	16	4	16	0	0.0	15	60	15	60	
Not present or present less than once a week	0	0.0	0	0.0	1	4	0	0.0	9	36	7	28	
Duration of the voice													
Continuously	3	12	2	8	2	8	3	12	0	0.0	0	0.0	0.000**
At least one hour	18	72	16	64	16	64	18	72	1	4	1	4	
A few minutes	4	16	4	16	4	16	4	16	6	24	5	20	

Items of auditory hallucinations	Control group (n=25)						Experimental group (n=25)						P value
	Before		After		Follow up		Before		After		Follow up		
	No	%	No	%	No	%	No	%	No	%	No	%	
A few seconds	0	0.0	2	8	2	8	0	0.0	15	60	16	64	
Not present	0	0.0	1	4	1	4	0	0.0	3	12	3	12	
Localization of the voice													
Inside the head	3	12	3	12	5	2064	3	12	1	4	0	0.0	0.000**
Inside and outside the head	17	68	17	68	16		17	68	4	16	3	12	
Outside the head, near the ears	5	20	5	20	4	16	5	20	5	20	4	16	
Outside the head, far away	0	0.0	0	0.0	0	0.0	0	0.0	10	40	12	48	
Not present	0	0.0	0	0.0	0	0.0	0	0.0	5	20	6	24	
Loudness													
Shouting or screaming	5	20	4	16	4	16	5	20	0	0.0	0	0.0	0.001**
Louder than normal voice	15	60	13	52	13	52	15	60	2	8	1	4	
Normal voice	4	16	3	12	3	12	4	16	5	20	6	24	
Whispering	1	4	4	16	4	16	1	4	15	60	16	64	
Not present	0	0.0	1	4	1	4	0	0.0	3	12	2	8	
Attribution of origin the voice													
Inside of the head only	11	44	10	40	9	36	11	44	2	8	0	0.0	0.000**
Mostly inside of the head	7	28	7	28	7	28	7	28	4	16	3	12	
Mostly outside of the head	5	20	4	16	4	16	5	20	5	20	5	20	
Outside of the head only	2	8	3	12	3	12	2	8	9	36	10	40	
No idea	0	0.0	1	4	2	8	0	0.0	5	20	7	28	
Negative content of the voice													
Permanently unpleasant	10	40	7	28	8	32	10	40	0	0.0	1	4	0.000**
Majority unpleasant or negative voice content (≥50%)	6	24	9	36	8	32	6	24	3	12	2	8	
Minority unpleasant or negative voice content (<50%)	5	20	3	12	4	16	5	20	5	20	6	24	
Sometimes unpleasant	3	12	5	20	3	12	3	12	12	48	12	48	
Never unpleasant	1	4	1	4	2	8	1	4	5	20	4	16	
Severity of negative content of the voice													
Threatening commands or orders for the patient	8	32	8	32	7	28	8	32	0	0.0	1	4	0.000**
Unpleasant, about patient/family themselves	12	48	12	48	8	32	12	36	4	16	3	12	
Unpleasant, about behavior of patient/family	4	16	4	16	4	16	4	16	6	24	7	28	
Unpleasant, but not about patient/family	1	4	1	4	5	20	1	12	14	56	12	48	
Not unpleasant	0	0.0	0	0.0	1	4	0	0.0	1	4	2	8	
Frequency of distress or suffering													
Always	15	60	17	68	16	64	15	60	0	0.0	0	0.0	0.001**
Most of the time	6	24	6	24	6	24	6	24	1	4	0	0.0	
Half of the time	4	16	2	8	3	12	4	16	9	36	9	36	
Never	0	0.0	0	0.0	0	0.0	0	0.0	15	60	16	64	
Intensity of distress or suffering													
Extreme	16	64	13	52	14	56	16	64	0	0.0	0	0.0	0.000**
Severe	5	20	3	12	4	16	5	20	1	4	1	4	
Serious	3	12	4	16	4	16	3	12	2	8	3	12	
Some	1	4	4	16	2	8	1	4	14	56	16	64	
None	0	0.0	1	4	1	4	0	0.0	8	32	5	20	
Interference with daily functioning													
Complete interference (need hospitalization)	12	48	10	40	10	40	12	48	0	0.0	0	0.0	0.000**
Severe	9	36	6	24	4	16	9	36	3	12	3	12	
Moderate	4	16	6	24	6	24	4	16	5	20	5	20	
Limited	0	0.0	3	12	5	20	0	0.0	13	52	13	52	
None	0	0.0	0	0.0	0	0.0	0	0.0	4	16	4	16	
Control over voices													
No control	18	72	16	64	15	60	18	72	0	0.0	0	0.0	0.000**
Some control most of the time	6	24	5	20	4	16	6	24	0	0.0	0	0.0	
Some control half of the time	1	4	3	12	4	16	1	4	5	20	3	12	
Some control occasionally	0	0.0	1	4	2	8	0	0.0	15	60	16	64	
Full control	0	0.0	0	0.0	0	0.0	0	0.0	5	20	6	24	

