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Comparative Efficacy of Cognitive Behaviour Therapy and Paradoxical Intention Therapy in Managing Non-organic Insomnia

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Abstract

Introduction: Insomnia is the most prevalent of all sleep disorders. Non-pharmacological interventions in recent years have been established as first-line treatment for nonorganic insomnia. Studies have shown Cognitive Behavior Therapy for Insomnia (CBT-I) to be effective for primary insomnia. Paradoxical intention is a Logo-therapeutic technique based on the existential origins of the founder, Viktor E. Frankl. Past researches into the effectiveness of paradoxical Intention interventions have been inconsistent. There is a lack of evidence that Paradoxical Intention Therapy is differentially effective in insomnia when compared with CBT-I.

Aim: To evaluate and compare the effectiveness of CBT-I and PIT and to study their effects on mental health in Non-Organic Insomnia in young adults.

Method: Participants: A mixed-gender group of 20 young adults with a mean age of 25.35 years.

Procedure: Participants were recruited via an online survey with the help of the Insomnia Severity Index. 100 participants responded to the online survey on Insomnia Severity Index out of which 24 met the inclusion criteria and finally 20 participants gave their consent to undergo the intervention modules. Participants were randomly assigned to two intervention groups namely CBT-I (n=10) and PIT group (n=10). Both the interventions were given for two months. Scores of Insomnia Severity Index, Pittsburg Sleep Quality Index, and Mental Health Inventory were taken as outcome measures at baseline (Pre-Intervention), at the end of the intervention (Post Intervention), and in a follow-up assessment after 45 days, assessment of Insomnia Severity and Sleep Quality was done to study the maintenance of the therapeutic effect and relapse. An informed consent was taken from participants before the intervention results: It was found that both CBT-I and PIT are effective. Although CBT-I was associated with greater improvements than PIT. Both the groups showed significant improvements in the scores of outcome measures. The overall patterns of change with treatment demonstrated statistically and clinically significant improvements in the severity of insomnia symptoms as well as statistically significant differences in sleep quality and mental health.

Conclusion: Both CBT and PIT are effective in non-organic insomnia but CBT-I might be a substantial treatment of choice with a more sustained and high effect for CBT-I when compared to Paradoxical Intention Therapy.

Keywords: Organic Insomnia; Cognitive Behavior Therapy; Paradoxical Intention Therapy; Young Adults

Introduction

Insomnia is the most prevalent of all sleep disorders in the general population and also among the most common complaints reported to health-care practitioners [1]. Non-organic insomnia is categorized under Dyssomnias in the most frequently used classification systems in clinical settings of ICD–10 [2]. Inproposed version of ICD-11 [3]. Insomnia Disorders are classified under the category of sleep-wake disorders. Insomnia disorders are further subcategorized into two categories namely Chronic Insomnia and Short-Term Insomnia. Non-Organic insomnia or Primary insomnia refers to sleep problems that are not directly associated with any other health condition or problem. As compared to good sleepers, individuals with insomnia report more psychological distress and more impairment of daytime functioning [4]. Insomnia also increases the risk of developing subsequent depression [5]. Despite insomnia's high prevalence rate and adverse impact, it usually goes unrecognized and remains untreated. Most persons with insomnia start their treatment without professional guidance and do self-help remedies (e.g., alcohol, over-the-counter drugs) of limited benefit and questionable safety [6].

When insomnia is brought to the attention of a primary care physician, treatment is typically restricted to pharmacotherapy. Although hypnotic medications are effective for the short-term management of insomnia only and there is limited evidence about their sustained efficacy in long-term use [7]. Recognition of the psychological factors that play an important role in maintaining sleep disturbances has led to increased interest in the use of non-pharmacological treatments for insomnia. Various drawbacks of pharmacological treatment and the acknowledgment of the mediating role of psychological factors in insomnia have started the development of non-pharmacological or behavioral interventions in recent years, especially for the management of chronic insomnia. These treatment methods usually include techniques for modifying maladaptive sleep habits, educating about more appropriate sleep hygiene practices, altering dysfunctional beliefs and attitudes about sleep, and reducing autonomic and cognitive arousal, etc. Studies have shown Cognitive Behavior Therapy for Insomnia (CBT-I) to be effective for primary insomnia Morin CM, et al. [8,9].

