



Efficacy of Group Transdiagnostic Cognitive-Behavioral Therapy on Subclinical Paranoia

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Abstract

Background: Studies have introduced anxiety as a key factor in the formation and development of paranoid thoughts. Transdiagnostic cognitive behavioral therapy is specifically used for the treatment of emotional disorders, with its particular emphasis on anxiety that can be applied in the treatment of paranoia.

Objectives: The purpose of this study is to determine whether transdiagnostic cognitive behavioral therapy is effective in reducing the subclinical symptoms of paranoia.

Methods: Participants were recruited from female students in Mashhad universities, Iran, during an eight-month period between October 2016 to May 2017. Healthy participants (n = 30) with subclinical paranoia (assessed with SCID-I, SCL-90-R and paranoia scale) were randomly assigned to two groups (GTCBT = 15 and waiting list = 15). Before and after the intervention, paranoid thoughts and their effects in individuals' mental and social performance were assessed by paranoid scale and work and social adjustment scale.

Results: The results of this study support the effectiveness of group trans-diagnostic therapy in decrease paranoid ideation (P = 0.003) and improve general function (P = 0.001).

Conclusions: This study can be considered as a starting point for further research on the treatment of paranoia.

Keywords: Cognitive Therapy, Group Psychotherapy, Paranoid Disorders, Students, Therapy

1. Background

Paranoid thoughts are defined as a cognitive process of distorted perception, which are developed by patients in confrontation with the social life in their interpersonal relationships (1-3). Subclinical paranoid is characterized by the patient's exaggerated assignment to himself, constant distrust, resentment, anger toward others, and belief in being under the control of an external force or influence (1, 4, 5). It is distinguished from the clinical paranoia by the persecutory delusion and distrust (4).

Some experts believe that in order to have a better understanding of paranoia, it needs to be regarded as a continuum (4, 6-8). As such, persecutory delusion and paranoid ideation are considered the two ends of the continuum in the general population. It was shown that the paranoid thoughts and persecutory delusion in the general population are associated with distress and impairment in occupational, social, and family functions. The study performed by Johns et al. on 8000 British participants, is a fine example of this line of research (9). Patients with suspected psychosis were excluded. In their cohort,

20% of the participants believed that other people were sometimes against them and 10% believed that they were deliberately harmed in the previous year. Freeman et al. estimated that about 10% - 15% of the general population regularly experience paranoid thoughts (10). Thus, the paranoid thoughts and persecutory delusions should, per se, be studied as an independently significant phenomenon and not as the sign of a severe mental illness (4, 11-13).

Based on the cognitive explanatory models, the following contribute to the development and persistence of paranoid thoughts and persecutory delusions: Abnormal experiences, emotional disorders such as anxiety, worry, and interpersonal sensitivity, reasoning biases such as sudden jumping to conclusion, and social factors such as isolation and trauma (14, 15). According to the social-cognitive models, the social interactions during adolescence and early youth are of prime importance. Accordingly, there is a higher possibility for the development of being paranoid at this period (16), which can strongly influence the individuals' performance later as adults. Therefore, the chance for manifestation and development of paranoid thoughts

are significantly higher in teens and adolescents (4). This can be explained by emotional disorders that they experience, which includes anxiety, depression, and low self-esteem, which are, in turn, triggered by a wide range of changes in physical, social, emotional, and cognitive aspects. Therefore, identifying high-risk individuals for being paranoid in this age group and preventing psychotherapeutic interventions can reduce the risk of paranoid disorders in adulthood.

In a study by Ellett et al. on 324 patients, it was revealed that 50% of individuals expressed paranoid thoughts, particularly at the time of failure and anger (17). This is corresponded to the Freeman et al. study, which underlies the role of emotion and affective processes in formation of paranoid thoughts. Anxiety and stress are among the emotional processes, which are closely associated with paranoid thoughts. Persecution and threat are reinforced by anxiety and thereby, last longer in the patients' mind (18).

According to research and clinical findings, there is a relationship between paranoid thoughts and persecutory delusions; these studies have introduced anxiety as a key factor in the phenomenology of paranoid thoughts and persecutory delusion (9, 13). The existing cognitive-behavioral therapy models used for paranoid thoughts and persecutory delusion are similar to those used for the treatment of anxiety disorders.

