

Original Article

The effectiveness of metacognitive therapy and emotion-focused therapy in improving thought fusions and stop signals in people with obsessive-compulsive disorder

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Abstract

It has been shown that metacognition therapy (MCT) is effective on thought fusions and stop signals, but there has been no research on emotion-focused therapy (EFT) on these variables, so this research aims to compare the effectiveness of metacognitive therapy and emotion-focused therapy in improving the symptoms of stop signals and thought fusion in people with obsessive-compulsive disorder (OCD). This study utilized a quasi-experimental design with pre-and post-tests and a two-month follow-up period. The participants were evaluated using the Structured Clinical Interview for DSM-5 (SCID-5), Yale-Brown, and a psychiatrist or clinical psychologist's diagnosis. They were randomly assigned to groups. Each group began with 16 individuals. Moreover, Wells' thought fusion Instrument and Myers' stop signals questionnaire were employed in this research. The results indicated that in terms of thought fusion, the mean difference between the MCT group and the control group (-17.440) was greater than the mean difference between the EFT group and the control group (-15.059), and the mean difference between the MCT group and the control group (-9.29) was greater than the mean difference between the EFT group and the control group (-7.071) in stop signals. The mean difference between the two treatments and the control group demonstrated that MCT is more effective than EFT at reducing the specified components.

Keywords

Metacognitive therapy
Emotion-focused therapy
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Thought fusion
Stop signals

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Introduction

Obsessive-compulsive disorder (OCD) usually has a deep and exaggerated mental preoccupation with cleanliness and perfectionism, which is sometimes even encouraged (Ferrando et al., 2021). This disorder often appears in childhood or early adulthood and has a chronic and relapsing course (Reid et al., 2021). People with OCD may have trouble with naming their inner experiences and emotional clarity (Abdi et al., 2023). Metacognition refers to cognitive processes and knowledge that play a role in monitoring, interpreting and controlling thinking processes (Melchior et al., 2023) Using an inconsistent model that includes two areas of metacognitive beliefs exacerbates the symptoms: 1) beliefs about the meaning and importance of thoughts, known as fusion beliefs, and 2) beliefs about controlling thoughts and fulfilling rules, measures to stop these symptoms (Myers et al., 2009).

Metacognition is then followed by stop signals, which fusion beliefs influence. Fusion beliefs are the foundation of metacognitive beliefs in obsessive-compulsive disorder. In this way, thoughts and deeds are intertwined. Studies have demonstrated a significant positive correlation between fusion beliefs and obsessive-compulsive symptoms (Gilliam et al., 2004; Myers et al., 2009; Solem et al., 2010). The next step in evaluating the metacognitive model is, in fact, to determine the role of metacognitive beliefs in stopping criteria. This concept encompasses the deliberate pursuit of a sense of satisfaction and wholeness or a particular mood, i.e., the "completely right" method and emotion to make the correct decision regarding the cessation of the behavior (Wahl et al., 2008). In metacognitive therapy, metacognitive beliefs play a very important role in the patient's response to negative beliefs, thoughts, feelings, and symptoms (Fouladi et al., 2023). According to Fisher

et al. MCT treatment effectively reduces the fusion of thought scores of OCD patients. [Ayat Mehr and Sadeghpour \(2017\)](#) also demonstrated that metacognitive therapy is superior to cognitive behavioral therapy for reducing metacognitive beliefs and thought fusion. Moreover, there is a positive correlation between the decrease in the obsessive-compulsive score and the decrease in the thought fusion score; if the obsessive-compulsive disorder is improved, so is the fusion of thoughts of obsessive patients ([Mohammed Khani, 2013](#)), demonstrated. According to [Singh et al \(2004\)](#), metacognitive therapy significantly decreases thought fusion and its subcategories (thought-event fusion, thought-action fusion, and thought-object fusion), confirming the present study's findings. Cognitive fusion is a vulnerable cognitive component in people with obsessive-compulsive disorder, which is associated with frontal lobe damage ([Jani et al., 2023](#)).