* Highly significant at $p<0.001$.

Table 3 presents the auditory hallucination as stated by patients with psychotic disorders among the control and experimental groups, before, after and at follow up instructions of coping methods. There were statistically significant changes before, after and at follow up of the experimental patients, in all aspects of auditory hallucination rating scale (P=0.000). Before the intervention, as regards frequency of hearing the voices, for the most common of the sample (56%), they were heard continuously, but after and at follow up of the intervention, in the experimental group, for 60% they were heard a week. In relation to the duration of the voices, 72% of the control group revealed that voices lasted for at least one hour, but 60% and 64% they represented at after and at follow up of the training for the experimental group reported that voices lasted for a few seconds. Rendering to the localization of voices, 68% of the studied sample affirmed that the voice came from inside and outside the head; but, 40% after, and 48% at follow up of the experimental group reported that the voice came from outside the head, far away.

Concerning the negative content, of the voice, a relatively high percentage of the studied subjects (40%) majority of the voices contents were permanently unpleasant, before the program, but after and at follow up intervention, 48% of the experimental group reported sometimes unpleasant. However, the intensity of distress or suffering, 64% of the studied sample replied that the voices were extremely distressing their life; but after intervention 56% and at follow up 64% of the experimental group, reported that there was some distress. As regards, the severity of negative content of the voice, before intervention 48% represented unpleasant content about the patient family themselves. Similarly, 56% after, and 48% at follow up, unpleasant content, but not about the patient or family. Regarding to control of voices, 72% of the studied patients had not control over the hallucinations, however, after 56% and at follow up 64% of the experimental group, have some control over the voices.

Table 4. *Mean and standard deviation of coping methods with auditory hallucinations (n=50).*

Coping methods		Control group (n=25)			Experimental group (n=25)		
		Before	After	Follow up	Before	After	Follow up
Cognitive coping methods	Mean	6.600	6.680	7.080	6.787	6.520	23.640
	±SD	(2.217)	(2.340)	(2.565)	(2.356)	(2.238)	(2.215)
Behavioral coping methods	Mean	7.200	8.000	6.920	7.373	6.000	37.320
	±SD	(2.198)	(2.566)	(2.326)	(2.381)	(2.082)	(3.750)
Physiological coping methods	Mean	3.120	2.360	2.320	2.600	3.480	7.680
	±SD	(1.333)	(1.440)	(1.376)	(1.414)	(1.229)	(1.865)
Total coping methods	Mean	16.920	17.040	16.320	16.760	16.000	68.640
	±SD	(3.402)	(3.900)	(3.976)	(3.730)	(3.367)	(5.032)

* Highly significant at p<0.001.

Table 4 shows that mean cognitive, behavioral and physiological coping methods have increased among participants in the experimental group from before to after and at follow up observations. This result may be because the behavioral coping methods were more effective for the experimental patients and improved auditory hallucinations. While there was no statistically significant change in means among before, after and at follow up observation among participants in the control group.