Transdiagnostic cognitive behavioral therapy is specifically used for the treatment of emotional disorders, with its particular emphasis on anxiety that can be applied in the treatment of paranoia but has not been investigated. In addition to the cognitive components such as cognitive restructuring, transdiagnostic cognitive behavioral therapy also encompasses such methods as emotional awareness, prevention of emotional avoidance, and emotional coping (19).

2. Objectives

The purpose of this study is to determine whether Group Transdiagnostic Cognitive Behavioral Therapy (GTCBT) is effective in reducing the subclinical symptoms of paranoia.

3. Materials and Methods

This research was confirmed from the Ethics Committee on Research in the Research Center of Iran University of Medical Sciences (ethical approval No.: IR.IUMS.FMD.REC.1394,9211521201) with IRCT No.: IRCT20150315021482N4.

The participants of this research were healthy female university students in Mashhad, Iran, who were informed

through the notices on the university's campus. The inclusion criteria were an age between 18 to 35 years old, sub-clinical paranoia scoring > 1 based on the SCL-90 questionnaire and scoring > 40 in the paranoia scale, and being based in Mashhad at the time of group therapy. The main selection criteria, however, was suffering from subclinical paranoia and its consequent dysfunction. Exclusion criteria were: Substance dependence, a case note DSM-V diagnosis of schizophrenia and any psychotic disorder, already being in receipt of psychological therapy, and organic impairments.

3.1. Sampling Procedures

Initial sampling was carried out through phone calls in order to check for age and residence in Mashhad for the 89 individuals who participated in this research. The secondary sampling was through using incorporated structured clinical interviews for DSM IV axis I (SCID-I) and SCL-90-R, which was conducted by a trained clinical psychologist. The sample size of the present study is based on Cohen table (20), which determined 10 people for each group (with a test power = 0.87, alpha level = 0.05 (two way test), effect size = 0.8). Considering the probability of exclusion, 30 individuals who met the requirements were included in the research (n = 15 for each group).

Finally, 18 participants completed all therapy and assessment sessions (n = 9 for each group).

3.2. Randomization

The randomization sequence was generated in block and the randomization code was written onto sealed numbered envelopes, ensuring that the random assignment of the groups was observed. After all the baseline assessments were completed, the treatment was administered to the participants.

3.3. Intervention

The content of GTCBT sessions were prepared based on the protocol of Barlow et al. respectively, in the form of 10 weekly sessions (19). The GTCBT sessions (2 times a week) included prevention of emotional avoidance and focus to emotional exposure. In addition to the weekly meetings, the content of each session was reviewed in the form of text and audio files through a Telegram group created for the GTCBT group. An experienced trainer in CBT training conducted the training sessions.

3.4. Measures

3.4.1. Paranoia Scale (PS)

This instrument incorporates 20 items, which covers personal feelings, attitudes, traits, and behaviors as the

characteristic of paranoia (1). Participants are required to determine how well each statement applies to them, on a 1 - 5 Likert scale with scores ranging from 20 to 100. Higher scores reflect higher levels of subclinical paranoia. Good internal consistency ($\alpha = 0.84$) and stability ($r = 0.70$) has been reported for this scale, and it was sensitive to experimental manipulations of paranoia, such as two-way mirrors. In addition, the PS has been shown to be highly correlated with other measures of paranoid ideation (21, 22), and it was related to differences in the implicit processing of negative social stimuli (5). After being translated to Farsi, in a pilot study on Iranian college student population to assess the validity and reliability that initial evidence shows proper results (Cronbach's $\alpha = 0.91$).

3.4.2. Work and Social Adjustment Scale (WSAS)

The five-itemed work and social adjustment scale (developed by Mundt et al.) (23) evaluates the disorder-induced persecutions at different areas including work, household management, personal and social leisure time, and interpersonal relationships. Any dysfunction in the last week was ranked from zero (no disorder) to eight (serious disorder). This scale has good internal consistency (α ranged from 0.70 to 0.94). Test-retest correlation was reported as 0.73. WSAS scores were sensitive to patient differences in disorder severity and treatment-related change (17). In the current study, the Persian version of WSAS, based on the Mohammadi study, was applied, which showed good reliability and validity (α ranged from 0.69 to 0.76) (24).

In the present research, the word disorder was substituted with the word distrust. This instrument solely examines the persecution in individuals' mental and social performance.

