

## Investigating the relationship between university students' resilience, cognitive emotion regulation strategies and metacognitions

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### Abstract

The purpose of this study is to investigate the relationship between university students' resilience level, cognitive emotion regulation strategies and metacognition. The study group of the research consisted of a total of 194 university students, aged between 16 and 47, of which 134 were women and 60 were men. Data collection tools were Metacognition Questionnaire, Cognitive Emotion Regulation Questionnaire (CERQ) and Resilience Scale for Adults. In the correlation analysis, it was seen that resilience showed a significant positive relation with the adaptive CERQ, while the maladaptive CERQ and metacognitions were found to show a significant negative correlation with resilience. In the correlation analysis, it was finally determined that metacognitions did not show a significant correlation with adaptive CERQ but a positively significant correlation with maladaptive CERQ. According to regression analysis, adaptive CERQ, maladaptive CERQ and metacognitions together predicted a 31% variance of resilience.

Keywords: Cognitive, emotion regulation strategies, metacognitions, resilience;

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## 1. Introduction

Resilience refers to an individual's capacity to overcome adversity in his or her life, to achieve positive outcomes despite the risk factors influencing his or her life, and to the behavioural adaptation determined by the individual's internal and external circumstances (Luthar & Cicchetti, 2000; Masten, 2001; Masten & Gewirtz, 2006; Masten et al., 1990). Resilience is an everyday miracle since it is composed of everyday resources and processes (Masten, 2001; Zolkoski & Bullock, 2012). Another critical thing to remember about resilience is that it is not a personality characteristic (Masten, 2001; Zolkoski & Bullock, 2012).

To discuss an individual's resilience, two conditions must exist. The first is that there is a significant danger to the person. The second is that the person should adjust well after this trying experience (Masten & Coatsworth, 1998; Masten & Reed, 2002). As a result, the notion of resilience is inextricably linked to risk. Because there is no risk element in an individual's life, it is stressed that there is no resilience and, therefore, no success (Luthar & Cicchetti, 2000).

The idea of resilience emphasises three critical elements: risk factors, protective factors and positive results. Risk factors are those variables whose adverse effects on a person may be anticipated in the future (Masten & Reed, 2002; Yow et al., 2020). Low birth weight, congenital illnesses, poverty, racial and cultural prejudice, war, terrorism, natural disasters, family disputes and domestic violence, familial psychopathology, divorce, child abuse and divorce are all risk factors (Bowes & Jaffee, 2013; Brooks, 2006; Masten, 2001, 2011, 2014; Masten & Reed, 2002; Zolkoski & Bullock, 2012). On the other side, protective variables enable a person to attain good outcomes despite risk factors and adverse life experiences (Brooks, 2006). By mitigating the negative consequences of hazards, protective factors contribute to protecting and maintaining an individual's mental health (Rutter, 1987). When protective factors are considered, communication skills, social competence, empathy, problem-solving abilities, a supportive family environment, self-regulation, self-esteem and self-efficacy, emotion regulation abilities, humour and a sense of purpose are highlighted (Alvord & Grados, 2005; Benard, 1991, 1993; Masten & Coatsworth, 1998; Masten & Reed, 2002; Rutter, 1987). The third critical characteristic of durability is a favourable outcome. A positive outcome is defined as an individual's capacity to produce good outcomes in the face of risk factors. In other words, an individual can exhibit behaviours appropriate for his/her age and developmental stage, complete developmental tasks, be free of psychopathology, experience happiness and fulfilment in life and demonstrate positive behaviours in his/her social and academic life (Masten, 2001; Masten & Reed, 2002). Consequently, resilience is defined as a notion comprised of risk and protective variables that are moulded by good outcomes. The term 'resilience' stresses the need to concentrate on protective factors and strengths rather than on danger factors (Luthar & Cicchetti, 2000).

Cognitive emotion regulation strategies are coping mechanisms for aversive or stressful life experiences (Garnefski et al., 2001; Hou et al., 2022; Liu et al., 2023). Self-blame, other-blame, ruminating and catastrophising are considered maladaptive emotion regulation methods; Positive refocusing, acceptance, refocus on planning, positive reappraisal and putting into perspective are adaptive emotion regulation strategies (Bajovic & Rizzo, 2021; Garnefski et al., 2001). The term 'cognitive emotion regulation' refers to the conscious cognitive processes associated with emotion control. As a result, cognitions are the primary mechanism for regulating emotions (Joormann et al., 2010; Vally & Ahmed, 2020; Zhang et al., 2022). As a result, cognitions may assist people in regulating, managing and controlling their emotions during times of stress and difficulty in their lives (Garnefski et al., 2001).