[Storbeck and Clore \(2007\)](#) believed that emotion and cognition are highly correlated. On the other hand, the distinction between cognition and emotion is more phenomenological than ontological in nature ([Greenberg, 2004](#)). Obsessive behaviors are a performance regulator for patients with a high level of negative emotions ([Dolhanty & Greenberg, 2007](#)). Studies indicate that individuals with OCD are less skilled than control groups at identifying, describing, and regulating their emotions ([Kang et al., 2012](#)). One of the difficulties obsessive patients face is getting stuck in the conflict between being controlled and feeling independent ([MacKinnon et al., 2016](#)). Previous research has demonstrated that individuals with obsessive-compulsive disorder are severely impaired in emotional processing, emotional recognition, and emotion-related components such as emotional inhibition ([Qamari Givi et al., 2012](#)). [Plate and Aldao \(2017\)](#) demonstrated that emotion regulation disorder is effective in initiating, sustaining, and aggravating obsessive-compulsive disorder. [Zwaigenbaum et al. \(2013\)](#) observed that the methods used by therapists to regulate clients' emotions are considered as effective interventions to control intense and negative emotions. ([Golmohammadi et al., 2022](#)). Another treatment that has been used in recent years to reduce the symptoms of obsessive-compulsive disorder is emotion-focused therapy. This treatment has the ability to effectively limit emotions and focus on them ([Jani et al., 2023](#)).

Based on the stated content, it is clear that OCD is a disorder that imposes significant costs on the family and human societies in terms of social, family, education, and others, as well as the recent spread of Corona in the formation of obsessive thoughts related to pollution, death, and others. If there are no alternative treatments for this disorder, not only the prevalence rate will increase exponentially over time, but also the pressure on the individual, the family, and ultimately the society will increase. Also, treatments that can usually achieve results in a shorter period of time, increase self-esteem in obsessive-compulsive disorder sufferers. One of the disadvantages of previous treatments for treating OCD is

the time-consuming nature of these treatments, such as psychoanalysis, and the with a lot of emotional pressure treatments similar to ERP. One of the great advantages of the third wave treatments and newer treatments, especially the two treatments used in the current research, is that the metacognitive treatment initially targets and weakens the false beliefs and positive and negative metacognitions of the patient and it uses exposure not for a long time, but much less often than previous treatments and in a metacognitive way that reduces the amount of pressure that is brought to the clients. It targets emotions directly and saves time. Although research has been conducted on the effects of the treatments above on people with OCD symptoms, it appears that the main hypothesis of the research, comparing the two treatments, MCT and EFT, in their comparative effectiveness to stop signals and fusions of thoughts in OCD disorder, has not been examined. To this end, this research was conducted to examine the effectiveness of these treatments separately on dependent variables and compare these two treatments on these components.

Method

Participants

The current study utilized a quasi-experimental design with pre-and post-tests and a control group that was followed for two months after the treatment.

The population comprised all Markazi province residents (particularly Arak city). Availability sampling through referrals and information in health centers, psychiatrists', information sites, and social pages were used to select individuals. The sample were meticulously selected based on the inclusion and exclusion criteria.

The inclusion criteria were receiving a diagnosis of obsessive-compulsive disorder based on the individual SCID-5 clinical interview, minimum score of 15 in the Yale-Brown test and a diagnosis by a psychiatrist or clinical psychologist, with a minimum age of 18 years, a maximum age of 55 years, and a minimum education degree of 12 years, and education with the ability to read and write to comprehend questionnaire content.

The exclusion criteria were possessing a comorbid disorder that is more severe than OCD symptoms such as major depression or psychosis psychotic disorders, receiving the diagnosis of having a specifier, lacking insight, and entering the treatment at the request of another person, having physiological brain problems according to the doctor's diagnosis, such as brain damage, tumor, or epilepsy, or involvement in the abuse of drugs.

Instrument

Yale-Brown Obsessive-Compulsive Scale (Goodman & Rasmussen, 1989):

It is a semi-structured interview designed to measure the level of compulsions and Obsessions, irrespective of the content of obsessions and the number and type of

current compulsions (Steketee & Frost, 1994). Interrater reliability and test-retest reliability of the Yale-Brown Questionnaire have been reported to be suitable for examining symptom change in OCD disorder (Woody et al 1994).

