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**METACOGNITIONS AND RUMINATIVE THOUGHT IN DEPRESSED INDIVIDUALS*
DEPRESİF BİREYLERDE ÜSTBİLİŞLER VE RUMİNATİF DÜŞÜNME**

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ABSTRACT

It is known that the repetitive and persistent ruminative thought style in depression is closely related to metacognition. In Türkiye, studies on this subject in depressed patients are relatively limited. This study aimed to examine the relationships between metacognitions and ruminative thought style in individuals diagnosed with depression. The data was collected between 01.05.2021 and 31.12.2022 from 210 depression patients who applied to psychiatric clinics of a state hospital in the Black Sea Region. Introductory Information Form, Ruminative Thought Style Scale and Metacognition-30 Scale were used to collect data. The Spearman correlation test was used to determine the correlations. Path analysis was used to test how metacognitions predicted ruminative thought in depressive individuals. It was determined that there was a statistically significant and moderately positive correlation between the mean scores of ruminative thought style and psychopathological metacognitive activity ($r=0.477$; $p<0.01$). In addition, according to the established path model, 36.5% of the variance changes in the ruminative thought style are explained by this model. It was determined that the effect of psychopathological metacognitive activities on variance changes in ruminative thought was 60.7%. It is seen that there is a relationship between problematic metacognitions and ruminative thought. Studies in the literature support this result. This study, which determined that metacognition and sub-dimensions are related to rumination in individuals diagnosed with depression in a Turkish sample, will serve as a reference for therapy approaches to be applied to individuals with depressive symptoms.

ÖZ

Depresyonda tekrarlayıcı ve süreklilik arz eden ruminatif düşünce biçiminin üst bilişlerle yakından ilişkili olduğu bilinmektedir. Türkiye’de ise depresif hastalarda bu konuda yapılan çalışmalar oldukça sınırlıdır. Bu çalışmada depresyon tanısı almış bireylerde üst bilişler ve ruminatif düşünme biçimi arasındaki ilişkileri incelemek amaçlanmıştır. Veriler Karadeniz Bölgesi’nde yer alan bir devlet hastanesi psikiyatri kliniklerine başvuran 210 depresyon hastasından 01.05.2021-31.12.2022 tarihleri arasında toplanmıştır toplanmıştır. Verilerin toplanmasında Tanıtıcı Bilgi Formu, Ruminatif Düşünme Biçimi Ölçeği ve Üst biliş-30 Ölçeği kullanılmıştır. Korelasyonları belirlemek amacıyla Spearman korelasyon testi uygulanmıştır. Üst bilişlerin depresif bireylerde ruminatif düşünme biçimini ne ölçüde yordadığını test etmek amacıyla path analizi kullanılmıştır. Ruminatif düşünme biçimi ve psikopatolojik üst bilişsel faaliyet puan ortalamaları arasında pozitif yönde orta düzeyde istatistiksel olarak anlamlı bir ilişki olduğu belirlenmiştir ($r=0.477$; $p<0.01$). Ayrıca kurulan path modeline göre ruminatif düşünme biçimindeki varyans değişimlerinin %36.5’inin bu model tarafından açıklandığı ve ruminatif düşünme biçimindeki varyans değişimlerinde psikopatolojik üst bilişsel faaliyetlerin etkisinin %60.7 olduğu belirlenmiştir. Sorunlu üstbilişlerle ruminatif düşünce arasında ilişki olduğu görülmektedir. Bu bulgu literatürde yer alan çalışmalarla desteklenmektedir. Türkiye örnekleminde depresyon tanısı almış bireylerde üst biliş ve alt boyutlarının ruminasyonla ilişkili olduğunu belirleyen bu çalışma, depresif semptomları olan bireylerde uygulanacak terapi yaklaşımları için bir referans görevi görecektir.

