

Effect of cognitive therapy training in groups on health anxiety among nursing students

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Abstract:**Introduction:**

Health anxiety is one of the most common anxiety disorders among medical students which can affect their activities in professional and educational fields. Therefore, the main objective of the present research is to study the effects of cognitive therapy training in groups on health anxiety among nursing students.

Materials and Methods:

This is a quasi-experimental study conducted on 30 nursing students with health anxiety score more than average. The students were randomly divided into two groups of experimental and control. After the short form health anxiety questionnaire was filled in by participants, cognitive therapy was taught to the experimental group in twelve ninety-minute sessions. Then both experimental and control groups filled in the health anxiety questionnaire again. Data were analyzed using co-variance test (Ancova).

Results:

The findings of this research showed that cognitive therapy training in groups in the significance level of $P \leq 0.05$ reduced the rate of health anxiety among nursing students ($P \leq 0.017$).

Conclusion:

The cognitive therapy training in groups has an important role in reducing health anxiety rate among nursing students. So the results of this research can be used in designing interventions such as deployment of educational programs for medical students.

Keywords: Cognitive Therapy, Health, Anxiety, Nursing Students

Introduction

Health is the most important source of providing peace of mind in life, and affects individual's ability to take care of oneself and the family (1). So, it is no wonder that most people experience concerns about their own health from time to time. Given the inherent function of anxiety, which is protection of organisms against harm and injury, health-related concerns are considered as a common factor in many anxiety disorders (2). Schmitt and Junior believe that in diagnosing anxiety disorders, in clinical terms, assessment of

health anxiety is more important than other variables, including sensitivity anxiety (3). Abramowitz et al. state that concerns about health, especially for those with physical diseases, or at risk of such diseases, have an adapting role, which forces them to attend to their bodily feelings precisely in order to ensure disease symptoms are timely controlled. Of course, the resulting anxiety is often temporary, and alleviates automatically by gradual loss of symptoms. However, extreme concerns about health, called health anxiety, are experienced in the absence of a physical

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harm, and often in time, the focus of the person's concerns is transferred from one disease to another, and transforms into a huge clinical problem for the person, his family, and health professionals (2). In these circumstances, a person's social relationships may suffer due to his mental preoccupation with disease and his expectation of special attention. In many cases, the individual's mental preoccupation disrupts his performance and may even lead to his occupational failure (4). Excessive fear of death is also common in people with this disorder (4). Patrika Farer et al. argued that in people with high degrees of health anxiety, rate of visits to health centers is also high, and they incur high costs of visiting the doctor. Additionally, these people undergo more medical tests and surgeries than others (1, 5). Stone in his epidemiological study reported that more than 9% of patients admitted to health centers experience health anxiety, and its prevalence of general public is more than 5% (1). Tiner et al. estimated prevalence of health anxiety in 16 to 75 year old patients in London hospitals 19.8% (6). Riff's study on concerns about physical health symptoms in Germany showed that 11% of women and 8% of men had affirmative responses to the question; "do you believe you have a serious disease, for which doctors have found no explanations?" This level was higher in people over the age of 46 years (7). Bleach and Healer estimated prevalence of severe health anxiety among the Germans 6% (8). Results of studies by Juroly Mathus and Edelstein also showed young adults had higher rates of reported health anxiety than older people (9). Results of a research by Pasha conducted randomly on 800 students (400 males, 400 females), from all academic subjects aiming to investigate prevalence of hypochondriasis and its relationship with anxiety, depression, and other personal characteristics such as age, gender, order of birth, etc, showed that nearly 12% of students were hypochondriacs (10).

