Efficacy of Cognitive Drill Therapy in Agoraphobia with Panic Disorder: A Case Study

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This case demonstrates the role of cognitive drill therapy in the treatment of panic disorder with agoraphobia. A 52-year-old female patient presented with eight years H/O panic disorder with agoraphobia. The Body Sensations Questionnaire, Agoraphobic Cognitions Questionnaire, Mobility Inventory, Generalized Anxiety Disorder scale and Beck Depression Inventory were administered at baseline and follow ups. Cognitive drill therapy was administered in 10 sessions. She continued pharmacological treatment as usual. The periodic assessments including follow ups indicated substantial change and clinically significant improvement in her condition which is being maintained even at six months follow up and thereafter.

Initially called agoraphobia with panic attacks (American Psychiatric Association, 1980), and later renamed panic disorder with or without agoraphobia (American Psychiatric Association, 1987, 1994, 2004), is one of the most cited anxiety disorders due to its high rate of lifetime prevalence (about 5.1% of adults; Bienvenu, 2006). Panic disorder is characterized by its resistance to spontaneous remission, its co-morbidity with other disorders (e.g., depression, alcohol or substance disorders), and the decrease in quality of life. Additionally, panic disorder can have serious social and economic consequences, since a large number of individuals with panic disorder suffer difficulty in maintaining their social relationship and most of them have to leave their work (Klerman et al., 1991; Mitte, 2005; Tsao, et.al, 2005).

In order to be diagnosed with panic disorder a patient must have suffered recurrent and unexpected panic attacks over a minimum period of a month, followed by persistent concern about having additional attacks. Panic attacks are commonly accompanied by uncontrollable fear, worry about the implications of the attacks (e.g., losing control, having a heart attack), or a significant change in behavior relating to these symptoms. Furthermore, the attacks are not due to the direct effects of substance abuse or to a medical condition, and they cannot be explained by the presence of another mental illness. On the other hand, panic attacks often come together with agoraphobia, that is, an uncontrollable fear of having a panic attack in a setting from which it may be difficult to escape or receive help. About one in three people with panic disorder develops agoraphobia, but agoraphobia without a history of panic attacks is rare, with a lifetime prevalence of about 0.17% (Bienvenu, 2006).

Cognitive Drill Therapy:

This therapeutic technique was originally developed by Kumar, et. al.(2012). Cognitive drill therapy is very effective to deal with stimulus bond anxiety. The therapist tries to change patient’s future orientation to past or present orientation at cognitive level. For example, “a patient has fear of travel in train and gets panic attack”. In this situation the therapist would ask the patient to repeat statements like “I am travelling in train; I have got the panic attack”. She is required to repeat such statements continuously until significant reduction in anxiety level, which usually takes 2-5 minutes. The therapist identifies the situations and events which elicit the anxiety response and prescribe drill in similar manner.

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Cognitive Drill Therapy:

This therapy uses the principles of cognitive exposure, Pavlovian conditioning and a change in linguistic pattern. The application of cognitive drill has yielded promising results in patients with OCD (Kumar et al, 2012). The therapy is useful in patients who have stimulus bound anxiety, specifically when exposure of the anxiety related cues in imagination elicits an anxiety response. The therapy has yielded promising results in conditions like examination anxiety, specific phobia, social phobia, obsessions, compulsions and health related anxiety. The case study has illustrated the effectiveness of Cognitive Drill Therapy in a case of chronic panic disorder with agoraphobia.

Case Summary:

SK a 52 years old female was diagnosed a case of Agoraphobia with Panic Disorder as per ICD-10. She was experiencing panic attacks 2-3 times in a week characterized by fainting spells, difficulty in breathing, palpitations, sweating, tachycardia, choking sensations and felt as if she would die since last 8 years. This led to multiple emergency hospitalizations and cardiac investigations, but all the investigations were normal. During panic attack she used to scold her family members and could not attend routine work. She avoided going to public places, travelling in trains, and stopped driving scooter because of fear of getting panic attacks. However, she kept visiting selected places with her husband with confidants. During such visits, she would keep tracking the location of hospitals so that she can get hospitalized immediately in the event of panic symptoms. She resigned her teaching job in a reputed public school and remained mostly at her home. She needed presence of someone while using bathrooms. She also had secondary depression characterized by sad mood, lost of interest in pleasurable activities, weeping spells, hopelessness and helplessness. During the course of illness she lost interest in her hobbies like gardening, going for outing and entertaining children.

