

**RESEARCH**

## Turkish Adaptation of Criminal Thinking Scales: Validity and Reliability Study

*Kriminal Düşünce Ölçeğinin Türkçeye Uyarlanması: Geçerlilik ve Güvenilirlik Çalışması*

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### Abstract

The objective of the study is to investigate the psychometric properties of Turkish version of the Criminal Thinking Scales. The sample of study consisted of 627 persons, aged 18 years and over, 295 women and 332 men who declared not received psychiatric diagnosis and/or treatment at the time of the study or in the past. The reliability of the scale was analyzed using Cronbach alpha coefficient. The validity of the scale was examined using exploratory and confirmatory factor analysis and criterion-related validity methods. Exploratory factor analysis revealed a factor structure that close to the original form, 23 items and 6 factors: entitlement, criminal rationalization, power orientation, cold heartedness, justification/blaming others and personal irresponsibility. Confirmatory factor analysis showed that fit values of the model were satisfactory. Cronbach's alpha for the scale was .79 and ranged from .50 to .74 for the dimensions. In conclusion, the validity and reliability of the Turkish version of the Criminal Thought Scales was acceptable.

**Keywords:** Criminal Thinking Scales, validity, reliability.

### Öz

Bu çalışmanın amacı Kriminal Düşünce Ölçeği Türkçe formunun psikometrik özelliklerini incelemektir. Çalışmanın örneklemi, 18 yaş ve üzerindeki, çalışmanın yapıldığı anda ya da geçmişte psikiyatrik tanı ve/veya tedavi almamış olduğunu beyan etmiş olan 295 kadın ve 332 erkek olmak üzere toplam 627 kişiden oluşmaktadır. Ölçeğin güvenilirliği Cronbach alfa katsayısının hesaplanması yöntemiyle incelenmiştir. Ölçeğin geçerliliğinin incelenmesi için açımlayıcı ve doğrulayıcı faktör analizi ile birlikte ölçüt geçerliliği yöntemi uygulanmıştır. Açımlayıcı faktör analizi sonucunda 23 maddelik ve ölçeğin özgün formuna benzer şekilde hak görme, kriminal rasyonalizasyon, güç yönelimi, merhametsizlik, meşrulaştırma/diğerlerini suçlama ve kişisel sorumsuzluk olmak üzere 6 faktörden oluşan ölçme aracına ulaşılmıştır. Doğrulayıcı faktör analizi sonucunda sınanan modelin uyum değerlerinin kabul edilebilir düzeyde olduğu saptanmıştır. Ölçeğin tümü için iç tutarlılık katsayısı  $\alpha = .79$  olarak, alt boyutlar arasında ise  $\alpha = .50-.74$  olarak tespit edilmiştir. Sonuç olarak elde edilen bulgular, Kriminal Düşünce Ölçeği Türkçe formunun geçerlilik ve güvenilirliğinin kabul edilebilir düzeyde olduğunu göstermektedir.

**Anahtar sözcükler:** Kriminal Düşünce Ölçeği, geçerlilik, güvenilirlik.

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**CRIMINAL** thinking that defined as specific ways of thinking that conduce to antisocial behaviours of criminals and leading to the commencement and continuation of behavior that violate the law (Walters 2006, Taxman et al. 2011), is emphasized as a dynamic risk factor for criminal behaviours in many studies (Knight et al. 2006, McCoy et al. 2006, Dembo et al. 2007, Walters 2012). It is suggested that ingrained criminal thinking styles predict criminal behaviors and individuals who exhibit criminal-style thinking are at a greater risk of engaging in criminal behaviours (Boduszek and Hyland 2012). Although the individual is unaware of the erroneous nature of his or her thinking, these thinking styles are deemed as errors because of the obvious neglect of responsibility (Mandracchia et al. 2007) and treated that distinct from personality styles which are characteristic of repetitive criminal behaviours such as antisocial personality disorder and psychopathy (Mandracchia and Morgan 2011).