Keywords: Depression patient, metacognition, ruminative thought

Anahtar kelimeler: Depresyon hastası, üstbiliş, ruminatif düşünme

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INTRODUCTION

Flavell first defined the concept of metacognition as having knowledge about one's own thinking processes and using this knowledge to monitor, evaluate, and control cognitive processes.¹ Metacognitive abilities begin to develop during childhood. The child who starts to learn about the world he/she lives in during infancy also gains the ability to think about what he/she has learned over time.² It is known that the social environment and culture in which people live are effective in the cognitive development process.³ However, cultural conditions are also thought to play a role in the development of metacognition, which refers to an individual's ability to evaluate information.⁴ Metacognition, a concept defining high-level cognitive skills, is associated with learning, behavior regulation, and awareness.^{5,6} However, some dysfunctional thinking and coping strategies in psychopathology may originate from metacognitive processes.⁷⁻⁹

It has been reported that recurrent and uncontrollable anxiety in psychopathological processes is closely related to metacognitive beliefs, and maladaptive metacognitions are used more.⁷ It can be said that this situation is valid for many mental disorders, including depression.^{7,10} It is stated that in depression, the metacognitive structure is dominated by thoughts about the past rather than anxious thoughts, and this situation reduces problem-solving skills and adds low confidence.¹¹

According to metacognitive theory, negative emotions and thoughts that cause psychopathological processes are normal and temporary in most people. However, the reason for the persistence and recurrence of these negative feelings and thoughts is the activation of a specific thought system called cognitive attention syndrome in individuals with high sensitivity.¹² Ruminative thoughts characterize cognitive attention syndrome and worry, excessive self-directed attention, impaired cognitive functioning, biased attention, inappropriate coping that interferes with learning from experiences, and problematic metacognitions are responsible for its activation.^{12,13}

Ruminative thought can be defined as continuous inefficient thinking of the problem and repetitive and continuous depressive thinking.^{11,14} Generally, individuals cannot develop a strategy to solve problems during ruminative thought. Instead of developing an appropriate and applicable strategy, they tend to obsessively and passively think about the situation and nature of the problem over and over again.¹⁵ This way of thinking also restricts the communication of emotions.¹⁶ It is stated that this situation is valid in depression and increases the severity and duration of depressive

symptoms such as sadness, excessive anxiety and thinking about the past.^{11,15}

It is argued that ruminative thought, which has an essential place in depression, is closely related to metacognition.¹¹ While Cognitive Theory explains the way of thinking in depression by the fact that the individual has negative schemas about himself, his future, and the world, Metacognitive Theory emphasizes being stuck in a depressive state.^{12,13} In this case, the effect of ruminative thought is observed. Many studies show a relationship between metacognitions and ruminative thought.^{17,18} However, considering the cultural learning processes that play a role in the development of metacognition, studies to be conducted in different countries and cultures are considered essential.⁵ In Türkiye, it is seen that the number of studies addressing the relationship between metacognitive processes and ruminative thought style in patients with depression is limited.¹⁹

This study examined the relationships between metacognitions and ruminative thought in individuals diagnosed with depression. Determining the relationships between problematic metacognition and ruminative thought in depressed patients is vital to understanding the links between these two variables that affect the severity of depression. Considering the development of metacognitive processes with cultural processes, it is thought that this study conducted in Türkiye will contribute to the field. In this context, answers were sought to the following research questions.

Question 1: Is there a relationship between metacognitive processes and ruminative thought in depressed individuals?

Question 2: Does the metacognitive processes affect ruminative thought style of depressed individuals?

MATERIALS AND METHODS

Method of the Study

The research was conducted as a cross-sectional and descriptive relational study to investigate the relationship between metacognitions and ruminative thought style in depressed individuals in depth by establishing structural equation modeling.

Population and Sample of the Study

The study population consisted of patients who applied to psychiatry clinics of a state hospital. Since the study had a similar design to the study conducted by Dragan & Dragan (2014)²⁰ with patients with anxiety disorder, the sample calculation was calculated based on this study. In line with the recommendation of the literature, the study sample consisted of 210 individuals with depression, paying attention to the fact that the

number of variables in the model should be between 10-20 times the number of variables in the model and not less than 200 and taking missing data into account.²¹

Inclusion Criteria

Study:

- 18 years and over
- Can speak and understand Turkish
- Literate
- Diagnosed with depression
- Individuals who approved the informed consent form were included.