Psychopathology seems to be associated with studies investigating the connection between cognitive emotion control techniques and psychopathology. They discovered significant associations between depression and anxiety and catastrophising, rumination, self-blame and low positive refocus, as well as that adaptive and maladaptive strategies predicted depression and anxiety (Aldao & Nolen-Hoeksema, 2010; Ataman, 2011; Garnefski et al., 2009; Garnefski & Kraaij, 2006; Min et al., 2013).

Metacognition is the process through which cognitions about cognitions or thinking about thinking to occur (Flavell, 1979; Safari & Yousefpoor, 2022). Metacognition is a notion that is still evolving in a variety of areas. Metacognition is a term often used in cognitive psychology, education and learning psychology (Karakelle & Saraç, 2010). It is addressed and analysed in this research from the viewpoint of metacognitive therapy. Metacognition is a collection of interconnected variables that includes any information or cognitive activity used to analyse, monitor or regulate cognition (Wells, 2013).

Metacognitive therapy is based on self-regulatory executive function (S-REF model). This model is composed of four ideas about the persistence of negative thoughts linked with dysfunctional emotions. These ideas include cognitive attentional syndrome, metacognitive beliefs, attention or executive control, as well as mental modes. Numerous psychiatric disorders, according to metacognitive treatment, are directly related to cognitive attention syndrome. Metacognition has a role in selecting and implementing thinking patterns in cognitive attention syndrome (Wells, 2013). Metacognitions are classified as either excellent or negative.

Positive metacognition is concerned with the benefits and disadvantages of cognitive activity. For instance, 'Worrying will assist me in avoiding difficulties'. 'Concentrating attention on dangers is beneficial'. Negative metacognitions are those that assert that the cognitive experience is harmful, significant and uncontrolled. For instance, 'My ideas will do me damage'. My anxiousness is out of control. I am going insane 'comparable' (Wells, 2008, 2009, 2013). Wells (2013) asserts that metacognitive knowledge and beliefs are critical in understanding psychiatric illnesses. Positive and negative metacognitions influence how a person views and utilises the content of his ideas. Studies conducted with both clinical and normal individuals reveal a relationship between depression and anxiety and metacognition (Fisher et al., 2018; Huntley & Fisher, 2016; Nordahl et al., 2018; Nordahl & Wells, 2017; Papageorgiou & Wells, 2009; Yılmaz, 2016; Yılmaz et al., 2015).

When the literature is analysed, it is discovered that there is a significant relationship between resilience and emotion regulation strategies (Ateş & Sağar, 2021; Kır, 2021; Majidpoor Tehrani & Aftab, 2021; Öztürk, 2019), that cognitive emotion regulation strategies predict resilience (Mestre et al., 2017; Min et al., 2013), that cognitive emotion regulation strategies act as a moderator in the relationship between perceived social support and resilience (Pejičić et al., 2018). That resilience is the partial mediator between test anxiety and perceived social support and the full mediator between emotional regulation and test anxiety (Totan et al., 2019). Similarly, among coping methods, positive review and destruction, which are subdimensions of emotion regulation and planned issue resolution and taking responsibility, were shown to be significant predictors of resilience (Wilson et al., 2022; Yöndem et al., 2021).

Another research showed that childhood maladaptive schemas and cognitive emotion control techniques were predictive of resilience (Gorji & Salehi, 2020). As can be seen, these three ideas, which are critical for comprehending psychopathology and safeguarding and improving mental health, are examined independently in the literature. The purpose of this research is to add to the literature by studying these three ideas concurrently. One might argue that a person's cognitive and emotional coping mechanisms in the face of difficult life circumstances can affect his mental health.