One of the many conventional theories emphasizing the important influence of cognitions on criminal behaviours is Sutherland's (1978) differential association theory. According to the theory, crime is learned through associations with the persons who committed crime, thus, the techniques of committing crime and the motives, attitudes and thoughts that causes criminal behaviour to continue are also learned (as cited in Simourd 1997, Walters 2006).

According to the neutralization theory (Sykes and Matza 1957), the most of criminals perceive themselves as conventional rather than as antisocial and try to rationalize and justify their criminal acts. Sykes and Matza (1957) explained this process with five neutralization methods: denial of responsibility (it was an accident), denial of injury (no one got hurt), denial of the victim (he/she was asking for it), condemnation of the condemners (society is the real criminal), and appeals to higher authority (I couldn't let my friends down).

Yochelson and Samenow (1976), built the first important model of the conceptualization of criminal thinking. They suggested that the criminals display differential thinking processes pervasive throughout every aspect of their lives and they defined eight distinct styles of criminal thinking: mullification (neutralization), cutoff (elimination of fear), entitlement (feeling of exceptionality), power orientation (perception of control) sentimentality (good deeds to recompense past criminal acts), superoptimism (a form of optimism that provides offenders with the confidence of achieving their desire), cognitive indolence (lack of resistance in criminal behaviour), and discontinuity in promises and intentions over time. According to Yochelson and Samenow (1976), criminal thinking is erroneous/ distorted form of thinking and problematic behaviours or criminal behaviours are revealed as a result of all these distorted thoughts. Therefore, it is necessary to alter these ways of thinking to change the antisocial behaviours (as cited in Walters 2006, Mandracchia et al. 2007, Mandracchia and Morgan 2011, Boduszek and Hyland 2012).

Building on the work Yochelson and Samenow (1976), Walters (1995a, 1995b) developed the Psychological Inventory of Criminal Thinking Styles which measures eight different forms of criminal thinking. He placed central role on criminal thinking and suggested that crime is a way of life which is associated with significant systems of belief and thought. He defined mollification that a person rationalizes and justifies his or her norm-violating behaviour by focusing on social injustice, minimizes the seriousness of antisocial acts, or projects blame onto the victims of his or her crimes. The

cutoff style provides a rapid elimination of fear, anxiety and other psychological deterrents to criminal action. The entitlement style includes an attitude of ownership, privilege and the misidentification of wants as needs. Power orientation arises from the need to control others and environment and self-centered attempts to atone for one's past criminal violations by performing various good deeds come under the heading of the sentimentality style. The superoptimism pattern includes extrem form of self confidence that overestimating one's chances of avoiding the negative consequences of his or her behaviours. The cognitive indolence style reflects an inclination toward lazy thinking, short-cut problem solving, and uncritical acceptance of personal ideas and plans. The discontinuity style includes hesitations and insecurities in thoughts and behaviors (Walters and White 1989, Walters 1995a, Walters 2003, Walters 2006).

The Criminal Thinking Scales that psychometric properties were examined in this study, was developed by Knight and his colleagues (2006) based on the works of Walters (1995a, 1995b), Yochelson and Samenow (1976). The scale includes six factors: entitlement, justification, personal irresponsibility, power orientation, cold heartedness and criminal rationalization. Entitlement conveys think of ownership and privilege and misidentifies wants as needs. The person who displays this thinking style believe that the world owes him/her and he/she deserves special consideration. Justification is characterized by a person's minimizing the seriousness of antisocial acts and by justifying actions based on external circumstances. The person who displays this thinking style justifies his/her antisocial acts because of social injustice. Personal irresponsibility assesses the degree to which a person is willing to accept ownership for criminal actions. The person who displays this thinking style is unwillingness to accept responsibility and projects blame onto others. Power Orientation is related to need for power and control. The person who displays this thinking style shows an outward display of aggression in an attempt to control their external environment and he/she tries to achieve a sense of power by this way. Cold Heartedness is related to callousness and lack of emotional involvement in relationships with others. Finally, criminal rationalization is related to generally negative attitude toward the law and authority figures. The person who displays this thinking style views him/her behaviors as being no different than the criminal acts he/she believes are committed by authority figures (Knight et al. 2006).