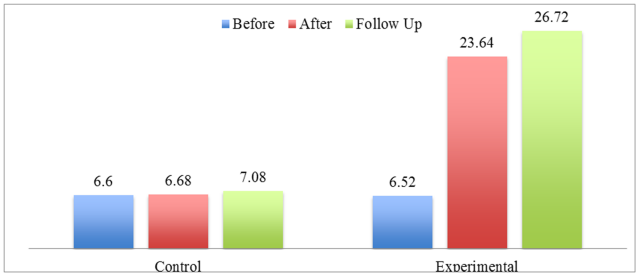

Figure 2. *Distribution of mean change related to use of cognitive coping methods before, after and follow up observation among control and experimental groups.*

Figure 2 illustrates that mean change related to use of cognitive coping methods was 6.7 before implementation of educational program that changed to 23.5 and 26.6 after the implementation and in follow-up observations among the experimental group respectively. This finding reveals that patients use of cognitive coping methods increased after and follow-up than before the program implementation to manage auditory hallucinations (such as, listen to the voices, ask yourself to calm down, discard the voices, clarify voices and say to himself "it isn't right", scream and shoot on the sounds, say stop to the voices, etc.). Moreover, use of cognitive coping methods mean was relatively constant among control subjects at before, after and follow up observations, 6.6, 6.68 and 6.8 respectively.

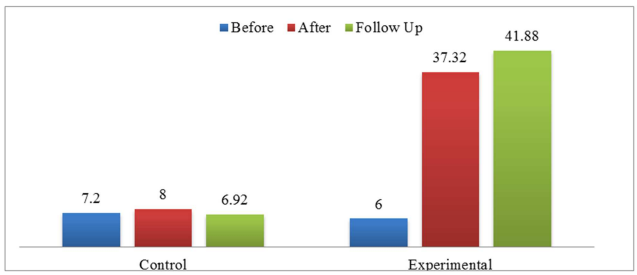

Figure 3. *Distribution of mean change related to use of behavioral methods before, after and follow up observation among control and experimental groups.*

Figure 3 displays that mean change related to use of

behavioral coping methods was 6 before implementation of an educational program that changed to 37.32 and 41.88 after the implementation and at follow-up observations among the experimental group respectively. This finding reveals that the patients use of behavioral coping methods increased after and follow-up than before the program implementation to manage auditory hallucinations (as, reading aloud, write short stories, drawing/painting, listening to music or to the radio, watching TV, watching colorful magazine, singing or dancing, praying or doing other religious activities, play cards, etc.). The behavioral coping methods were used as the most common methods by the studied subjects to deal with auditory hallucinations. Moreover, use of behavioral coping methods means was a relatively changed among control subjects in the three observations, 7.2, 8 and 6.92 respectively.

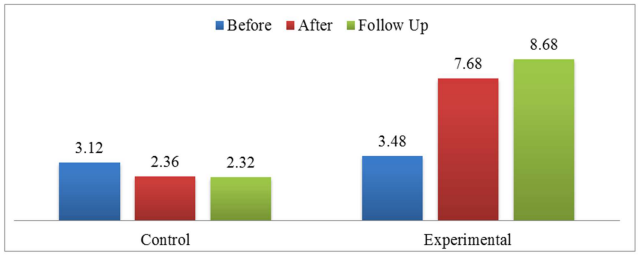

Figure 4. *Distribution of mean change related to use of physical coping methods before, after and follow up observation among control and experimental groups.*

Figure 4 shows that mean change related to use of physical coping methods was 3.48 before implementation of the program that changed to 7.68 and 8.68 after the implementation and in follow-up observations among the experimental group respectively. This finding reveals that patients use of physical coping methods increased after and follow-up than before the program implementation to manage auditory hallucinations. This result indicated that the use of physical coping methods increased after and at follow up of fulfillment of the training program than before, among the experimental group (as, practicing a progressive relaxation technique, practicing deep breathing exercise, walking, playing, or doing exercises, sleeping & going to a doctor asking for extra medication, etc.). Moreover, use of physical coping methods means was a relatively minimal low change among control group in the three observations, 3.12, 2.36 and 2.32 respectively.