### *1.1. Purpose of study*

Given that resilience is associated with an individual's thinking and belief system, it stands to reason that the meaning a person places on their experiences would influence their coping methods and, therefore, mental health. At this point, it can be concluded that investigating the connection between metacognition, which can be described as an individual's thoughts about his or her ideas, cognitive emotion control techniques and resilience, may benefit mental health research. This study aims to investigate the connections between resilience, cognitive emotion control strategies and metacognition in university students.

## 2. Materials and Methods

### 2.1. Participants

The data of this study were collected from five different departments of a university in Turkey. Firstly, 214 data were collected, but 20 were excluded because of outliers, systematically blank and missing values. Finally study group of the research is a total of 194 university students, aged between 16 and 47 ( $X = 21.03$ ;  $SD = 3.53$ ) of which 134 are women (69.1%) and 60 are men (30.9%). When the distribution of data examination according to grade level, it was seen that the data were evenly distributed.

### 2.2. Data collection instruments

In the process of data collection, three scales and a demographic form that researchers developed were used. Metacognitions of participants were measured by Metacognition Questionnaire-30 (MCQ-30), which was developed by Wells and Cartwright-Hatton (2004) and adapted to Turkish by Tosun and Irak (2008). MTQ-30 assesses the metacognitions, which are considered necessary in a metacognitive model of psychological disorders. The scale has consistent 5 subscales and 30 items. Another scale Cognitive Emotion Regulation Questionnaire (CERQ), was developed initially by Garnefski et al. (2001) and adapted to Turkish by Öngen (2010). The questionnaire has two main dimensions an adaptive and maladaptive strategy. The adaptive strategy consists of five subscales (acceptance, positive refocusing, refocus on planning, positive reappraisal and putting into perspective). The maladaptive strategy consists of four subscales (self-blame, rumination, catastrophising and blaming others). The last scale used in this study is the Resilience Scale for Adults, developed by Friborg (2005) and adopted by Basim and Çetin (2011). The scale consists of 6 sub-dimensions and 33 items.

### 2.3. Ethical consideration

The study ensured the anonymity of all participants. Furthermore, oral consent was sought from all participants before they participated in the study. The study and its findings are harmless to the participants and the environment.

### 2.4. Data analysis

Pearson correlation and multiple regression analyses were used in this research. Before analysis, the data structure was examined to determine the correct data. In this stage, normality, multicollinearity, linearity and homoscedasticity analyses were conducted. This analysis showed that parametric tests could be applied to the data. Statistical Package for the Social Sciences version 23 was used in data analysis.

## 3. Results

The Pearson correlation analysis was first used to determine the correlation between the variables, and the results were submitted in Table 1.

**Table 1**  
*Mean, Standard Deviation, Skewness/Kurtosis and Correlation Values of Variables*

Variables	1	2	3	4
1. MTQ-30	1			
2. CERQ-Adaptive	-0.13	1		
3. CERQ-Maladaptive	0.41*	-0.07	1	
4. Resilience	-0.30*	0.46*	-0.34*	1
X	74.28	61.83	39.22	125.44

SS	10.70	12.72	8.34	19.64
Skewness	-0.31	0.19	0.61	-0.34
Kurtosis	0.10	-0.34	0.47	-0.18

$n = 194$ .

\*  $p < 0.001$ .

In the correlation analysis performed to determine the relationships between variables on the data, it was seen that resilience showed a significant positive correlation with the adaptive CERQ ( $r = 0.46$ ;  $p < 0.01$ ), while the maladaptive CERQ ( $r = -0.34$ ;  $p < 0.01$ ) and metacognitions ( $r = -0.30$ ;  $p < 0.01$ ) were found a significant negative correlation with resilience. In the correlation analysis, it was finally determined that metacognitions did not show a significant correlation with adaptive-CERQ ( $r = -0.13$ ;  $p > 0.05$ ) but a positively significant correlation with maladaptive CERQ ( $r = 0.41$ ;  $p < 0.01$ ).

**Table 2**

*Multiple Regression Analysis on the Estimation of Resilience by MTQ, CERQ Adaptive and CERQ Maladaptive*

Variables	B	Standard error B	b	t	p	Binary r	Partially r
Constant	127.28	10.99	-	11.58	0.000		
CERQ adaptive	0.65	0.09	0.42	6.99	0.000	0.46	0.45
CERQ maladaptive	-0.60	0.16	-0.26	-3.91	0.000	-0.34	-0.27
MTQ	-0.25	0.12	-0.14	-2.04	0.04	-0.30	-0.15
<hr/>							
$R = 0.57$	$R^2 = 0.32$	$\Delta R^2 = 0.31$					
$F(3, 193) = 29.91$	$p = 0.000$						

$n = 194$ .