Borski, Clareman, and Mechanic believe health anxiety is an extensive cognitive disorder in the form of wrong perceptions about bodily symptoms and changes resulting from personal beliefs about disease or health (11). In the present study, attempts were made to reduce this disorder through teaching cognition-therapy. One of the most important cognitive-behavioral models in perception of hypochondriasis and health anxiety is a model proposed by Salkowiskis and Varovic, which is based on the concept that some people perceive physical symptoms more seriously than what they actually are, and additionally, they are unable to prevent the disease, either. Thus, when the person is poorly equipped to have any impact on the disease, and has high perception of misfortune due to the disease, they will experience high anxiety (12). According to this model, it is possible that, in the event of health anxiety, previous information and experiences of the person about the disease helps forming specific assumptions and beliefs about symptoms of disease and health behaviors. These assumptions and beliefs are learnt in many different ways, particularly through past experiences about wrong physical hygiene, seeing unsuccessful medical treatments of own or family, and also through the mass media (13). So far, considerable studies have been conducted in support of this model, among these, studies by Rife et al., Smith et al., Hadjistaverpolos et al., and Marcos et al. can be cited (14-17). Salkowiskis and Varovic consider numerous factors involved in creating and maintaining health anxiety including cognitive processing of information and cognitive evaluation (18). Having such beliefs is really destructive because they lead to severe health concerns in people (19). Severity of these beliefs is related to severity of health anxiety, and reducing them leads to reducing health anxiety (20). Patrika Farer et al. consider use of cognitive-therapy model that regards health anxiety a consequence of wrong

interpretation of bodily symptoms as a serious disease effective (1). Beck also believes cognitive-therapy insists on the belief that inefficient or illogical thought and unrealistic evaluations of daily events can have negative impact on emotions and behavior (21). Generally, all cognitive-behavioral perspectives emphasize three main assumptions: 1) cognition affects behavior, 2) cognition can be controlled or modified, and 3) change of behavior will follow change in cognition (22). This therapy model is used in treatment of many disorders, and several scientific findings have suggested this treatment as an effective method for treatment of many psychological and psychiatric disorders (23).

Barski and Ahern investigated efficacy of cognitive-behavioral therapy on the level of fears, attitudes, beliefs, physical symptoms, and health anxiety in hypochondriacs. They placed 102 people in the trial group and 82 people that received normal medical care in the control group. Subjects were similar in terms of clinical and social characteristics. Results of their study showed that cognitive-behavioral therapy had significantly reduced attitudes and beliefs associated with the disease and health anxiety in the trial group, but hypochondriacs' physical symptoms did not significantly reduce (24).

Studies by Hunter et al. on health anxiety in medical students showed that many of them, especially in the first year, or even in later years, suffer anxiety about diseases that they study (25). Studies by Morris and Petri showed that medical students, compared to other students, experience higher degrees of health anxiety. This could be due to students' studying symptoms of various diseases, and simultaneously observing patients with different diseases, that physical events and symptoms in students may find new meanings (26). Taylor and Osmondson state that when nursing students learn

about various life-threatening diseases, they may develop incorrect understandings of physical changes and bodily senses as a severe disease. For instance, students learning about brain diseases may wrongly interpret nervous headache as a sign of chronic hematoma (23). Khosravi believes that nursing students encounter more stressful situations than other students (27). Results of a study by Ghasemnejad et al. aiming to investigate hypochondriasis relationship with anxiety, conducted on 315 medical students of Azad University from all academic subjects, selected according to random-classified method showed that 28.3% had severe anxiety and 34.4% had severe hypochondriasis, and there were significant relationships between anxiety and hypochondriasis, and between anxiety and hypochondriasis with age, gender, marital status, place of residence, economic status, childhood diseases, and parents' diseases (28).

One of the occupations that expose workers to health anxiety because of workplace is nursing. Furthermore, in professions associated with health, nursing is considered one of the most crucial, and thus, knowledge of causes of psychological problems can help raising them better to provide better services. Given all that has been discussed, and also lack of a study in Iran that has directly investigated efficacy of group cognitive therapy among nursing students with health anxiety disorders, the present research was conducted with the aim to study mental health of nursing students who will have an important role in the future in promoting health of the community.