3.5. Study Design

After placing the advertisements in Mashhad universities and completing the SCL-90-R scale by volunteers of eligible age in the research, those who scored a score of 1 or more in this questionnaire, in the case they scored more than 40 in the paranoid scale, were evaluated by a diagnostic interview to investigate the exclusion criteria. After explaining the research, its conditions, and other ethical issues to the participants, they were asked to fill out the informed consent form and then the questionnaires on the PS and WSAS. Afterwards, all participants were randomly assigned to experimental and control groups. After that, the experimental group received 10 sessions of transdiagnostic cognitive behavioral therapy.

In this research, three sessions of absence was determined as a criterion for exclusion. At the end of treatment sessions PS and WSAS were performed again.

3.6. Statistical Methods

In the first step, in order to determine the homogeneity of the groups in terms of the dependent variables in the pre-test, one-way ANOVA test was used. The purpose was to find out whether the random assignment could cause homogeneity between the groups. Dependent *t*-test was used in order to determine the effect of the treatment on the dependent variables. In order to evaluate the effectiveness of the (GTCBT) in comparison with waiting list, ANCOVA covariance test was used. The scores of the pre-test were inserted into the analysis as the deflection variable. The results are based on the analysis of the collected data after removing the sample drop in each of the two groups (9 individuals in both the trans-diagnostic and waiting list groups).

4. Results

The demographic features demonstrated that the mean age of the participants in the trans-diagnostic groups and the waiting list group were 26.4, and 28.7, respectively. There was no significant difference between them ($t = -1.030$, $P = 0.319$). There was no significant difference among the groups in education ($z = -1.419$, $P = 0.222$). The groups were not significantly different with regard to marital status (Chi-Square = 3.397, $df = 2$, $P = 0.183$). Similarly, there was no difference in terms of the comparison of the pre-test scores of the two groups on the paranoid thoughts ($t = 0.000$, $df = 16$, $P = 1$) and general function ($t = 0.973$, $df = 16$, $P = 0.345$).

The findings showed the changes of paranoid thoughts and dysfunction in both groups (Table 1).

Paired sample *t*-test was used in order to determine the significance of the difference between pre-test and post-test in the two groups. According to the findings, the paranoid thoughts have significantly decreased in the post-tests of the (GTCBT). In the waiting list group, the mean score of paranoid thoughts did not change significantly in the post-test in comparison with the pre-test level. This is in line with the scores in the dysfunction in general performance.

In order to determine the effect of the treatment modalities in the two groups, the effect of the pre-test variable needs to be monitored. To this end, the univariate analysis of covariance was used. Table 2 indicates that after controlling the pre-test variable effect, the paranoid thoughts in the (GTCBT) significantly decreased in comparison with the waiting list group.

Furthermore, upon comparison, there was no difference in the covariance analysis of general performance in the transdiagnostic and the waiting list groups, that is,

Table 1. Comparison of the Pre-Test and Post-Test Scores of Paranoid Thoughts and Dysfunction in General Performance in the Two Groups^a

Treatment	Pre-Test	Post-Test	Change P Value	Cohen's d
Transdiagnostic treatment				
Paranoid thoughts	52.11 ± 9.06	42.44 ± 9.34	0.003	0.811
General performance	19.56 ± 11.09	14.67 ± 11.06	0.001	1.002
Waiting list group				
Paranoid thoughts	57.78 ± 14.39	60.11 ± 14.95	0.191	-0.476
General performance	9.89 ± 7.59	12.00 ± 7.35	0.031	-0.872

^aValues are expressed as mean ± SD.

by controlling the pre-test variable of the dysfunction in general performance; the changes in the transdiagnostic group are significantly higher than the waiting list group (Table 2).

4.1. Effect Size

Given the Cohen effect size of the GTCBT, the changes in paranoid thoughts (Cohen's $d = 0.811$) and dysfunction in general performance (Cohen's $d = 0.991$) are significant.

5. Discussion

According to the findings of the present study, transdiagnostic therapy is effective in reducing paranoid thoughts. Based on Freeman's cognitive model of persecutory delusion, anxiety plays a significant role in development and persistence of paranoia (12, 14). The positive effectiveness of the transdiagnostic therapy lies in the fact that it is an anxiety-based approach. This therapy system is designed to teach the patients how to cope with their anxieties, to experience them rather than suppressing them, and respond to them in a more adaptive manner (19).

