Combining Methods of CBT and Progressive Relaxation for Treating Primary Insomnia: A Case Study

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Abstract— Primary insomnia is a mental health problem that is often reported due to the combination of either difficulty in falling asleep or maintaining sleep. It is known that people with primary insomnia experience an increased arousal of physiological, cognitive or emotional process, combined with negative conditioning that is associated with sleep. Progressive relaxation is one of the methods known to be effective in minimizing primary insomnia due to the person's need to release their tension. Frequently, the problem that causes primary insomnia derives from anxiety and muscle tension. Further work on the field is needed to show more the effectiveness of progressive relaxation in primary insomnia, especially in Indonesia, due to the lack of papers showing an intervention effect toward mental health problems. This paper presents a single case study of a graduate student who was diagnosed with primary insomnia. Graduate students are more likely to experience sleep deprivation, due to academic pressures and poor sleeping habits. Primary insomnia was diagnosed in this participant because they met the criteria of primary insomnia, such as frequent complaints of inability to fall asleep, and maintaining sleep for at least one month and an impairment in social and occupational functioning. It was shown during counseling that the participant was experiencing distress mainly caused by family problems. The participant felt burdened about the future due to their family's expectations on several subjects such as career, relationships and academic performance. The participant felt the need to fulfill all of the family's requirements. Another intervention, such as the ABC model from cognitive behavioral therapy (CBT), was needed due to the participant's negative core belief that made them unable to see their own positive traits. The participant also learned a mantra to cancel out unnecessary negative thoughts that caused sleep disturbance. The intervention was conducted for five sessions over a period of three weeks. The participant reported that before she was introduced to progressive relaxation, she had difficulty maintaining her sleep, she woke up five or six times during her sleep, and she was able to sleep only after midnight. After being taught progressive relaxation, the participant reported that her primary insomnia symptoms had decreased. She was able to sleep without any disturbance and fall sleep at 10 p.m. The participant's anxiety toward her family's expectations also decreased markedly. She reported that she was able to focus on what matters in the present, able to distinguish between her own needs and her family's expectations. Mantras were constantly used by the participant even a year after the intervention. She reported that using a mantra was the most efficient way for her to cancel out negative thoughts. This single case study showed that a short-term intervention was capable of providing an effective outcome for an individual with primary insomnia. It was also shown that progressive relaxation was successful in treating primary insomnia. This single case study showed the need to reduce anxiety for people with poor quality of sleep. It is suggested for further study to replicate progressive relaxation for reducing primary insomnia symptoms due to the successful outcome of this single case study.

Keywords: progressive relaxation, insomnia, ABC model, cognitive behaviour therapy, mantra

Introduction

The Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR) (American Psychiatric Association, 2000) described primary insomnia as a mental health problem that is often reported due to the combination of either difficulty falling asleep or maintaining sleep. It is known that people with primary insomnia have an increased arousal of physiological, cognitive or emotional processes, combined with negative conditioning that is associated with sleep. Someone can be diagnosed with primary insomnia if the patient frequently complains of difficulty initiating or maintaining sleep, or non-restorative sleep, for at least 1 month, and this causes impairment in areas of social functioning.

It is known that most graduate students tend to experience sleep deprivation due to academic pressures and poor sleeping habits (Pallos, Yamada, Doi, & Okawa, 2004). Pallos et al. (2004) added that the sleep problems of graduate students also stem from their academic workload, because getting their degree may require long working hours and their common response is usually to cut back on sleep. Pallos, Gergely, Yamada, Miyazaki, and Okawa (2007) reported that poor sleep quality can negatively affect students' health, their academic performance and learning process.

Knowing that graduate students commonly experience sleep deprivation, people with an anxious tendency are also known to be more likely to have a poor quality of sleep. It is known that the causes of primary insomnia are psychological, social or medical stress (American Psychiatric Association, 2000). Anxiety is commonly correlated with poor sleep behavior (Taylor, Lichstien, Durrence, Reidel, & Bush, 2005). There are several things that can cause someone to feel anxious, such as intrapersonal, interpersonal, environmental, and academic pressures (Ross, Niebling, & Heckert, 1999). People with anxiety often feel unable to counter their anxiety due to their inability to challenge their belief that everything will go wrong. People with anxiety have a circular process that will worsen anxiety, such as an exaggerating response and unhelpful coping behavior and that cause the anxiety to be unresolved (Kennerley, Kirk, & Westbrook, 2007).