The Thought Fusion Instrument(TFI) (Gwilliam et al, 2004):

This questionnaire is a 14-item self-assessment test that measures common beliefs regarding the significance and ability of the thoughts. For this test, a satisfactory internal consistency coefficient was also recorded. In addition, they reported the item's total correlation to be between 0.35 and 0.78. Gwilliam asserts a significant relationship between the thought fusion questionnaire, meta-cognitive beliefs, and thought-interaction questionnaires.

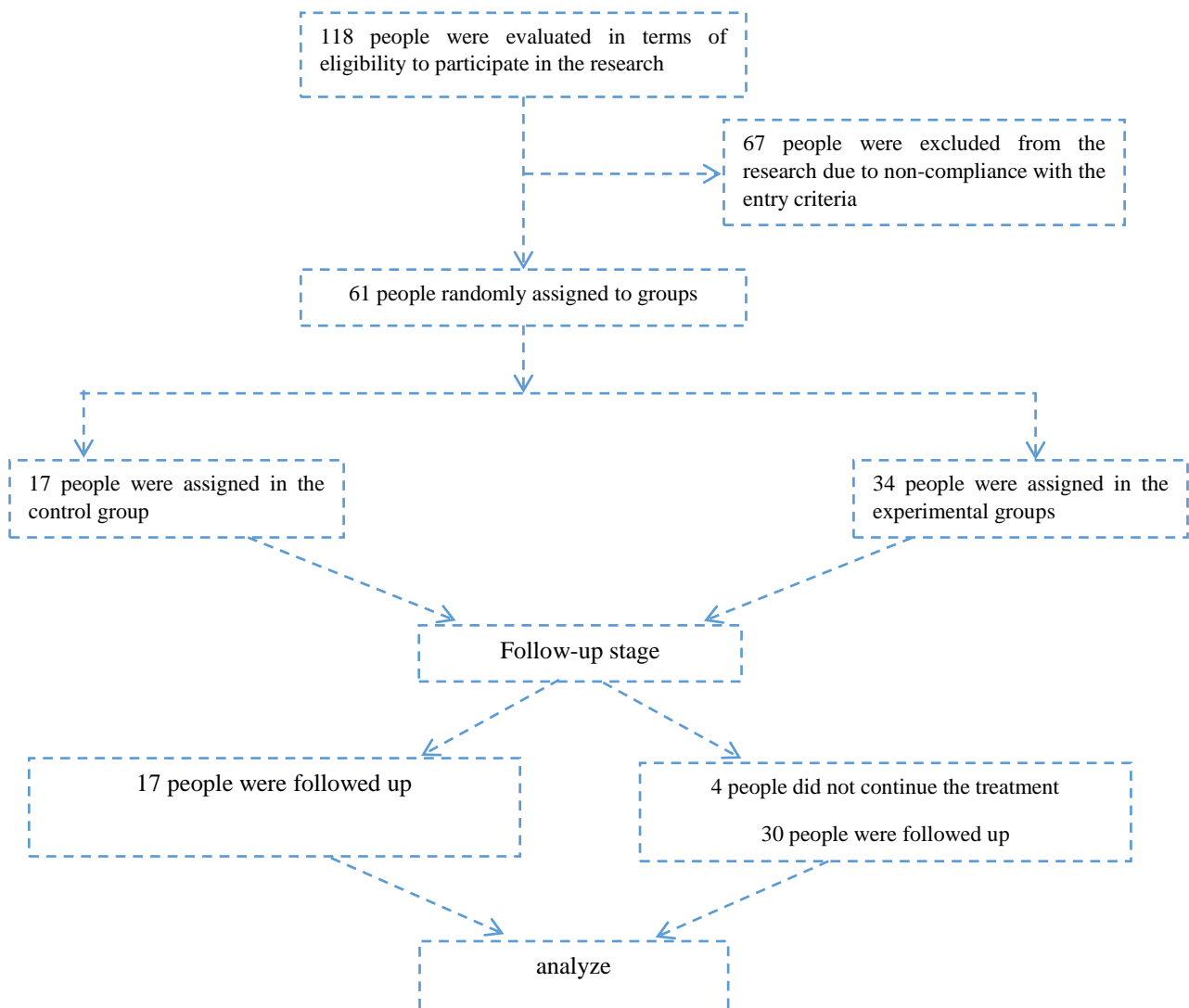
The Myers stop signal questionnaire (SSQ) (Myers et al.,2008) :

Regarding rituals that most people occasionally perform. This questionnaire consists of 12 items that measure the significance of specific decision criteria to end obsessive formalities and rituals. In the study by Myers et al. (2008), the test-retest reliability after three months was reported to be 0.63, which is acceptable.