The guiding rationale behind using Paradoxical Intention is that because sleep is essentially an involuntary physiological process, attempts to place it under voluntary control are likely to make matters worse. Paradoxical Intention is thought to work by reducing performance anxiety (the poor sleeper's inability to produce the criterion performance for good sleep) and by reducing associated sleep worry and sleep preoccupation. Paradoxical techniques in psychotherapy have been described for a long time. The use of Paradoxical Intention for insomnia was adapted from Viktor Frankl's work [10] by Michael Ascher and others in the late 1970s [11,12] when it was observed that people with insomnia had more success falling asleep when they tried to remain awake than they had when they tried to fall asleep. There is no evidence to suggest that PIT is differentially effective in sleep onset and sleep maintenance in insomnia [13]. There is a need for rigorous sleep research including testing and implementation of evidence-based treatment for insufficient sleep and insomnia [14]. These days online delivered therapies are also a trend and demand of the time but there is a need for more studies to evaluate their efficacies of therapies the following aim was framed.

Aim

To evaluate and compare the effectiveness of online delivered CBT and PIT and to evaluate their effects on Sleep Quality and Mental Health in young adults.

Hypotheses

- There would be a significant improvement in Sleep Quality, Insomnia Severity, and overall mental health after interventions in both CBT and PIT groups.
- Cognitive Behavior Therapy group would exhibit greater sleep improvement, in comparisonto Paradoxical Intention Therapygroup for Sleep Quality, Insomnia Severity, and overall mental health.

Methodology

Study Design

Pre-Posttest Design was adopted for the present study.

Sample

A mixed-gender group of 20 young adults (CBT-I group; n=10 and PIT group; n=10). In the CBT-I group, six participants were males and four were females with mean age 25.8 years. In PIT group seven participants were males and three were females with mean age 24.9 years. All were students of either graduation or post-graduation courses. Convenience sampling of opportunity sampling technique was used for sample selection.

Assessment Measures

Insomnia Severity Index (ISI)

The Insomnia Severity Index is a seven-item self-report questionnaire assessing the nature, severity, and impact

of insomnia. The ISI was developed by Morin as a patient-reported outcome measure intended both for screening purposes and for assessing the efficacy of treatment. Although it is not intended to be a diagnostic tool, it is widely used to identify potential cases of insomnia and assess the perceived severity of insomnia. The usual recall period is the "last month" and the dimensions evaluated are: difficulty in sleep onset, sleep maintenance, and early morning awakening problems, sleep dissatisfaction, interference of sleep difficulties with daytime functioning, noticeability of sleep problems by others, and distress caused by the sleep difficulties. A five-point Likert scale is used to rate each item (e.g., 0 = no problem; 4 = very severe problem), yielding a total score ranging from 0 to 28. The total score is interpreted as follows: the absence of insomnia (0-7); sub-threshold insomnia (8-14); moderate insomnia (15-21); and severe insomnia (22-28). ISI is a reliable and valid instrument to quantify perceived insomnia severity [8,15]. The test-retest reliability for ISI has been found -0.84. The ISI is positively correlated with PSQI (Pearson's coefficient r - 0.45). Internal consistency for the ISI has been found excellent with Cronbach's α -0.84 [16].

Pittsburgh Sleep Quality Index (PSQI)

The Pittsburgh Sleep Quality Index [17] will be used to assess the extent of sleep quality among the sample selected. This scale contains 18-items self-reporting the respondents. The items measure seven components of sleep quality, a score ranging from 0 (no difficulty) to 3 (severe difficulty) for sleep duration, sleep disturbance, sleep latency, daytime disturbance, habitual sleep efficiency, sleep quality, and use of sleep medications. The total of these provides an index referred to as global sleep quality which ranges from 0 to 21. Reliability measures indicate that the PSQI generally has high internal consistency (α = .80 to .85) and test-retest reliability (r = .85 to .87). It also has acceptable concurrent validity; scores on the PSQI are highly correlated with scores on other subjective measures of sleep quality (r > .69) too.