Cognitive behavioral therapy (CBT) is known to have a significant impact on insomnia experienced due to anxiety (Belanger, Morin, Langlois, & Ladouceur, 2004) but there are small findings showing that CBT has a significant impact aimed directly on sleep disturbance. It is known that there are several treatments able to help individuals have a better quality of sleep or decrease a primary insomnia symptom, such as: CBT, mindfulness, progressive relaxation, hypnosis, acupressure and pharmacologic treatment (Valente, 2015). CBT is used mainly to treat primary insomnia, but study found CBT to be only effective on anxiety but a small number of studies have shown the effectiveness of CBT toward sleep (Belleville, Cousineau, Levrier, & St-Pierre-Delorme, 2011). It is known that among CBT patients a high proportion (64%) achieved clinically significant outcomes compared to relaxation alone (12%) regarding sleep deprivation (Morin et al., 2006). Usually it is known that CBT, combined with medication, gives a better result to treat primary insomnia, but there are few studies that have shown better outcomes from a combination of psychological treatments.

Progressive relaxation is a relaxation technique that focuses on relaxing muscle tension. It is known that people with primary insomnia often have muscle tension (Freedman & Papsdorf, 1976). Progressive relaxation is one of a few common methods to treat primary insomnia. There is decreasing recourse to progressive relaxation in research or in practical everyday circumstances, due to many studies that have shown CBT to have the most significant effect in treating primary insomnia, even though it is not aimed directly toward addressing sleep problems.

This paper will report the procedure and effectiveness of progressive relaxation and CBT toward reducing the primary insomnia symptoms of a graduate student. This study uses a single case study, due to the researcher's purpose to find a participant with primary insomnia symptoms and uncover specifically the effectiveness of CBT and progressive relaxation, toward treating primary insomnia. Through this paper, it is expected for further study be undertaken to replicate the intervention program for primary insomnia clients.

The aim of this paper is to show a combination of two psychological treatments such as progressive relaxation aimed at primary insomnia directly and CBT to aim at the root of cause primary insomnia, which is the anxiety of graduate students.

Methods

Participant
The participant in this study was a graduate student who was selected randomly from the student counseling center (Klinik Terpadu). The participant wrote her complaints to the student counseling center about her difficulty regarding her sleep patterns, and was subsequently approached by the researcher. An assessment was conducted using a semi-structured interview to find out her history, her present problems regarding her primary insomnia (quality of sleep, hours of sleep, sleep patterns, triggers and onset) and her anxiety (triggers, onset, main cause etc.). The researcher also used psychometric tests such as SSCT, DAP, different gender DAP, BAUM, HTP and WARTEGG to strengthen the diagnosis regarding the participant case.

Case introduction
The participant's initial is "D" she is a 26-year-old graduate student, who was a local migrant from Lampung until she lived in Depok for several years to pursue her bachelor's degree. Now she is pursuing a master's degree in applied psychology.

Presenting complaints
D complained that since a year ago, when she started studying for her master's degree, she was having trouble in maintaining her sleep. The pressure she was under from her father wanting her to work as a government employee plus the workload from her master program made her feel anxious caused her difficulties in maintaining sleep.

She was only able to sleep at 11 pm or 12 am and woke up five to six times. She said that whenever she was awake, she felt anxious and worried about all the burdens that she has. This

includes his father wanting her to be a government employee and the academic pressure, until she felt unable to have a romantic relationship due to feeling that she was embarrassed and unattractive.

History

D is the eldest of three siblings. She said she had always felt the pressure to be perfect because she had to be a role model for her younger sisters. She was never appreciated by her mother even though D always sees her mother as a role model. D said even though she studied at the best school in Lampung and the best university in Indonesia, she never felt she was smart because her mother always pressured her to do better. D said she was very disappointed when she found out that her mother was cheating. Since that she has a conflicted feeling toward her mother. She said since she knew that her mother was cheating, she has had a better relationship with her father.

Whenever she felt stressed, she would handle it with excessive eating, which caused her to become overweight. Sometimes her father told her that she needed to stop eating and her mother compared her figure with the other siblings' which her mother held up as the ideal. This causes her a low level of self-esteem, and due to her mother's past history of cheating, she felt anxious about starting a romantic relationship in case she would have a bad experience just like her parents.

Regarding her primary insomnia and her overthinking, she said that she has had trouble maintaining sleep since 2016. She said that whenever she woke up, she felt anxious. She said that she was always crying whenever she woke up and her way to put herself at ease was through prayer. She said that around 2016, she went to see psychologist but the counseling only lasted for two sessions due to conflicting schedules.