Exclusion Criteria

- Under 18 years of age
- People with mental disorders other than depression
- Illiterate people
- Individuals who do not agree to participate in the study will be excluded.

Data Collection Forms in the Research

Data were collected using a descriptive information form including socio-demographic information (age, gender, year of diagnosis, etc.), the Ruminative Thought Style Scale, and the Metacognition Scale-30.

Introductory Information Form

The descriptive information form consists of 12 questions about gender, age, year of diagnosis, whether or not she/he was hospitalized, family's monthly income, whether they work or not, thoughts about recovery, religious/spiritual values, death, values, self-perception, and goals.

Ruminative Thought Style Scale

This study used the Ruminative Thought Style Scale developed by Brinker and Dozois (2009), which tries to evaluate the individual's thought style in general without considering the individual's current mood.²² The scale has a 7-point Likert-type scoring system and consists of 20 items. Scoring is done by giving a score between 7=describes me very well, and 1= does not describe me at all. The scale examines ruminative thought as repetitive, uncontrollable, intrusive, and reflexive. The scale, which has no cut-off point, evaluates the ruminative thought tendencies of individuals.²² The lowest score on the scale is 20, and the highest is 140. Higher scores on the scale indicate an increase in the ruminative thought of individuals.

The Cronbach's alpha internal consistency reliability coefficient of the scale, validated by Karatepe et al. (2013), was calculated as 0.90 and determined to be a reliable measurement tool for evaluating the ruminative thought style.²³ In our study, this value was determined as 0.93.

Metacognition Scale-30

The short form of the scale, developed by Wells

and Cartwright-Hatton (2004) in 1997 to assess various dimensions of metacognitive activities associated with psychopathology, has 30 questions in its short form, while its first form included 65 questions. The scale has a 4-point Likert-type scoring as 1: strongly disagree; 2: somewhat disagree; 3: somewhat agree; 4: strongly agree and consists of 30 questions. It consists of 5 subscales: positive beliefs about worry, uncontrollable thoughts and danger, cognitive confidence, the need to control thoughts, and cognitive awareness. Higher scores indicate higher metacognitive activity in psychopathological form.²⁴

Tosun and Irak (2008) reported that the factor structure of the Turkish form of the scale, whose Turkish validity and reliability was conducted by them, was the same as the original form.²⁵ Questions 1,7,10,20,23, and 28 constitute the positive beliefs sub-dimension and include positive beliefs about worrying and that worrying is helpful in problem-solving. A high score in this dimension indicates a high belief that worrying helps solve problems and avoid unwanted situations. Questions 6,13,15,21,25, and 27 constitute the dimension of uncontrollability of thoughts and danger and include the belief that one needs to control one's worries and that thoughts cannot be controlled to fulfill one's functions and stay safe. Questions 8,14,18,24,26, and 29 constitute the cognitive confidence dimension, and the high score obtained from the cognitive confidence dimension, which includes the lack of confidence in one's memory and attention, indicates that the person has low cognitive confidence. Questions 2,4,9,11,16, and 22 constitute the need to control the thoughts dimension and the need to control negative beliefs, including the themes of being punished and responsible. A high score in this dimension indicates that people need to control their thoughts. Questions 3,5,12,17,19 and 30 constitute the dimension of cognitive awareness and refer to dealing with one's thought processes. People with high scores in this dimension tend to observe and examine their own thoughts and thought processes.²⁵

As a result of the analysis of the scale's reliability, it was found that the internal consistency Cronbach Alpha value of the scale was 0.93, and the Alpha values for the subscales ranged between 0.72 and 0.93. In addition, the Cronbach Alpha reliability coefficient for the whole scale is 0.86. In our study, this value was found to be 0.84.

Data Collection and Ethical Disclosures

Data were collected from patients admitted to state hospital psychiatry clinics between 01.05.2021 and 31.12.2022. Depressive individuals who applied to the hospital's psychiatric clinic

as outpatients and volunteered to participate in the study were recruited. Data forms were given to the patients, and they were asked to fill them in themselves. The researcher was present with the patients during this process. In addition, approval was obtained from the Clinical Research Ethics Committee of a state university (Approval no: 21-KAEK-097; Approval date: 04.03.2021), institutional permission from the Provincial Health Directorate (Approval no: E-87064461-044; Approval date: 12.03.2021), and verbal and written informed consent from the patients.