She did not follow psychiatric treatment regularly and never sought psychotherapy for her psychiatric problems. When she approached for psychological treatment, she was recommended to consult a psychiatrist prior to administration of psychotherapy. She returned back for psychotherapy after about three months with little improvement in her psychiatric condition.

Assessment:

She was administered the following tools initially with multiple repeat assessments.

1. Body Sensations Questionnaire (Chambless, Caputo, Bright & Gallagher, 1984)
2. Agoraphobic Cognitions Questionnaire (Chambless et al., 1984)
3. Mobility Inventory (Chambless, Caputo, Jasin, Gracely and Williams, 1985)
4. Generalized Anxiety Disorder Scale (Spitzer, Kroenke, Williams, Lowe, 2006)
5. Beck Depression Inventory (Beck at al., 1969).

Body Sensation Questionnaire (BSQ) measures various sensations in the body like palpitation, sweating, breathing difficulties etc seen during panic disorder. She had elevated levels of body sensations. Agoraphobic Cognition Questionnaire (ACQ) revealed that she had following prominent cognitions – I am going to throw up, I must have a brain tumour, I will have a heart attack, etc. Mobility Inventory (MI) suggested extreme restrictions in her mobility outside home. She scored very
high on Generalized Anxiety Disorder Scale (GADS). Beck Depression Inventory (BDI) score was 42 suggestive of marked depression.

**Case Formulation:**

We formulated the primary problems of the patient according to the concepts and relevant theories of cognitive drill therapy which is summarized below:

1. Her anxiety was conceptualized as respondent behavior elicited by a range of external cues like open places, crowded places, travel by train and internal cues like increased respiration, sensations in cardiac region, words, images and thoughts related to panic attack.
2. She avoided anxiety provoking situations which resulted in negative reinforcement and maintained her avoidance of external situations which could potentially activate panic attack. Besides, avoidance at overt level, she also had avoidance at cognitive level. She avoided considering encounters with potentially anxiety provoking situations even at covert level.
3. The external and internal cues elicited anxiety response (classical conditioning) and avoidance of such anxiety provoking situations at cognitive and behavioral level resulted in anxiety reduction which served to maintain the anxiety response (Operant Conditioning).
4. During anxiety, a person holds a future perspective at cognitive level which gets reflected in the language of the patients which consists of frequent use of future tense. For instance, I may have heart attack, I am going to die, I will not survive, what will happen if I get a heart attack, palpitations means I am going to have a heart attack.
5. It is hypothesized that this future perspective may have its specific neurobiological correlates. When a person turns towards this future orientation, the related neurobiological processes get activated which maintain the anxiety response.
6. The depressive condition was hypothesized to be secondary to phobic and anxiety symptoms.

**Application of Cognitive Drill Therapy:**

Following components of Cognitive Drill Therapy (CDT) were implemented.

**Psycho-education:**

Psycho-education regarding illness is the core foundation of the application of CDT. She was explained that she is having Agoraphobia with Panic Disorder and Secondary Depression. The symptoms of these conditions were enumerated and explained. These conditions are recognized as psychiatric disorders of which she was not aware of. The case formulation was also explained to her in her own language. The process of treatment was also explained to her. It was told to her that she is trying to manage her anxiety and phobic symptoms by avoiding them. The avoidance results in temporary relief which acts as reinforcement instead of improvement. Instead of avoidance, she required to expose herself to anxiety provoking situations. This exposure would initially boost the anxiety response and in the process would get reduced. She was also explained the concept of cognitive exposure. It was told that during the initial phase of treatment it is not necessary to expose her to actual anxiety provoking events and situations. This can be done at cognitive/imaginative level. The concept of excessive use of future perspective during anxiety activation was also explained. She was told that she would be trained to expose
herself to anxiety provoking situations at cognitive level and integrated the tweak of future perspective into past or present perspective. Appropriate examples were used to clarify the concepts and applications of CDT. She was asked to continue her psychiatric treatment.