SCID-5 (first et al.,2016):

The Structured Clinical Interview for DSM-5 Disorders Clinician Version guides the clinician step-by-step through the DSM-5 diagnostic process.

Consort flow chart:



Procedure

The following therapeutic protocols were applied to two treatment groups: Each group began with 16 individuals, a different therapist, and the assistance of a different therapist (each group of one therapist and a

supervisor different from the other group) and the participants/outcome assessment were blinded. The clients completed post-test questionnaires after the sessions, after the process, and were followed up with two months later.

Table 1. The abbreviation of MCT protocol for OCD (Wells, 2009, Translated by Akbari, 2015 and Asl Alavi et al., 2020)

Session	-Interventions
First	Introduction, making good relationship, expressing the importance and goal of Metacognitive therapy and clients' familiarity with this therapy
second to tenth	Group treatment based on metacognitive beliefs and changing these beliefs through exercises related to therapeutic protocol, such as attention training technique (ATT), situational attentions refocusing (SAR), detached mindfulness, exposure and response commission (ERC), and exposure and response prevention (ERP)

Table 2. The abbreviation of EFT protocol for OCD (Brennan et al. 2014, Thompson & Girz ,2020, Wnuk et al., 2015 and Timulak & Keogh,2022)

Session	Interventions
pre sessions	The sessions began with an interview to identify the emotional structure, the core emotional pain, and the conflict of the client, as well as to assess the client's readiness to perform two chair work and unfinished business with an empty chair work. The clients then entered the group
First	The first session consists of the therapist's introduction, an introductory acquaintance, an explanation of the group's rules, the follow-up and post-test period, general client familiarity with the disorder's symptoms and EFT treatment, and the types of emotions.
second to tenth	From subsequent sessions until the end of treatment, approximately 10 to 15 minutes were devoted to a general evaluation of the client's emotions at the beginning of each session; they were then randomly assigned to the two-chair dialogue based on the conflict specified in the pre-session of their treatment for OCD. Due to the dynamics of the EFT treatment, some issues have been resolved in the two-chair dialogue, while others began with the two-chair dialogue and progressed to empty chair work and unresolved issues with the most important person in their lives before settling down. Occasionally, the technique of role-playing two chairs was utilized for self-interruption. In each session, two people sat on the chair individually and in turn, and after each session, group members expressed their feelings about observing the process from the chairs.

Results

All participants in the treatment and control groups were demographically similar peers, the amount of F in the 3 groups for the age variable is equal to 0.172 and the sig is .842, the chi-square value in 3 groups in terms of gender is equal to 0.511 and the sig is 0.774 , the chi-

square value in 3 groups in terms of education is equal to 6.252 and the sig is 0.181, the chi-square value in 3 groups in terms of marital status is equal to 1.136 and the sig is 0.567 , the chi-square value in 3 groups in terms of employment status is equal to 1.535 and the sig is 0.464. It shows that all variables are equal.

Table 3. Standard deviation and mean for dependent variables in the experimental and control groups

Dependent variables	Step	Mean			Standard deviation		
		EFT	MCT	Control group	EFT	MCT	Control group
Thought fusion	Pre-test	55.44	47.14	46.59	15.38	23.211	22.83
	Post-test	11.75	10.43	39.29	7.15	10.41	26.99
	Follow up	11.81	14.29	38.29	11.71	13.18	22.93
Stop signals	Pre-test	30.63	32.21	29.35	7.23	7.22	10.92
	Post-test	17.00	12.00	26.18	11.03	7.26	10.24
	Follow up	15.75	13.29	29.06	12.03	8.13	8.37

Individuals with obsessive-compulsive disorder are compared in Table 1 according to the experimental and

control groups' means and standard deviations.