Materials and Methods

The present study is a quasi-experimental treatment intervention, with statistical population consisting of all female nursing students in the 5th to 8th terms in the first semester of 2011-2012 from Shahid Beheshti Nursing and Midwifery School,

with health anxiety scores higher than the mean score (as reported by Panahi) (29). According to Cohan's table, 30 students were selected from the study population using convenience method as study subjects. The experiment power, given $\alpha=0.05$ and effect size of 0.5, was found 0.97 (30). The reason for selecting students by convenience method was that some students were not accessible to take part in all training sessions due to: interference with some of their theoretical classes, training in hospital, and mid-term exams. After selection, participants were randomly divided into trial and control groups. Study exclusion criteria were: 1- being male, 2- students of other courses, 3- having clear psychological disorders such as: obsessive compulsive disorder, bipolarity, personality disorder, 4- distinct medical disorders like cancer or diabetes, 5- older than 25 and younger than 19 years old, 6- participation in group cognitive therapy classes. To examine students' distinct psychological disorders, Millon Clinical Multiaxial Inventory (MCMI-III) was conducted, and results showed that none of the students suffered any personality disorders. In this study, because there were only 2 or 3 male students in the first semester of 2011-2012, female students were enrolled to maintain gender homogeneity of subjects.

In addition, higher tendency of female students to take part was also influential in this decision. In order to observe ethical considerations, the informed consent form was issued to students. How to complete the questionnaire, anonymity and confidentiality of data were also stressed. Then, both groups completed the short form of the health anxiety questionnaire. This questionnaire is a self-report scale, with 18 items that assess health anxiety irrespective of physical health status (31).

The items in this test are related to health concerns, attention to emotions or physical changes, and terrifying consequences of a disease. There are 4 items in relation to these 4 questions, which are scored from 0 to 3. In case a person selects more than one statement, the highest statement score will be allocated for that question. The reliability coefficient of the questionnaire was found 0.9 through a retest with one week interval, which shows that the above scale can perfectly distinguish hypochondriacs from non-clinical control groups. In the study by Panahi, results of factor analysis showed that this scale consists of two factors of: possibility of disease, and numerous consequences of disease (31). The health anxiety questionnaire was also used by Salkoskis et al. to distinguish a patient with health anxiety from a person with no disorder (31).

After group cognitive therapy training of the trial group in 12, ninety-minute sessions carried out in groups in accordance with Michael Fry theoretical basis (20), both trial and control groups completed the short form of health anxiety questionnaire again. Participants knew which group they belonged to, and promise was made to the control group to hold similar sessions for them, as well. Analysis of data was performed in SPSS-16 software. To compare mean score of health anxiety, descriptive statistics (bar chart) was used, and to assess the study hypotheses, covariance analysis was used. $P \leq 0.05$ was considered the significant level.

In the table below, brief description of the 12 cognitive therapy training sessions is presented.

Session 1	Evaluation- interview, pretest
Session 2	Familiarization with A.B.C model, determining treatment plan
Session 3	Relaxation training
Session 4	Identifying superficial thoughts and processes (concerns)
Session 5	Reasonable errors and appropriate logic
Session 6	Disagreeing with reasonable errors
Session 7	Vertical advanced arrows and subjective assessment of units of disorder
Session 8	Conceptualization of beliefs (making a cognitive plan)
Session 9	Challenging own beliefs (soul-searching analysis)
Session 10	Behavior change and planning to change own behavior
Session 11	Practicing cognitive-behavioral subjective review and lasting of achievements
Session 12	Evaluation, post-test

Results

Both trial and control groups were matched for demographic details such as age and gender. Mean age of students (30 students) was 21.6 years with standard deviation of 4.1. Mean age of the trial group students was 20.7 years with standard deviation of 5.4, and mean age of the control group was 22.5 years with standard deviation of 1.8.

The assumption of normal distribution of scores of variables was verified with Kolmogrov-Smirnov test, and results indicated that pretest and post test scores

of health anxiety were not far from normal with $Z_{Smirnov}=0.976$ in pretest, and $Z_{Smirnov}=0.793$ in posttest. the homogeneity assumption of variances was assessed by Lowin test, and results showed insignificant value of F, indicating lack of difference in variance error between trial and control groups ($F=5.022$, $P=0.33$).