Assessment Results

D presented as a well-groomed woman; she usually wore formal clothes but without makeup. Throughout the sessions, D constantly wore makeup. Her speech tones and volume were clear and normal. She was frequently late when coming to sessions as she had been doing a great job implementing the progressive relaxation and which was making her able to have a good sleep. However, it made her unable to estimate the waking hours since it was the first time in a long time that she had had a good sleep. Her person, place and time orientations were good. D exhibited good thought processes and above average intelligence. She showed a good amount of insight regarding her problems and was willing to be cooperative and collaborative throughout the sessions. Her multiaxial diagnosis was as follows (Table I).

Table I. Multiaxial diagnosis for D

Diagnosis		
Axis I	307.42	Primary Insomnia
Axis II	V71.09	No Diagnosis
Axis III	278.00	Obesity
Axis IV	Problems with family	
Axis V	GAF = 61-70	

Case conceptualization

The case conceptualization was presented to show the necessary use of CBT to counter D's anxiety. It is known that CBT is effective in treating anxiety but it has little effect on sleep directly (Belleville et al., 2011), hence the need to use progressive relaxation for treating the primary insomnia.

D has been anxious about issues surrounding her, especially regarding her family since she was a child. Her anxiety elevated when she was having difficulty with her master's program, and her father pressured her to work as a government employee. This caused her difficulty in maintaining sleep, brought on excessive sad emotions and made it hard to control her breathing when she was awake.

D's primary insomnia was caused due to her anxiety in relation to several stressful things that happened in her life. D did not realize that her insomnia was due to her overthinking regarding several problems in her life. It is known that chronic insomnia may confer a risk related to the accumulated exposure for the development of anxiety disorders (Neckelmann, Mykletun, & Dahl, 2007). It is also known that people with insomnia have a greater level of anxiety than people with no insomnia, and were 17,35 times more likely to have clinically significant anxiety (Taylor et al., 2005).

The conceptualization of D's case is summarized in Table II.

Table II. Case Conceptualization ABC Model

Activating Event	Believe	Consequences
Problems with education Problems with family	If she sleeps, the problem will remain unsolved	Insomnia: - Unable maintaining sleep
	Coping stress with food with ease the mind	Obesity

Research Design

The design of this research was a pre-post single subject design that monitored changes that occurred in the participant before, during, and after a progressive relaxation intervention. The evaluation was on the total hours of sleep, the number of times D woke during sleep and the length of time she was able to sleep.

Measures

This research did not use any psychological instrument to measure D level of primary insomnia. The psychological instrument was only used for to get a better picture of D's personality. For each meeting throughout interview, the researcher recorded D's total hours of sleep, the times D's was awake during sleep and the total time she was able to sleep.

Ethics

Approval of this research was obtained from the Ethics Committee of the Faculty of Psychology, Universitas Indonesia. D also read and signed an informed consent showing her willingness take part in this study.

Procedure

The intervention of D was held for five sessions with a duration of 2 hours, and a follow-up over a span of 15 days. The timespan used for the session held for D took account of Edinger & Sampson (2003) who used a 2-weeks sleep diary to see the result of the treatment regarding primary insomnia.

The intervention consisted of three main components namely 1) counseling, to find out more details about D's source of anxiety, 2) ABC models and a mantra from CBT to overcome her anxiety and 3) progressive relaxation to help D have a good quality of sleep to reduce or eliminate her primary insomnia symptoms. Table III provides overview of the intervention process taking place with D.

Table III. Course of treatment

Session	Brief description
Session 1	Introduction, counseling and teach D how to do progressive relaxation for her progressive relaxation
Session 2	Counseling, repeat the progressive relaxation in order for D grasp the technique even better, make a table about her positive and negative traits
Session 3	Learn the ABC model to understand what caused D anxiety and how the situation makes D feels
Session 4	Learn mantra to counter the anxiety that D has

Session 5	Reviewing all the techniques that has been learned, writing down all the positive and negative traits. Conclusion
Follow-up 1	2 weeks after session to check on D's condition

Counseling

Counseling was performed throughout the intervention with D. Counseling was chosen as one of the treatments for D as it is known that counseling works for people who have anxiety (Ali et al., 2003). Starting from an introduction, we talk about D's history regarding her relationship with her family and how that affects her anxiety, what causes her anxiety in the present, and how that affects her sleep quality.