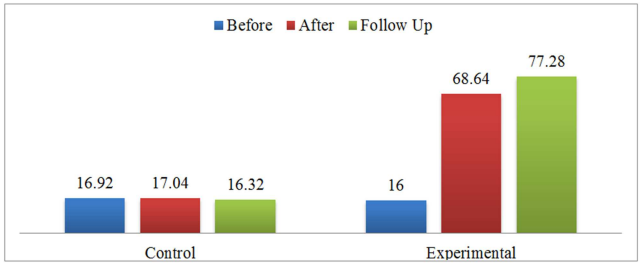

Figure 5. *Distribution of mean change related to use all coping methods before, after and follow up observation among control and experimental groups.*

Figure 5 presents that mean change related to use of all coping methods was 16 before implementation of the program that changed to 68.64 and 77.28 after the implementation and in follow-up observations among the experimental group respectively. This finding reveals that patients use all coping methods as cognitive, behavioral, and physical, increased after and at follow up of implementing of the training program than before, among the experimental group. Moreover, use of coping methods mean was a relatively constant change among the control group at before, after and follow up observations, 16.92, 17.04 and 16.32 respectively.

Table 5. *Coping methods among the studied subjects before, after and follow up the training program (statistical tests used).*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Total coping methods	106945.793	5	21389.159	1313.427	0.000*
	Cognitive coping methods	11482.273	5	2296.455	469.516	0.000*
	Behavioral coping methods	35671.153	5	7134.231	937.413	0.000*
	Physical coping methods	994.833	5	198.967	83.541	0.000*
Intercept	Total coping methods	187620.167	1	187620.167	11521.042	0.000*
	Cognitive coping methods	24858.407	1	24858.407	5082.364	0.000*
	Behavioral coping methods	47989.927	1	47989.927	6305.706	0.000*
	Physical coping methods	3183.207	1	3183.207	1336.546	0.000*
Group	Total coping methods	51931.207	1	51931.207	3188.898	0.000*
	Cognitive coping methods	5557.127	1	5557.127	1136.169	0.000*
	Behavioral coping methods	16579.527	1	16579.527	2178.491	0.000*
	Physical coping methods	604.007	1	604.007	253.607	0.000*
Test	Total coping methods	27201.693	2	13600.847	835.176	0.000*
	Cognitive coping methods	3065.053	2	1532.527	313.329	0.000*
	Behavioral coping methods	9629.853	2	4814.927	632.664	0.000*
	Physical coping methods	133.813	2	66.907	28.092	0.000*
Group * Test	Total coping methods	27812.893	2	13906.447	853.942	0.000*
	Cognitive coping methods	2860.093	2	1430.047	292.377	0.000*
	Behavioral coping methods	9461.773	2	4730.887	621.622	0.000*
	Physical coping methods	257.013	2	128.507	53.957	0.000*

* Highly significant at $p<0.001$.

Table 5 represents that there were highly statistically significant relations between control and experiential groups and in between before, after and at follow up observations related to the use of different types of coping methods. This finding means that of the studied patients (control & experiential groups) the researcher selected homogeneous groups. The current study findings discovered that there were statistically significant differences between cognitive, behavioral and physiological methods, which means that higher use of behavioral techniques are associated with the highest use of the cognitive and physiological coping methods and vice versa ($p < 0.000$).

4. Discussion

Auditory hallucinations are a recurrent and prominent element of psychotic disorders. This is a strange experience that can be emotionally stressful, and few people are equipped to cope with through past learning. The attempts to interpret the auditory hallucinations need to recognize the complexity and diversity of the experience [19]. As well, the hallucinations are managed with antipsychotic drugs, but about two-fifths of patients remain to experience persistent hallucinations known as chronic drug-resistant hallucinating patients [20, 21]. Whereas a very recent Egyptian study has attempted to assess the effective methods for nurses empowering the life quality and neuroleptics drug adherence of patients with schizophrenia conducted by El-Azzab and Abu-Salem [22] explained that more than one-half of the patients had a negative attitude to adhere to medications. Patients with psychotic disorders need additional training to deal with psychotic symptoms, in particular, auditory hallucinations. Consequently, the current research aim was to evaluate the program for coping methods to improve auditory hallucinations among patients with psychiatric disorders.

The current study findings explained clinical characteristics of the studied patients; it reveals that nearly half of them had schizophrenia with the equal percentage in the control and experimental groups. Similarly, the study conducted by Lecrubier, Perry, and Milligan [23] explained that hallucinations are very public in schizophrenia, and added that auditory hallucinations are one of the distinguished symptoms of schizophrenia. In this respect, Uhlhass and Mishara [24]; Wahab, Alaudin, and Wahab [25] revealed that hallucinations were the maximum progressive symptom in schizophrenia, the auditory hallucination identified to be the major form, the incidence rate about two-thirds to three-quarters of the patients.