Mental Health Inventory (MHI)

Mental Health Inventory [18] is also self-rated. This inventory has 38 items that describe the different states of mind. It includes six subscales viz. Anxiety, Depression, Loss of Behavioral/Emotional Control, General Positive Affect, Emotional Ties and Life Satisfaction on Two Global Scale i.e., Psychological Distress and Psychological Well-Being. It also gives a Global Mental Health Index. Higher scores on Anxiety, Depression, Loss of Behavioral/Emotional Controlindicate a negative state of Mental Health and vice versa whereas higher scores on General Positive Affect, Emotional Ties, Life Satisfaction, and Psychological Well-Being indicate a positive state of Mental Health. Higher is the score on Mental Health Index better is the Mental health considered.

Procedure

Participants were recruited via an online survey with the help of the Insomnia Severity Index. 100 participants responded to the online survey out of which 24 met the inclusion criteria and finally 20 participants gave their consent to undergo the intervention modules. Those 20 young adults with Non-Organic Insomnia were randomly assigned to two groups: Cognitive Behavior Therapy for Insomnia (CBT-I, n = 20) and paradoxical intention Therapy (PIT, n=20). The eight-session modules viz. CBT-I and PIT-I were administered to each of the participants. The intervention lasted for two months for both groups. Outcome measurements were taken at baseline (Pre-Intervention), at the end of the intervention (Post Intervention), in a follow-up assessment after 45 days, assessment of Insomnia Severity and Sleep Quality was done to study the maintenance of the therapeutic effect and relapse. Informed consent was taken from participants before the intervention. Sleep education, and sleep hygiene. Sleep diaries and self-reported-sleep arousal were assessed weekly while the severity of insomnia symptoms, Sleep Quality, and Mental Health Measures was assessed at pre-treatment and post-treatment. The following were the inclusion and exclusion criteria:

Inclusion Criteria

- Age: 20 to 30 years
- Fulfilling the criteria of sleep disturbance according to ICD-10
- A specific cut off Score of 15 or More on the Insomnia Severity Index
- Those who give consent

Exclusion Criteria

- History of any major psychiatric/neurological illness
- History of any chronic physical illness
- Those taking any medicine/treatment for insomnia or any other psychiatric disorder
- History of any substance dependence

Interventions

Cognitive Behaviour Therapy for Insomnia (CBT-I)

The use of CBT-I aimed to reduce maintaining factors that perpetuate insomnia. Parameters, such as number and duration of naps, use and timing of sleep medication, ratings of sleep quality, daytime sleepiness, and daytime fatigue are also frequently included in sleep diaries. Subsequent sessions are designed to deploy multiple modalities along the course of several sessions [19]. The present intervention of CBT-I consisted of eight sessions. The primary goals of the first session were to build rapport with the client and to conduct a clinical sleep focused interview to identify

barriers to good quality sleep and take sleep history, discuss treatment expectations and Introduce a sleep diary Second Session-was has taken within one week after the first session with the objective to orient the client regarding healthy sleep habits and sleep hygiene techniques In the third session that was held after one week from the second session, cognitive restructuring of the maladaptive thoughts and Identification of the maladaptive thoughts was done and winding down a plan for bedtime routine was made for the client. In the fourth Session, education regarding stimulus control was provided and rules for stimulus control and use of sleeping place were discussed. The participants were instructed to follow a new sleep schedule and stimulus control plan as discussed during the session. In the last session, barriers to completion of sleep plan were discussed and participants were guided continuing sleep-related strategies post-treatment along with strategies for treatment maintenance. Review the skills learned throughout the therapy by the participants and maintenance strategies were discussed.

Paradoxical Intention Therapy (PIT)

PI is a well-validated therapy [9]. It is based on the idea that 'performance anxiety' seems to emerge as a response to the patient's fears of being unable to fall asleep [11]. The rationale is to expose the patient to these fears through the paradoxical intention to remain awake for as long as possible rather than continuing the effort to fall asleep. This reduces performance anxiety and may help sleep come more easily [20]. In the present study, eight sessions of Paradoxical therapy for insomnia were given on PIT group. In the first session, rapport was built with the participants and a clinical sleep-focused interview was conducted to identify the preoccupations/performance-based anxiety associated with insomnia, and a sleep diary was introduced. In the second session, a Review of the sleep diary record and evaluation of the effects were done. Participants were introduced with paradoxical thoughts and sleep education regarding healthy sleep habits was given to the participants In the third session, participants were instructed to remain awake as long as possible rather than continuing the effort to fall asleep and not to engage in any activity that is sleep incompatible like watching TV, etc, using mobile in bed. They were also instructed to lie on the bed in a darkened room keeping their eyes open as long as possible the fourth session assessment of barriers in completing sleep plan and the problems that arose during the paradoxical intention procedure were discussed. Participants were also trained in Giving up Trying to sleep when he/she was bed by instructing simply "try to remain awake when you are in bed". Participants were reassured to reduce the anxiety and apprehensions about his/her sleep problem. In the fifth session, participants were provided guidance on continuing the learned techniques (e.g. sleep hygiene techniques and the paradoxical thoughts) post-treatment also. Strategies for treatment maintenance (e.g. anticipate and discuss upcoming challenges to sleep Plan) were discussed with the participants. Review the skills learnt during the sessions was done and the participants were motivatedabout maintenance of the PIT program.