Statistical Analysis of Data

The data obtained from the research were evaluated in a computer environment. In the data evaluation, descriptive statistics, the Shapiro-Wilk test was applied to evaluate conformity to normal distribution. Since the data did not conform to a normal distribution, and the Spearman correlation test was used to determine correlations. A value of $p < 0.05$ was considered statistically significant in the comparisons. Path analysis was used to test the extent to which psychopathological metacognitive activities predict ruminative thought in depressed individuals through the LISREL 8.71 program.

Path analysis is a statistical method that offers the opportunity to identify and model missing conditions and test them. In path analysis, missing data are used in the model. Path analysis, an applied regression analysis method, tests complex hypotheses using path graphs (Glozah & Pevalin, 2014). Path analysis is a method that allows us to obtain much more information about processes that are considered ordinary. With this method, direct or indirect effects of an independent variable or variables on the dependent variable or variables can be seen.²¹ In path analysis, the Chi-square (X^2) value is close to zero, Degrees of freedom (df) > 0 and $p > 0.05$, $p < 0.05$, CMIN/DF < 3 , Goodness of Fit Index (GFI) > 90 , Adjusted Goodness of Fit Index (AGFI) > 90 , Comparative Fit Index (CFI) > 90 and Root Mean Square Error of Approximation (RMSEA) < 0.05 for model fit indices.²¹

RESULTS

Among the depressed individuals who participated in our study, 66.7% were male, the mean age was 34.80 ± 11.66 , 62.9% were diagnosed with depression within five years, 55.2% were hospitalized for the first time, 60.0% were not working at any job, and 74.3% thought that they would recover. When the difference between the scale scores according to the descriptive characteristics of the individuals was examined, no statistically significant difference was found between the scale scores according to any of the descriptive charac-

teristics, including gender, income status, duration of diagnosis, whether hospitalized or not ($p > 0.05$). According to Table 1, it is seen that the mean scores of ruminative thought style and psychopathological metacognitive activity of depressed individuals who participated in the study are pretty high. In this context, it was determined that there was a statistically significant positive relationship between the mean scores of ruminative thought style and psychopathological metacognitive activity ($r = 0.477$; $p < 0.01$). Similarly, it was determined that there was a statistically significant relationship between ruminative thought style and psychopathological metacognitive activity sub-dimensions at a weak level in a positive direction ($p < 0.01$).

The path model created within the research was analyzed in a computer environment. The results of the path model analysis in Figure 1 show that the model produced goodness-of-fit values and fit the data ($X^2 / df = 2.338$ ($X^2 / df < 3$)). The model was found to be an oversaturated and desirable model ($df = 8$ ($df > 0$)). When we look at the model fit indices, it is seen that GFI = 0.97, AGFI = 0.92, CFI = 0.94, and RMSEA = 0.080, and the model fits the data. In addition, 36.5% of the variance changes in ruminative thought style, 15.6% of the variance changes in cognitive awareness, 47.6% of the variance changes in need to control thoughts, 27.5% of the variance changes in cognitive confidence, 44.1% of the variance changes in uncontrollability of thoughts and danger, and 17.3% of the variance changes in positive beliefs about worry are explained by this model (Table 2 = Squared Multiple Correlation). In addition, the effect of psychopathological metacognitive activities on variance changes in ruminative thought was 60.5%. According to these calculation values given for the model, the significance levels between the variables are given in Table 2.

DISCUSSION

In the study, the relationship between ruminative thoughts and metacognitions in individuals diagnosed with depression was examined. In order to examine this relationship in detail, the correlations between the sub-dimensions of the metacognitions scale and ruminative thought were evaluated separately. After the analysis, it was seen that there was a positive and significant relationship between rumination and all sub-factors of metacognition. According to the level of relationship, the variables associated with rumination are the uncontrollability of thought, cognitive confidence, positive beliefs about worry, the need to control thoughts, and cognitive awareness. However, in the current study, it was found that problematic