**Identification of Anxiety Cues:**

With the help of the patient a number of internal and external anxiety cues were identified. The list was updated as and when additional cues became apparent in the course of the treatment. Some of the cues are listed such as: thoughts related to death by cancer; deaths of family members, travelling in train/metro; visiting multi-storey buildings; elevators; market place; thoughts of heart attack; thoughts of being alone in the home; crowded places etc.

**Cognitive Drill:**

In cognitive drill, specific thoughts and images were identified, converted into past/present tense and she was required to verbally repeat the converted statements in bulk until anxiety reduction which usually takes about 2-5 minutes. The cognitive drill was applied initially for mild anxiety cues, then to moderate and finally severe anxiety provoking cues. For example, I have died of heart attack; family members have died; I got stuck in metro and no help is available and so on.

**Behavioural Tests:**

Upon significant reduction in anxiety during cognitive drill, she was told to expose herself to the real life anxiety provoking situations to which drill has been applied to test whether the real life situations still elicit anxiety response. If it did so, then she was recommended to repeat the cognitive drill for such cues. Usually, the application of drill reduces/eliminates anxiety response to many real life situations.

**Home-Work:**

She was asked to consider our sessions as training sessions. Learn the procedure of cognitive drill therapy and apply the same concepts when you are out of therapy sessions. Specifically, she was told to recognize anxiety cues and practice cognitive drill.

**Sessions Details:**

Ten sessions were conducted each lasted from one to two hours. In the sessions, she was required to perform drill on the identified anxiety cues. Her husband was also allowed to remain present during the sessions. The active therapy sessions were conducted in three blocks. Four daily sessions were conducted in second week of July 2014. Again two sessions were conducted in the last week of July 2014. After a gap of about four months, three more sessions were conducted in November 2014. Periodic follow ups were done on telephone and she was asked to submit the filled up scales.

**Results:**

Total four formal assessments were done on the listed scales. (1) Baseline on 7th July 2014 (2) Second assessment on 23rd July 2014 (3) Third assessment on 21st August 2014 (4) Last Assessment on 25th December 2014. The results are depicted in following figures.
Cognitive Drill Therapy:

Figure 1 displays the scores on Agoraphobic Cognition Questionnaire on baseline and follow ups. The questionnaire has 15 items which are rated on five point scale where 1 means thought never occurred and 5 means thought always occurs. The maximum possible score is 75 and minimum score is 15. On baseline she scored 58 which got reduced to 20 on last follow up indicating a highly significant improvement in her agoraphobic cognitions.

Figure 2 displays scores on Body Sensation Questionnaire on baseline and follow up. It consists of 18 items rated on five point scale where 1 means not at all, and 5 means extremely frightened by the sensations. Maximum possible score is 90 and minimum score is 18. On baseline she scored 60 and on last follow up her score was 22 indicating a significant improvement in her reactions to body sensations.

Figure 3 displays scores on Beck Depression Inventory. It consists of 21 items which are rated on four point scale ranging from zero to three. On baseline she scored 46 and on last follow up she scored 11 indicated highly significant improvements in her depression.

Figure 4 displays scores on GAD Scale on baseline and follow ups. It consists of 7 items rated on four point scale ranging from zero to three. 0 means not at all sure and 3 means nearly every day. Maximum possible score is 21 and minimum possible score is zero. On baseline she scored 21 which got reduced to 02 on last follow up.
Cognitive Drill Therapy:

Figure 5 displays scores on Mobility Inventory - When Accompanied on baseline and follow up. It consists of 28 items rated on five point scale where 1 indicates never avoid, and 5 indicates always avoid the situation. Maximum possible score is 140 and minimum score is 28. On baseline she scored 90 and on last follow up her score was 31 indicating a significant improvement in her mobility in different situation.