Results and Discussion

The study was conducted with the main aim to evaluate and compare the effectiveness of CBT-I and PIT and to study their effects on sleep quality and mental health in Non-Organic Insomnia in young adults. A mixed-gender group of 20 young adults was taken (Table 1).

n=10 Variables	CBT-I Group (Pre-Intervention)		CBT-I Group (Pre-Intervention)		t-values	Level of Significance
	Means	SDs	Means	SDs		
Insomnia Severity Index (ISI)	21.7	2.75	9.2	5.09	12.75	0
Pittsburg Sleep Quality Index (PSQI)	14	2	7.4	3.09	12.18	0
Anxiety	38.1	8	21.4	9.26	7.38	0
Depression	16.3	3.33	9.3	4.16	8.57	0
Loss of Behavioral/Emotional Control	39.5	8.33	22.2	11.21	7.78	0
General Positive Affect	22.2	3.42	39.6	10.63	6.62	0
Emotional Ties	4.1	1.66	6.1	2.13	6	0
Life Satisfaction	3.7	1.33	4.4	1.17	2.68	0.025
Psychological Distress	83.8	9.68	54.7	16.33	7.55	0
Psychological Wellbeing	32.6	5.01	57.1	12.54	7.88	0
Mental Health Index	99.5	11.03	121.3	13.98	5.91	0

Table 1: showing Means and SDs of the scores obtained by the CBT-I group (Pre and Post Intervention) on ISI, PSQI, and MHI domains and the corresponding values with their level of significance.

The results in Table 1 revealed that there are significant differences between the pre and post-intervention groups of cognitive behavior therapy participants on sores of ISI, PSQI, and all domains of MHI viz. Anxiety, Depression, Loss of Behavioral/Emotional Control, General Positive Affect, Emotional Ties and Life Satisfaction on Two Global Scale i.e. Psychological Distress And Psychological Well-Being and overall Mental Health Index. The findings of the present study are consistent with the results of the research studies conducted on CBT-I so far. The finding is very promising and indicates that the CBT treatment of insomnia is currently the most effective treatment for chronic insomnia [21]. A recent pilot study in a student population showed that CBT-I yielded treatment responses similar to results typically found in the general population [22]. Recent evidence from several countries has shown that unguided internet-based CBT-I is highly successful in relieving students as well as adults with chronic insomnia of their sleep problems [23,24]. The preliminary data suggest that CBT-I is feasible to implement to treat insomnia in younger people [25] (Table 2).

N=10 Variables	PIT-I Group (Pre-Intervention)		PIT-I Group (Post-Intervention)		t-values	Level of Significance
	Means	SDs	Means	SDs		
Insomnia Severity Index (ISI)	21.5	3.02	18.1	4.48	3.69	0.005
Pittsburg Sleep Quality Index (PSQI)	13.8	2.29	10.8	3.32	4.1	0.003
Anxiety	38.8	7.08	33.5	8.31	4.72	0.001
Depression	15.8	3.39	11.5	3.17	4.93	0.001
Loss of Behavioral/Emotional Control	39.2	9.35	34	9.23	3.98	0.003
General Positive Affect	23.4	3.56	22.3	3.33	0.57	0.578
Emotional Ties	4.6	1.42	6.6	2.11	4.24	0.002
Life Satisfaction	4.1	1.37	4.6	1.07	2.23	0.052
Psychological Distress	84.4	10.26	77.2	7.96	5.54	0
Psychological Wellbeing	33	5.03	39.8	9.51	3.02	0.014
Mental Health Index	99.6	14.4	111.5	12.93	3.69	0.005

Table 2: showing Means and SDs of the scores obtained by the PIT-I group (Pre and Post Intervention) on ISI, PSQI, and MHI domains and the corresponding values with their level of significance.