Table 4. Box's M test results on the homogeneous variance matrix and covariance

Dependent variables	Box's M	F	Sig
Thought fusion	29.654	1.458	.084
Stop signals	25.251	1.421	.099

Table 2, the results of this test indicate that the research data does not call into question the assumption of variance-covariance matrices because the meaningful level is greater than 0.05.

The assumption of Mauchly's Sphericity was not confirmed in any research hypotheses; therefore, the statistical pattern of F was rejected. Consequently, the Greenhouse-Geisser Epsilon Test was employed.

Table 5. Between-groups and within-groups mixed ANOVA results for thought fusion and stop signal in metacognitive therapy and emotion-focused therapy

Dependent variable	Source	F	Sig	Influence coefficient	Statistical power
Thought fusion in MCT	Time	51.92	.001	.642	.999
	group	6.05	.026	.173	.662
	time× group	21.30	.001	.423	.999

Stop signals in MCT	Time	67.73	.001	.700	.999
	group	9.21	.005	.241	.835
	time× group	46.42	.015	.615	.999
Thought fusion in EFT	Time	68.50	.001	.688	.999
	group	6.23	.015	.167	.677
	time× group	33.29	.001	.518	.999
Stop signals in EFT	Time	17.51	.001	.361	.999
	group	5.48	.026	.350	.621
	time× group	11.52	.001	.271	.987

According to Table 3, metacognitive therapy and emotion-focused therapy have a significant impact on decreasing thought fusion and stop signals.

Table 6. The post hoc Bonferroni test results for thought fusion and stop signal determine the results' consistency

Dependent variable	Step	Weighted mean	The difference in steps	Mean difference	Sig
Thought fusion in MCT	Pre-test	46.866	Pre-test-Post -test	22.004	.001
	Post-test	24.861	Pre-test-Follow up	20.576	.001
	Follow up	26.290	Post -test-Follow up	-1.429	.715
Stop signals in MCT	Pre-test	30.784	Pre-test-Post -test	11.695	.001
	Post-test	19.088	Pre-test-Follow up	9.611	.001
	Follow up	21.172	Post -test-Follow up	-2.084	.053
Thought fusion in EFT	Pre-test	51.013	Pre-test-Post -test	25.491	.001
	Post-test	25.522	Pre-test-Follow up	25.960	.001
	Follow up	25.053	Post -test-Follow up	.469	.999
Stop signals in EFT	Pre-test	29.989	Pre-test-Post -test	8.401	.001
	Post-test	21.588	Pre-test-Follow up	7.585	.001
	Follow up	22.404	Post -test-Follow up	-.816	.999

Table 4 demonstrates that metacognitive therapy and emotion-focused therapy affected thought fusion and stop signals during the post-test phase and that this effect was maintained during the follow-up phase.

Table 7. Pairwise comparisons using Bonferroni's post hoc test of thought fusion and stop signals to determine more effective treatment

Dependent variable	Intervention groups	Comparison group	Mean difference	Sig
Thought fusion	Metacognitive therapy group	Control group	-17.440	.001
	Emotion-focused therapy group		-15.059	.001
Stop signals	Metacognitive therapy group	Control group	-9.029	.001
	Emotion-focused therapy group		-7.071	.001

According to Table 5, the mean difference between the metacognitive treatment group and the control group (-17.440) in thought fusions is greater than the mean difference between the emotion-focused therapy group and the control group (-15.059) and the mean difference between the treatment group and the control group. In reducing thought fusion and stop signals, the mean difference between metacognitive treatment and the control group (-9.029) is greater than the mean difference between emotion-focused therapy and the control group (-7.071), indicating that metacognitive treatment is more effective than emotion-focused therapy.