The findings of the present study showed that auditory hallucination as reported by patients with psychotic disorders. There were statistically significant changes before, after and at follow up of the experimental group, in the all aspects of auditory hallucination, (frequency, duration, loudness, location, belief, origin of the voice, level of negative content, amount the quantity of negative content, intensity of distress disruption of life and control of the voices, P-value = 0.000). These findings revealed that the patients who use the coping methods program for the auditory hallucination reported that they had less severity of hearing the voice than patients who received the usual intervention. This means that the coping methods had effective to manage and control of auditory hallucinations and patients have participated in an effective manner. This result goes in line with the experimental study, that evaluates the effects of a symptom management program on auditory hallucinations, was carried out by [26] who discovered that the patients who were participating in the program experienced a meaningfully diminished in global aspects and severity of auditory hallucinations.

The present study illustrated that the most common of the sample had a frequency of auditory hallucinations, heard continuously. These findings were supported by [27] stated that more than two-thirds of the sample had a frequency of auditory hallucinations of once/day or more continuously. However, after and at follow up intervention the most common in the experimental group, they were heard the voice a week. The results of this study assured the beneficial effects of the training program to improve the clinical characteristics of auditory hallucinations. Coping methods helped patients reduce auditory hallucinations. The patients had better insight into their condition, which helped them understand the origin of the voices [28]. As well, the hallucinations diminished and their work performance enhanced markedly [29]. The strategies of auditory hallucination management are a dynamic process and continuous changes. The management objective is to reduce the severity of symptoms and adverse negative effects. In addition, symptom management depends on patients' acceptance of having the symptom and their cooperation in the voice management [30]. There was a significant enhancement of patients' auditory hallucinatory symptoms from before to after the management program [31]. In this respect, Frankel [32] who clarified that the hallucinations can be actually disturbing and devastating the patient's life. A better comprehension of how hallucinations happen and how can be improved they, this could relieve a major concern of psychiatric distress.

This result may be due to that the patient needs training to deal with auditory hallucinations by another way, in addition to use medications. Using cognitive, physiological, and behavioral coping methods give the patients a chance of practicing management instructions with the researcher's observation and discuss any idea to realize improvement in his/her auditory hallucinations and health status. The group of patients gives the training program other dimensions that are practicing coping methods in the group, produce the patient reaches the training goal and acquire new skills as other coping methods, team leader, and become more understanding of his/her condition. Other benefits of a group setting include paying attention to some other group members who have created and practiced proficient coping methods to deal with their voices and training to support one another in managing their auditory hallucination symptoms**.** This result goes in line with a recent Egyptian study

conducted by [33] who explained that the management program for auditory hallucinations enhances the patient's quality of life through encouraging the patient's ability for adaptation and controlling of voices. In addition, the group discussions were helping the patients in estimating and making a decision of the appropriate methods for them. These explanations are reinforced by [34] who clarified that the patient who uses an effective training program for dealing with his/her auditory hallucinations should be strengthened and refreshed to learn new coping methods as well.

The results of the present study revealed that there was a significant mean change related to the use of behavioral coping methods before, after and at follow up observation among the experimental group. The behavioral coping methods were used as the most common methods by the studied subjects to deal with auditory hallucinations. The outcomes of the present study were consistent with [35] who highlighted that behavioral coping methods, immediately after and at follow up instructions for the majority of patients used "paint" and "talk with a friend/somebody", and about half of them used "play with cards to cope with hallucinations.

The findings of the current study revealed that mean cognitive, behavioral and physiological coping methods have increased among participants in the experimental group from before to follow up observations, while there were no statistically significant changes in the means between before, after and follow up observation among participants in the control group**.** These results go in line with the study carried out by [36] who clarified that the cognitive interventions focus on triggering events, cognitive, emotional and behavioral actions/reactions, and consequent reactions of others. The patients are encouraged to acquire coping methods. As well, the combination of cognitive-behavioral strategies in this way, have been established to reduce distress and depression concerned hearing the voice [37].