Figure 6 displays scores on Mobility Inventory - When Alone on baseline and follow up. It consists of 28 items rated on five point scale where 1 indicates never avoid, and 5 indicates always avoid the situation. Maximum possible score is 140 and minimum score is 28. On baseline she scored 122 and on last follow up her score was 44 indicating a significant improvement in her mobility in different situation.

Discussion:

The application of Cognitive Drill Therapy produced substantial and clinically significant changes in her anxiety, agoraphobic cognition, body sensations, depression and mobility which were maintained on follow ups. She also showed meaningful improvement in her social relations, affect, self-efficacy, engagement in household work, going away from home even without accompanying person, shopping etc although these aspects were not measured formally.

Cognitive drill uses principles of exposure therapy (Vincelli, 1999; Vincelli, et. al. 2000). The repeated exposure at cognitive and verbal level causes extinction and habituation of acquired anxiety response (Watson & Rayner, 1920; Lovibond, 2004 p. 495). The words and images of anxiety cues elicited anxiety in her; and when exposed repeatedly to those words and images at cognitive and verbal level, it had expected effects of extinction and habituation. The exposure to anxiety cues also results in enhancement of self-efficacy (Bandura et al, 1975). The cognitive drill being based on exposure also enhances self-efficacy and other faulty cognitions which are also observed in this patient.

One of the hypotheses invoked in Cognitive Drill Therapy relates to the neurobiological correlates of linguistic aspects particularly verbs. That, each tense, present, past and future have their own distinct neurobiological correlates (Ullman, 2008; Pinker & Ullman, 2002; Bickerton 1990; Lightfoot, 1991; Chomsky, 2005). The anxious state has a predominantly future perspective. The conversion of this perspective into past or present at cognitive level somehow modifies
the future perspective and calms down anxiety response to conditioned stimuli. The testing of this hypothesis would require highly sophisticated and advanced researches involving live scanning of brain during verbs usage. May be future studies at some point of time may take up and consider the hypothesis. Empirically, in clinical settings, it is a common observation that a relief in anxiety through any modality shifts the future perspective of the patient into the present one.

It is observed that when there is an extinction of anxiety response to the anxiety cues at verbal and imagination level, there is an automatic generalization to the real world cues in most of the instances. This patient when exposed to anxiety cues at cognitive and verbal level, showed minimal or no anxiety to the real world situations. If still a cue produces anxiety after drill, then drill was repeated and this reduced the anxiety. This cross modality generalization is extremely useful for the purposes of therapy, economic in terms of pain experienced during live exposure vis-à-vis cognitive and verbal exposure, quite faster in resolution of anxiety.

In exposure treatment, many patients drop out because of the pain and suffering experienced during live exposure sessions (Michele et al, 2008). The cognitive and verbal exposure is not that much overwhelming and may have a value in decreasing attrition rates in psychotherapy. The studies need to be conducted to compare the rates of drop outs in live exposure therapies and cognitive exposure therapies.

Relapse prevention is one of the primary concerns in the treatment of psychiatric disorders (WHO, 2004). Cognitive drill seems to have an inbuilt component of relapse prevention. Because during the course of treatment, a patient learns to identify anxiety cues, formulate drill statements and perform cognitive drill on the fly. Through the intensive treatment it becomes an integral part of coping with the anxiety provoking situations. She also reported that as and when she finds herself in any anxiety provoking situations, she detects her sensations and anxious cognitions and immediately performs the drill. The patient is required to learn only a few concepts and skills which enable him/her to effectively deal with the anxiety provoking situations.

**Conclusion:**

The case study demonstrates how time efficient and intensive cognitive drill therapy can be applied in such patients. A clinically significant improvement could be achieved in the relatively short time of two weeks and the gains/improvements of therapy were maintained at 6-month follow-up.

The Cognitive Drill Therapy seems to have produced clinically significant results in indexed patient of agoraphobia with panic disorder. To establish a functional relationship between this modality of treatment and outcomes in patients of anxiety disorder, large scale, randomized controlled trials would be required.

Controlled studies comparing cognitive drill therapy and cognitive behaviour therapy in panic disorder with agoraphobia could help to understand the specific procedural and process-based aspects that help making this kind of treatment so effective.

**References:**


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