Discussion

The results of the study showed that both EFT and MCT were effective in alleviating the symptoms of stop signals and thought fusions during the post-test and follow-up periods, which is consistent with the findings of numerous studies (Fisher & Wells, 2008; Singh et al., 2004; Plate & Aldao, 2017; Allen & Barlow, 2009; Mohammad Khani, 2013; Shamel, 2019; Zwiigenbaum et al., 2013). The results indicated that in terms of thought fusion, the mean difference between the MCT group and the control group (-17.440) was greater than

the mean difference between the EFT group and the control group (-15.059), and the mean difference between the MCT group and the control group (-9.29) was greater than the mean difference between the EFT group and the control group (-7.071) in stop signals. Researchers believe that clients with obsessive-compulsive disorder exhibit various emotional problems, such as intense reactions to emotional experiences and difficulties regulating negative emotions (Shamel, 2019). The techniques utilized in this treatment, such as providing awareness and training regarding positive and negative emotions, reprocessing, and unconditional acceptance, empower the individual to regulate emotions rather than suppress them. Moreover, in this manner, profound experience and acceptance result in the form of self-awareness. (Greenberg, 2010). The techniques of two chairs and an empty chair, commonly used in the second and third stages of EFT treatment, evoke negative feelings toward the individual or his significant others (Watson, 2011). Emotion-focused therapy allows patients with obsessive-compulsive disorder to manage their negative emotions, such as anxiety and depression. Two emotions have been identified by Abramowitz et al. (2003) as significant factors in the persistence of

obsessive-compulsive disorder. When patients with obsessive-compulsive disorder successfully reduce self-criticism and shame, the likelihood of this disorder persisting decreases.

In explaining the efficacy of metacognitive therapy, it is important to note that the therapy's emphasis has shifted from a constant focus on obsessive thoughts to the realization that obsessive thoughts do not necessarily lead to action (van der Heiden et al., 2016). People who undergo metacognitive therapy learn to detach themselves from disturbing thoughts and recognize that they are unrelated to subsequent processes and actions. In the therapeutic model, this is possible by correcting the metacognitive beliefs that give special significance to obsessive thoughts (Fisher & Wells, 2008).

In addition, since there is a positive and significant correlation between thought fusion and obsessive symptoms, it is reasonable to assume that the reduction of obsessive-compulsive disorder symptoms will lead to a decrease in thought fusion (Gwilliam et al., 2004). Furthermore, treatment focuses on correcting the beliefs about norms, standards, and inappropriate internal styles that people with OCD use to assess the level of danger in a given situation (Nayebaghayee et al., 2019). Metacognitive therapy effectively reduces fusions through the use of verbal challenge techniques, the design of behavioral experiments, and the confrontation and prevention of metacognitive responses (Ayatmehr & Sadeghpour, 2018). Considering that this treatment method works with thoughts and awareness of thoughts by making the way to change thoughts easier, it causes people to view the need to control their thoughts as less important, and this need decreases in them over time (Ahangar & Asadi, 2020).

Because emotion-focused therapy focuses on emotions and searches for and treats the core emotional pains of clients based on emotional schema (Elliot, 2014, as translated by Ramezani et al., 2022), it is possible to explain the overall result and the central question of the study by stating that the patient's symptoms of obsession have generally improved. Stop signals and thought fusions are also components of these symptoms, and it is not unreasonable to anticipate that, as a result of this general improvement, the symptoms of these two components will also diminish. However, metacognitive therapy is a therapy that emphasizes clients' metacognitive beliefs. It encourages clients to deal with these symptoms through exercises, practical solutions, and a focus on thought fusions and stop signals (Wells, 2003, 2008, 2012, translated by Mohammad Khani, 2013), which may explain why this treatment is more effective than Emotion-focused therapy in reducing these components. The mean difference between the two treatments and the control group demonstrated that MCT is more effective than EFT at reducing the specified components. Furthermore, based on the data in the findings section, MCT treatment is more effective than EFT for improving stop signals and thought fusions in individuals with obsessive-compulsive disorder.

Conclusion

This research had limitations, such as the fact that fewer men participated, and to generalize the results to the general population, more men must participate in similar research. It is also possible to use longer follow-up periods, such as six months and one year, to evaluate the longevity of research results.

Ethics code

This article with an IRSUMS ethics code of REC.1400.847.

Conflict of interest

The author has no conflicts of interest to disclose.

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