Table 1. Correlation Values of Depressive Individuals' Age, Ruminative Thought Style Scale (RTSS), Metacognition Scale (MCS), and Subscale Means and Correlation Values

Variables	X± SD	1.	2.	3.	4.	5.	6.	7.	8.
Age	34.80±11.66	-	.008	.156*	.030	.127	.117	.117	.155*
RTS	100.96±23.41		-	.477**	.337**	.371**	.361**	.307**	.171**
MC	79.78±13.33			-	.529**	.678**	.652**	.692**	.539**
PBW	15.63±4.42				-	.153*	.260**	.123	.174*
UTD	15.92±3.78					-	.326**	.510**	.282**
CC	15.02±4.66						-	.323**	.120
NCT	16.15±4.16							-	.307**
CA	17.04±3.78								-

Notes: *0.05; **0.01; RTS: Ruminative Thought Style; MC: Metacognition; PBW: Positive Beliefs About Worry; UTD: Uncontrollability of Thought and Danger; CC: Cognitive Confidence; NCT: Need to Control Thoughts; CA: Cognitive Awareness

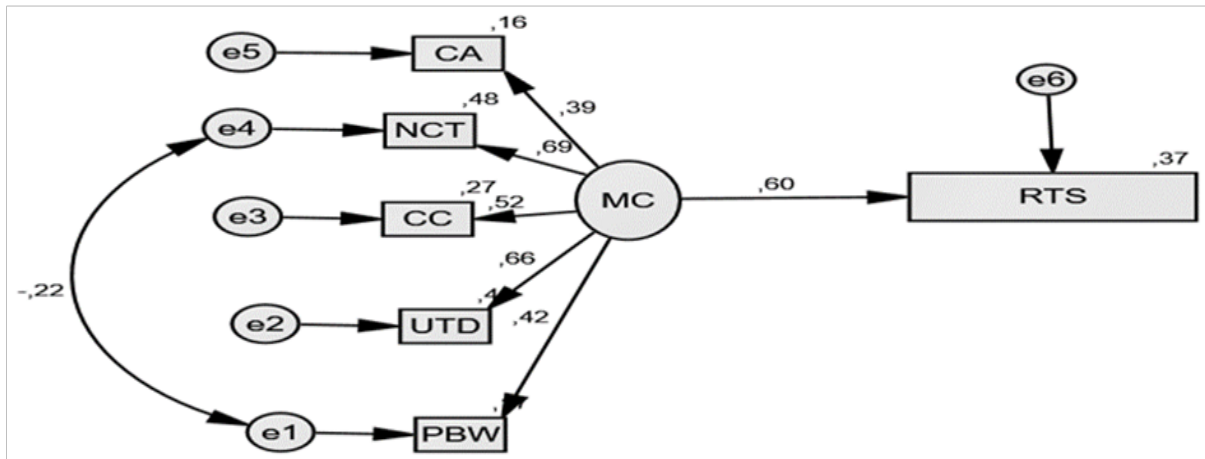


Figure 1: Standardized parameter values of the path model

RTS: Ruminative Thought Style; MC: Metacognition; PBW: Positive Beliefs About Worry; UTD: Uncontrollability of Thought and Danger; CC: Cognitive Confidence; NCT: Need to Control Thoughts; CA: Cognitive Awareness

metacognitions predicted rumination in individuals diagnosed with depression. Within the scope of the study, the findings indicating the relationship between problematic metacognitions and rumination were also supported by previous studies.^{18,26} According to the metacognitive model of rumination and depression (MCM), negative thoughts and emotions initially activate metacognitive beliefs about the usefulness of rumination.²⁷ In this situation, one aims to protect oneself against the possibility of repetition of the negative situation. As a result, the individual experiences more rumination. However, rumination makes it difficult for the individual to effectively problem solving and causes negative affect. As a matter of fact, there are studies indicating the relationship between rumination and metacognitions with depression symptoms in both clinical and non-clinical samples.²⁸⁻³⁰ Rumination is a thought style involving repetitive thoughts about personal

problems. Problematic metacognitions may predict individuals' ruminative thought styles.²⁹ In fact, in the model established within the scope of the study, it is seen that there is a moderate positive relationship between the uncontrollability of thought and danger, which is a sub-dimension of metacognitions, and ruminative thoughts. It is known that ruminative thought is common in depression.³¹ Metacognitive processes, which include being aware of one's own ruminative thoughts and perceptions that these thoughts cannot be controlled, are likely to have a mutual relationship with ruminative thought.¹⁷ According to the analysis results, a moderate positive relationship exists between the need to control thoughts sub-dimension and rumination. Rumination refers to obsessive and difficult-to-control thoughts. It is possible that individuals are aware of rumination and feel discomfort and need for control.¹⁷ This may be a negative situation for