According to the results of the regression analysis performed to determine the predictive effect of independent variables on resilience, adaptive CERQ, maladaptive CERQ and metacognitions together predicted 31% of resilience ( $F_{(3, 193)} = 29.91$ ,  $p < 0.01$ ). The relative importance order of predictive variables describing resilience is 20.6% adaptive CERQ ( $b = 0.42$ ;  $p < 0.01$ ), 9.3% maladaptive CERQ ( $b = -0.26$ ;  $p < 0.01$ ) and 1.1% metacognitions ( $b = -0.14$ ;  $p < 0.05$ ).

#### 4. Discussion

The present study established a significant and positive relationship between university students' resilience and adaptive cognitive emotion regulation strategies and a significant and negative relationship between maladaptive cognitive emotion regulation strategies and metacognition. Additionally, cognitive emotion management abilities and metacognitions were shown to be significant predictors of resilience. Adaptive cognitive emotion regulation methods, maladaptive cognitive emotion regulation strategies and metacognitions are ranked in the order of relative significance in predicting durability. These results suggest that an individual's cognitive and emotional methods for coping with unpleasant life experiences and his beliefs about monitoring his physical sensations and regulating his thoughts may be linked to his resilience. When the pertinent literature is reviewed, it is discovered that the findings of this study are consistent with those of the relevant literature (Ateş & Sağar, 2021; Kir, 2021; Öztürk, 2019).

Emotion control is highlighted as a protective component of resilience (Masten, 2014). It may be stated that individuals who employ adaptive coping methods in the face of dangerous or stressful life events have a high degree of resilience. In contrast, those who use maladaptive coping strategies have a low level of resilience. Another remarkable result is a negative and statistically significant connection between an individual's degree of resilience and metacognition. In other words, as the individual's endurance increases, her/his metacognition decreases. Given that metacognition is central to psychological disorders (Wells, 2013) and that the primary positive outcome of resilience is the absence of psychological disorders (Masten, 2001; Masten & Reed, 2002), the connection between these two ideas is critical. In addition, this research showed a substantial and favourable connection between maladaptive emotion management methods and metacognition. According to metacognitive therapy, one element that contributes to low mood maintenance is a negative thinking style, concern and rumination. These coping methods, which the individual employs, believe that they will solve the individual's issues and that they are incapable of controlling their thoughts and will hurt themselves (Batmaz, 2021). The strategies used by the individual to deal with this may result in a repetitious thinking pattern, excessive attention on himself and his inner life, ineffective coping mechanisms and metacognition (Batmaz, 2021).

It was found in this research that both adaptive and maladaptive cognitive emotion control techniques and metacognitions were substantially associated with resilience. Similarly, research indicates that cognitive emotion control techniques are associated with resilience (Aery, 2019; Gorji & Salehi, 2020; Mestre et al., 2017; Min et al., 2013; Yöndem et al., 2021). Unlike previous research, this study established that metacognitions also predicted resilience. There is no comparable research in the literature. Positive and negative metacognitions influence how a person views and utilises the substance of his ideas (Wells, 2013). Resilience is an individual's capacity to overcome adversity and achieve good outcomes despite risk factors (Masten, 2001).

## 5. Conclusion

From this vantage point, it can be said that people with a high level of resilience can have a more positive connection with their thinking content through challenging life situations, and their responses to them are also positive. Individuals with a high level of resilience exhibit less metacognitive beliefs and maladaptive cognitive-emotional techniques and instead use more adaptive tactics. These findings are considered to offer critical information for future study in the resilience literature. It is suggested that future research examine the connection between metacognition and resilience in diverse populations (such as adults, adolescents).

In addition, it is believed that it is critical to include cognitive emotion regulation strategies and metacognition in psychoeducational programs and individual treatments targeted at enhancing resilience. It should be mentioned in this study that the study's uneven distribution of males and women in the research group is a drawback. This must be considered while assessing the findings.

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