To assess homogeneity of regression lines, there should not be interactions between pretest and the group. Results showed p-value between the group and health anxiety posttest was 0.316, which means regression lines are parallel.

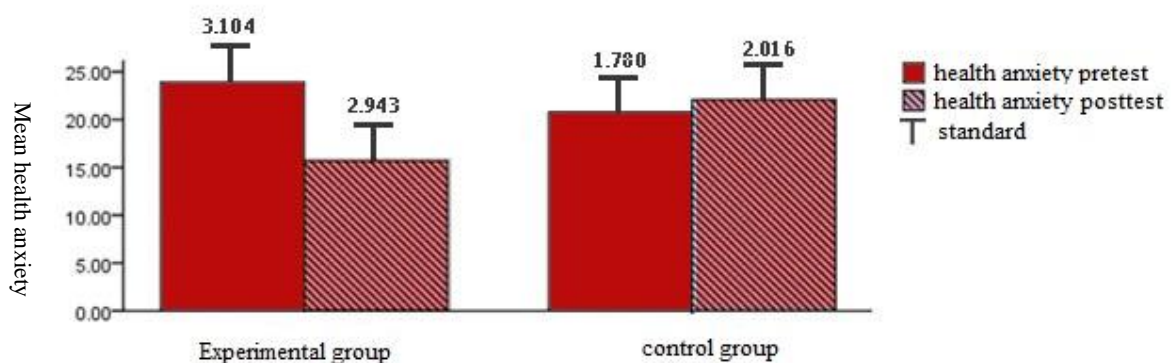


Chart 1: health anxiety pre-test and post-test mean score for experimental and control groups

As can be observed in chart 1, mean health anxiety score in trial group after cognitive therapy training reduced from 23.9 to 15.6, and mean health anxiety score in control group increased from 20.8 to 22. Mean pretest health anxiety score in the trial group was 23.9, which reduced to 15.6 after group cognitive therapy training. But,

in the control group, mean pretest health anxiety score of 20.8 increased to 22 in the posttest. Partial eta square of 0.256 for the effect of independent variable on dependent variable meant that 26% of changes in dependent variable can be explained by the independent variable.

Table 1: Co-variant analysis test to examine the effect of group cognitive therapy training on health anxiety in nursing students

Variant source	Sum of squares	Mean squares	Degree of freedom	F	P-value	Eta square
Dependent variable: health anxiety						
Modified model	76.315	38.158	2	5.832	0.008	0.302
Slope	198.072	198.072	1	30.274	0.000	0.529
Health anxiety post-test	2.682	2.682	1	0.410	0.527	0.015
Group	42.285	42.285	1	6.463	0.017	0.265
Error	176.651	6.543	27			
Total	15261.0		30			
Adjusted total	252.967		29			

Discussion

The principle aim of this study was to investigate efficacy of group cognitive therapy training on the level of health anxiety in nursing students. Results showed that group cognitive therapy training, without applying other approaches including psychotherapy, family therapy, and counseling has a significant effect on health anxiety in nursing students.

In a study by Nakao et al., 139 hypochondriac women with mean age of 42.1 years were divided into trial and control groups after completing health anxiety questionnaire, bodily symptoms, and the Whitely index. The trial group received therapy, 90 minute per session for 6 weeks. Then, both groups completed the questionnaire again. Results showed a significant reduction in health anxiety in the trial group undergoing cognitive-behavioral therapy (32).

Headman et al. investigated level and duration of effectiveness of cognitive-behavioral therapy on the internet in 40 patients with severe health anxiety disorder. They performed this therapy for one year, and followed up its efficacy for a year after. General results of the study showed that this therapy had been significantly effective in treating patients with severe health anxiety compared to the control group of 41 people (33).