Table 2. Regression Weights and Standardized Regression Weights for the Model

Variables	Unstandardized B	Standardized B	S.E.	t	p
CC<-----MC	1.344	0.524	0.315	4.274	0.001
RTS<-----MC	7.781	0.605	1.732	4.493	0.001
UTD <---MC	1.363	0.664	0.301	4.600	0.001
PBW <---MC	0.739	0.415	0.266	2.783	0.005
CA <-----MC	0.822	0.395	0.220	3.735	0.002
NCT<-----MC	1.580	0.690	0.354	4.469	0.001
Squared Multiple Correlations					
RTS	CA	NCT	CC	UTD	PBW
0.365	0.156	0.476	0.275	0.441	0.173

Notes: RTS: Ruminative Thought Style; MC: Metacognition; PBW: Positive Beliefs About Worry; UTD: Uncontrollability of Thought and Danger; CC: Cognitive Confidence; NCT: Need to Control Thoughts; CA: Cognitive Awareness

health. Indeed, studies show that rumination negatively affects quality of life and health.^{32,33}

One metacognitive dimension with a moderate positive relationship with ruminative thought is distrust in cognitive processes. It has been found in the literature that there are negative relationships between ruminative thought and cognitive skills such as memory, attention processes, and focusing on individuals with depressive symptoms.^{34,35} It is thought that ruminative thought, which focuses on negative memories common in depression and constantly evaluating oneself around those memories, negatively affects cognitive processes.³⁶

Strong correlations were observed between the positive beliefs about worry subscale and ruminative thought. This situation can be interpreted within the framework of the relevant literature regarding an exaggerated perception of responsibility in individuals with depressive symptoms. Depressive individuals may hold themselves responsible for adverse events.³⁷ In this sense, the individual is likely to feel anxiety with the perception of responsibility, even for variables that he/she cannot control.^{38,39} Studies indicate that metacognitions about the positive consequences of worry are associated with depressive symptoms and rumination.^{18,40}

It was found that there was a low level of positive and significant relationship between cognitive awareness, one of the metacognition sub-factors examined in the study, and rumination. The study conducted by Spada et al. (2021)¹⁸ found that the cognitive awareness sub-dimension predicted rumination, uncontrollability, and danger. In the study conducted by Evli and Şimşek (2021)⁴⁰, it was found that there was a moderate positive re-

lationship between ruminative thought style and cognitive awareness dimension.

The results of this study are limited to patients who depression in a State Mental Health and Diseases Hospitalpsychiatry clinics between 01.05.2021 and 31.12.2022. It is seen that there are different measurement tools to measure metacognition.^{41,42} This study limits the metacognitive variables related to rumination with the measurement tool Metacognition-30.

CONCLUSION

Within the scope of the study, the relationships between rumination and sub-dimensions of metacognitions in individuals diagnosed with depression were discussed separately within the theoretical knowledge and literature framework. This study, which determines which metacognitions are related to rumination in individuals diagnosed with depression in the Turkish sample, will serve as a reference for therapy approaches to be applied in individuals with depressive symptoms. However, to provide more information about which metacognitions predict rumination in individuals diagnosed with depression, studies utilizing different measurement tools to measure metacognitions are thought to be necessary. At the same time, qualitative studies on this subject are considered necessary to collect in-depth data.

Ethics Committe Approval: Tokat Gaziosmanpaşa University Clinical Research Ethics Committee's approval dated 04.03.2021 and numbered 21-KAEK-097 was obtained for the conduct of the study.

Informed Consent: Individuals were informed during the collection of research data and their

consent was obtained.

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