The results in Table 2 revealed that there are significant differences between the pre and post-intervention groups of Paradoxical Intention Therapy participants in sores of ISI, PSQI, and all domains of MHI viz. Anxiety, Depression, Loss of Behavioral/Emotional Control, Emotional Ties and Life Satisfaction on Two Global Scale I.E. Psychological Distress And Psychological Well-Being and overall Mental Health Index except for General Positive Affect. Paradoxical Intention is considered to work by reducing performance anxiety (the poor sleeper's inability to produce the criterion performance for good sleep) and by reducing associated sleep worry and sleep preoccupation [26]. Ascher and Turner (1979) compared the efficacy of progressive relaxation, stimulus control, and paradoxical intention in ameliorating sleep-onset insomnia. Results of their study indicated that the three were equally effective (Table 3).

The results given in table 3 revealed that there were significant differences between the CBT group and the PIT group in most of the scores of assessment measures. The CBT-1 group has improved significantly better than the PIT group (post-intervention) in the domains of MHI. However, in the domains of Emotional Ties and Life Satisfaction, the differences between the groups are not significant. Compared to their assessment scores before the intervention, both the groups showed improvements in the scores of assessment measures after intervention first hypothesis of the study was that there would be a significant improvement in scores of assessment measures after interventions in both CBT and PIT groups that was proved. The results in Tables 1 and 2 revealed that there is a significant improvement between the before and after intervention scores in both the groups in ISI, PSQI, and most of the domains of MHI. A recent systematic review concluded that there are large differences in treatment effects across different intervention modalities, with sleep hygiene interventions showing small effect sizes, whereas cognitive-behavioral therapy for insomnia (CBT-I) yielded large effect sizes [27].

Variables	Groups	Mean	Std. Deviation	t-values	Level of significance (2 -tailed)
Insomnia Severity Index (ISI)	CBT	12.5	3.1	6.76	0.001
	PIT	3.4	2.91		
Pittsburg Sleep Quality Index (PSQI)	CBT	6.6	1.71	3.99	0.001
	PIT	3.6	1.64		
Anxiety	CBT	16.7	7.14	4.52	0.001
	PIT	5.3	3.49		
Depression	CBT	7	2.58	2.26	0.036
	PIT	4.3	2.75		
Loss of Emotional/behavioral control	CBT	17.5	6.45	5.09	0.001
	PIT	5.4	3.83		
Positive Affect	CBT	17.6	7.82	4.72	0.001
	PIT	5.1	2.96		
Emotional Ties	CBT	2	1.05	0	1
	PIT	2	1.49		
Life Satisfaction	CBT	0.7	0.82	0	1
	PIT	0.7	0.48		
Psychological Distress	CBT	29.1	12.17	5.38	0.001
	PIT	7.2	4.1		
Psychological Wellbeing	CBT	24.9	8.63391	5.27	0.001
	PIT	8.4	4.83506		
Mental Health Index	CBT	21.8	11.66	2.02	0.059
	PIT	11.9	10.19204		

Table 3: Showing Means and SDs of the scores obtained by the CBT-I PIT group (Pre and Post Intervention) on ISI, PSQI, and MHI domains and the corresponding 't' values with their level of significance (Between Group).

Conclusion

In conclusion, online delivered cognitive behavioral therapy is more effective in improving sleep in young adults with insomnia when compared with Paradoxical intention therapy delivered through the same mode. Primary care providers should consider CBT-I as a first-line treatment option for insomnia. Psychological interventions are effective in improving insomnia symptoms and efforts should be made to educate the public about sleep problems and expand access to these therapies to those who suffer from sleep problems.

The Implication of the Study

There are important clinical implications for this kind of research. These initial findings demonstrate that it is feasible to use CBT-I and PIT with young adults and sleep behaviors are highly modifiable, brief targeted insomnia treatments are a particularly promising area of intervention. In summary, this study provides support for the feasibility of online delivered CBT-I and PIT intervention for young adults with insomnia symptoms. Future research is needed to determine preliminary efficacy on sleep outcomes and to examine whether changes in sleep can produce changes in psychological and physical functioning.

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