In this respect, Carter and Wells, who is in a very recent study reported that interventions directed on auditory hallucinations have involved behavioral coping methods such as disruption, focusing, coping behavior improvement, and the mixture of cognitive-behavioral coping approaches focusing on the content and meaning of such proficiencies [38]. Behavioral methods such as distraction (active & passive) are also frequently used. The patients most frequently use cognitive methods of destruction and shifting attention. The physiological methods such as, relaxation technique were used more efficiently [39].

The current study results were congruent with those of the experimental descriptive study, which included 200 contributors who were asked to define their methods in the auditory hallucinations' management, conducted in Taiwan, by Tsai and Chen, explained that, most of the patients established their own interruption procedures such as, ignoring the sounds, engaging in actions, and agreeing or controversy with the voices [40]. In this line the Japanese study, of auditory hallucination coping procedures and their relation to psychiatric disorders on 144 people conducted by Hayashi et al. [41] found that speaking to someone and sharing in hobbies such as doing sports were the most effective coping approaches in dealing with auditory hallucinations.

The training program was focused on making the patient is contacted with reality and understanding the social values. This explanation was supported by [42] who reported that to be effective in supporting the people in coping with their hallucinations, the interventions must be focused on a perfect understanding of community authorizations and social values as well as the patients' living conditions.

The outcomes of this study showed that there were highly statistically significant relations between the control and experimental groups, and among before, after and follow up observations. This finding of the studied sample (control & experimental groups) means that the researcher's selection was homogeneous. The current study revealed that there were statistically significant differences between cognitive, behavioral and physiological methods, which mean that greater utilization of behavior techniques is associated with more usage of cognitive, physiological coping methods. The better the use coping methods the more enhanced control of auditory hallucinations. This result is in agreement with [18, 27] found that there was a significant difference between behavioral and cognitive self- management methods, which means that, when there is increased use of behavioral self-management methods, it is accompanied by increased use of cognitive self-management methods and vice versa. This means that the combination of cognitive, behavioral and physical coping methods was more effective to improve and control their auditory hallucinations.

5. Conclusion

Based on the findings of the current study it can be concluded that the auditory hallucinations training program was effective for patients with psychiatric disorders, and reduced all dimensions of auditory hallucination after and at the follow-up implementation of the program in comparison to before the program and with the patients receiving usual care from the hospital. The behavioral coping methods were used as the most common methods by the studied subjects to deal with auditory hallucinations.

6. Recommendations

Based on the current study results, the following recommendations could be suggested:

The psychiatric health-care team must be trained to use positive therapeutic relationships and communication skills to reassure patients to express their emotions about their particular symptoms of auditory hallucinations in case of feeling bad.

The nursing staff should apply a training program for patients with psychiatric disorders who suffer from auditory hallucinations based on a treatment protocol during their hospitalization and teach them how to use coping methods to

deal with the hallucinations.

Families of patients with the psychiatric disorder should be included in the training program about auditory hallucination coping methods and trained to cope with their life disappointment with patients having auditory hallucinations.

Training the patients to use different coping methods to deal with auditory hallucinations and prepare them to live in a normal way in society.

7. Implications of Practice

People with auditory hallucinations, deal with voices, which can be an unpleasant dream. In this study, results revealed that many patients with auditory hallucinations were dealing with voices by the person adopting methods or taking medication. Results generated insight and social trends services to help people with auditory hallucinations. This included: (a) Application of training program for the patients using cognitive, behavioral and physiological coping methods (such as reading books or stories, hearing music, using earplugs, playing some exercises, etc.) can reduce the severity and frequency of auditory hallucinations and improve their life. (b) Strengthening training, mental health workers who work with voice listeners and (c) provide the family education program for the family members of listeners' voice.

8. Limitations and Strengthening

8.1. Limitations

The employment of participants from only one a psychiatric hospital may not be representative of patients with psychiatric disorder collectively and may obstruct generalization of the results.

8.2. Strengthening

Greeting of the hospital health care team and patients who responded to the training program.

Conflicts of Interest

The author does not have any possible conflicts of interest.

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