Grayon et al. in a study on 112 hypochondriac patients in three groups of cognitive-behavioral therapy, Paroxetine therapy, and placebo showed that scores of

hypochondriacs group undergoing cognitive-behavioral treatment and the Paroxetine group had improved significantly in the posttest compared to the control group. In other words, cognitive-behavioral therapy and Paroxetine are effective in short term treatment of hypochondriacs (34).

Thomas and Page in a meta-analytical study found that in psychotherapies performed on hypochondriacs, the most effective treatments include behavior therapy, cognitive therapy, stress behavior management, cognitive-behavioral therapy, and psychological training (35).

In their meta-analysis, Taylor and Osmondson compared different health anxiety treatments in 15 studies in groups undergoing medical therapy and psychological treatment, showed that both these treatments (psychological and medical) were better than status of the control group. They suggested that, for a mild health anxiety, a psychological training may be sufficient, but when health anxiety follows other disorders like depression, cognitive-behavioral therapy is more appropriate (23).

Boulda et al. compared effectiveness of cognitive-behavioral therapy and problem solving approach on 48 patients with health anxiety. Participants were assigned to groups randomly, and this treatment lasted 12 weeks. Results showed that both types of treatment can be effective in reducing level of health anxiety, and after six months of follow-up, these effects still remained (36).

Mc Manoose et al. investigated cognitive-behavioral therapy based on informed attention and providing useful and unlimited services on level of health anxiety in 74 participants. Results showed that cognitive-behavioral therapy based on informed attention was more successful than treatment with useful and unlimited services in reducing symptoms of health anxiety, and reduced level of health anxiety in participants (37).

In the treatment of health anxiety, Clark et al. compared 3 methods (cognitive-behavioral therapy, management of stress behavior, and waiting list control). Management of stress behavior is an alternating therapy, and is defined according to people's reaction to stress in the form of concern about health. This method does not directly focus on health anxiety, but instead, its aim is to teach strategies of stress control in life, which ultimately leads to reduced provocation, associated with bodily senses, and thus increases feelings of being healthy. Clark concluded that both methods of stress behavior management and cognitive-behavioral therapy were effective compared to the control group, and cognitive-behavior therapy was more efficient than management of stress behavior. However, in time (after 12 months follow-up), the difference between these two methods was insignificant; even though cognitive-behavioral therapy led to reduced health anxiety quicker (38). Results of the above studies are in line with those of the present study.

It can be seen that there are many studies conducted in relation to reducing health anxiety in various people. Results of studies by Varovic et al. in relation to efficacy of cognitive-behavioral therapy in 32 hypochondriac patients, and Bowman and Visor study in relation to pure cognitive therapy and pure behavioral therapy in 17 hypochondriac patients, and study by Tairer, Kavir et al. that investigated efficacy of cognitive-

behavioral therapy based on Salkowsis and Varovic theory on reducing level of health anxiety in 466 patients according to doctor's diagnosis over 10 sessions all agreed. Also, the studies by Lavas and Barski and Williams et al. in relation to efficacy of informed therapy based on group cognitive therapy on level of health anxiety, and a study by Headman et al. that investigated the effect of cognitive-behavioral therapy on reducing health anxiety in 41 patients on the internet, were in line with results of the present study, in all of which health anxiety significantly reduced, with the difference that participants in the present study were nursing students (39-44).

Conclusion

In short, group cognitive therapy training led to reduced health anxiety in nursing students. With this training, people learn how to control their own irrational cognitions and beliefs, and change them, and change their behavior after changing their cognition. Thus, for better use of the results of the present study, it is recommended that this intervention be applied over longer courses and in high-stress workplaces such as the fire department, emergency etc, and its efficacy be investigated. In addition, to reduce anxiety, it is better to use different and diverse subjects in training packages, to achieve objectives of treatment. Also, given that study subjects are from different economic, social, and cultural groups, and that various factors are involved in creating anxiety, generalization of results of this study to others should be done cautiously.

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Conflict of interest

None to declare.

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