The emphasis of the transdiagnostic approach on therapy methods such as emotional awareness (i.e. developing a more concrete knowledge of one's emotions through non-judgmental, conscious awareness of an emotional experience), experiential avoidance, and intrinsic emotional exposure (i.e. having the knowledge of and rectifying the emotion-based behavior, raising awareness toward the role of physical stimulus in an emotional experience, and their impact on thoughts and behaviors) can help patients suffering from paranoid thoughts to understand their preventive models and their defensive behavior, which according to Freeman, strengthens the paranoid thoughts, through fully encountering with the stimulating context. This approach helps the patients reduce or eliminate such thoughts through repetition and practice, so that new

learning patterns are facilitated and a new memory is established.

The findings of this study can be considered as a starting point for further research on the treatment of paranoia. In terms of its practical results, the results of the present study are rewarding in its promise of the application of the new therapy methods such as transdiagnostic module in treatment of anxiety disorders, and expanding it to other clinical and subclinical populations.

The results of this study support the effectiveness of the transdiagnostic method in improving the general performance. The findings of this study are in line with the meta-analysis of Newby et al. which stated that the transdiagnostic therapy method has been effective in enhancing the quality of life in 24 studies (25). The significant effectiveness of the transdiagnostic intervention in improving the general performance can be due to its emphasis on regulating the emotions back to their functional level through ameliorating the patients' habits of emotion management, so that the negative emotions can become adaptive and helpful instead (19).

According to Freeman's persecutory delusion cognitive model, paranoid thoughts usually manifest themselves in the context of emotional distress, and may be in conflict with patients' perception of their personal experience (12), which can lead to negative beliefs about oneself, others, and the world in the form of the following thoughts: "I am vulnerable", "People are potentially antagonistic", and "The world is a bad place". Such thoughts can cause emotional distress and can lower the patients' mental and social performance. The transdiagnostic mechanism functions through empowering the paranoid individuals in overcoming their emotional control and thereby perceiving themselves as less vulnerable. This will increase the possibility of using the cognitive flexibility techniques in estimating the persecution and threat in interactions with other people as well as with the external world, leading, as a result, to less isolation in and the improvement of social performance.

Table 2. The Covariance Analysis of Paranoid Thoughts and Dysfunction in General Performance of the Two Groups

Source	Type III Sum of Squares	df	Mean Square	F	P Value
The results of paranoid thoughts					
Pre-test effect	1950.504	1	1950.504	54.523	0.000
Grouping effect	657.790	1	657.790	18.387	0.001
The results of general performance					
Pre-test effect	1305.75	1	1305.75	187.886	0.000
Grouping effect	148.275	1	148.275	21.335	0.000

Overall the results of this study indicate that, through providing a reliable instrument for clinical specialists, the group trans-diagnostic therapy can be an effective method of choice for the preventive treatment of subclinical paranoia.

This research has been conducted at an introductory level in order to comparatively examine the treatment methods in the short run. In addition, the researchers had to use a large sample size in order to make up for the sample population drop so that the proper statistical tests could be used for an optimum calculation. Thus, we failed to identify the specific treatment modality, which caused the positive clinical outcomes. However, the significant results of the current study encourage further researches to examine the processes and fundamental mechanisms of psychotherapies. It is recommended that the future researches examine the resulting outcomes and processes separately. Researchers interested in outcomes are recommended to use larger clinical and general sample sizes not limited to university students only, with a wider age range and with a proper distribution from both genders. They may also consider follow-up to evaluate the long-term effects of transdiagnostic treatment. Process studies aiming at the treatment processes and mechanisms are recommended to administer the treatment in a more comprehensive framework and in more sessions, so that it is feasible to evaluate the changes in the mechanism before measuring outcome variables. In addition, for applying proper statistical methods such as path analysis, the use of a larger sample size is recommended.

Footnotes

Authors' Contribution: Banafsheh Gharaee, and Behrooz Birashk has done the study concept and designed it. Leila Amirpour interpreted data. Leila Amirpour and Banafsheh Gharaee drafted the manuscript. Leila Amirpour and Behrooz Birashk performing and follow up: Leila Amirpour and Banafsheh Gharaee. Banafsheh Gharaee and Behrooz Birashk have done critical revision of the

manuscript for important intellectual content.

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