Progressive relaxation

Progressive relaxation technique was taught after D complained of her inability to maintain sleep. The researcher taught D to relax her body muscles such as in the arms, the forehead, chest, legs and mouth. The researcher made sure that D would use the progressive relaxation methods by giving her a CD of progressive relaxation. D complained that she had never felt relaxed during the time when she was going to sleep and the thoughts that caused her stress arose every time she awoke from sleep.

D was taught the full version of progressive relaxation, but later on she was told to not apply it on all of her body parts, but only on the body parts where she felt it was the most relaxing and effective. The researcher told D to do progressive relaxation every time before she went to sleep.

CBT (ABC model and mantra)

There are several techniques in CBT and there are several types of CBT such as REBT and Cognitive therapy. Researcher for this study used REBT methods such as ABC and mantra from cognitive therapy.

Albert Ellis (in Ali et al., 2003) said that an activating event causes negative emotional and behavior consequences, because of an irrational belief system, therefore it is needed to undertake reframing, so that the patient will have a healthy rational belief system. ABC model treatment is used for reframing the irrational belief system.

Mantra was taken from Beck's cognitive therapy (1979). Beck (1979) said that an automatic thought occurs to create a maladaptive statement toward the self. Usually the automatic thought comes fast and far from reality. Mantra is used for countering negative thoughts.

It is known that CBT is effective in decreasing anxiety. Kennerley, Kirk, and Westbrook (2007) said that anxiety is an irrational belief because it is "fear of fear", and there is a need to cut the

maintaining cycles where the client assumes threat or danger, and either draw a catastrophic conclusion which makes the person avoid the situation, or did not challenge the validity of the belief. CBT provides the needs to challenge the irrational belief.

Termination

The last phase of the session was termination. Follow-up was not part of the session because it is important to evaluate the effectiveness of the treatment over time. At the termination the researcher asked D to review all the techniques that had been learned throughout the sessions. In general D displayed a good quality of sleep, less anxiety and has shown positive changes after the intervention.

Data analysis

Data analysis was conducted by interviewing D regarding total hours of sleep, the number of times she was awake during sleeping hours, and the time she was able to sleep before, during and after the intervention took place. Data analysis was also conducted to see how D evaluated her own positive and negative traits before and after intervention took place.

Result

During and after the intervention, D shown an increase of good quality in her sleep. She slept for more than 5 hours, never woke up from her sleep after the intervention and was able to fall asleep before midnight. D also said that she felt less anxious after the intervention. It is known that the combined use of progressive relaxation and CBT not only diminished D's primary insomnia symptoms but also decreased her level of anxiety.

Follow up

Follow-up was conducted one week after termination and then one year after intervention. The purpose of this follow-up session was to monitor whether D can maintain her progress without the therapist's assistance. The follow-up at the one year point was to see if the treatment had given D long-term benefits.

One week after termination, D told that she still constantly uses the progressive relaxation techniques before going to sleep, and she felt less anxious and the issues that usually made her anxious during the day and night has not been bothering her for a week.

A follow-up after a year was conducted, and during the follow-up D said that she showed no symptoms of primary insomnia and she has a good night's sleep even without a progressive relaxation. D also said that she rarely felt anxious and if she feels anxious she will use mantra to counter the negative thoughts.

Discussion and Conclusion

In general, the result showed that an intervention conducted intensively by progressive relaxation with CBT can decrease primary insomnia symptoms and help reduce anxiety in a

graduate student. The output of the one week follow-up and the subsequent one year follow-up have shown the intervention to be effective in the long term.

This paper makes a contribution for further studies regarding the effectiveness of progressive relaxation toward treating primary insomnia. CBT was known to be a common and effective intervention for primary insomnia, but in this study the CBT was deliberately used only for decreasing the anxiety level and not for decreasing the primary insomnia symptoms. It is also known through the interview, that D said before the CBT session, with progressive relaxation she already had a good quality sleep, therefore this research contributes to the case for a further study regarding the effectiveness of progressive relaxation toward primary insomnia.

The researcher also suggests the need for a good screening toward selecting the participant. To see the effectiveness of progressive relaxation, it is better to choose a client with primary insomnia, with a low anxiety level and low depression level, due to the correlation of primary insomnia with anxiety and depression. If the participant has a high level of anxiety or depression, there will a possibility the researcher needs to use another treatment to attain a successful outcome of the intervention.

For further study, there should be a quantitative measurement regarding the quality of sleep. It is suggested to utilize psychological measurement, therefore there will a quantitative outcome that can show the difference between the pre-intervention and post-intervention.

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