Many measurement instruments are used to examine criminal thinking in literature (Walters 1995a, Walters 1995b, Barriga and Gibbs 1996, Mills et al. 2002, Mandracchia and Morgan 2011, Skilling and Sorge 2014). However; in Turkey, there is not a valid and reliable instrument which may be used for assess criminal thinking in this field. The purpose of this study is to examine psychometric properties of the Criminal Thinking Scales developed by Knight and his colleagues (2006) because of the scale is short, understandable and easily applicable and evaluable. The scale is a measurement instrument that is widely used in studies conducted with offenders (Simpson et al. 2006, Dembo et al.2007, Best et al. 2009, Holliday et al. 2012, Rahim 2017). It is also used to assess criminal thinking in studies conducted with non-offenders (Shaw et al. 2014, Fix and Fix 2015). In this context, the scale is expected to provide significant contributions to studies in Turkey that will examine criminal behaviours.

## Method

The sample universe consists of persons aged 18 and over. Participants are 627 persons

who aged 18 and over. Participants were reached in two ways in the study; one part of participants were reached through the internet and the other part were reached personally, face to face conditions. In determining the size of the sample, the number of items in the scale was taken into consideration. In the scale development and adaptation studies, the reliability of the factors emerging from a factor analysis depends on the size of the sample. Although there is no consensus on what the size should be, there is agreement that there should be more participants than variables (Bryman and Cramer 2005). Both Everitt (1975) and Nunnally (1978) recommended sampling at least ten times as many subjects as variables (Pearson and Mundform 2010). Comrey and Lee (1992) provided the following scale of sample size adequacy: 50 – very poor, 100 – poor, 200 – fair, 300 – good, 500 – very good, and 1,000 or more – excellent (Pearson and Mundform 2010). Considering the number of items in the scale; it was planned to reach 500 persons who aged 18 and over by using simple random sampling method. However, the diversity of the demographic characteristics required for the sample could not be achieved through the internet. Because of this reason, permission was obtained from five institutions including a foreign language course, a textile, food and construction company, two textile companies and a cleaning services company in order to achieve adequate diversity. The accounting office, information office and transportation office personnel, secretaries, kitchen and cleaning staff and textile workers who working in these institutions were reached.

In this way, a total of 700 persons were reached who 345 of them were reached through the internet and 355 of them were reached personally, face to face conditions. 73 persons who declared that they received psychiatric diagnosis and/or treatment at the time of the study or in the past were excluded since psychiatric diagnosis and/or treatment was the exclusion criteria for the study. The study was conducted with 627 persons whose 295 women and 332 men.

## ***Measures***

### **Demographic Form**

The demographic form prepared by the researcher includes questions about the socio-demographic characteristics of the participants and whether there is a psychiatric illness / treatment at the time of the study or in the past.

### **Minnesota Multiphasic Personality Inventory (MMPI) Psychopathic Deviate Scale**

MMPI was developed by Hathaway and McKinley (1943) to assess the personal and social adaptation. MMPI composes of 566 items and it is scored as 0 (false) and 1(true). It includes 3 validity subscales; lie, infrequency or frequency, correction and 10 clinical subscales; hypochondriasis, depression, hysteria, psychopathic deviate, masculinity-femininity, paranoia, psychasthenia, schizophrenia, hypomania and social introversion (as cited in Ceyhun and Oral 1998). Turkish standardization of MMPI was carried out by Savaşır (1981) (as cited in Ceyhun and Oral 1998). There are studies conducted in Turkey and abroad using data from one or more clinical subscales of MMPI (Rhodes 1992, Weiss et al. 1995, Çetin 2007, İlbay et al. 2016). High scores on MMPI Psychopathic Deviate Scale suggest antisocial attitudes and behaviours (Ceyhun and Oral 1998).

### **Criminal Thinking Scales**

The original name of the scale is Texas Christian University Criminal Thinking Scales

(TCU CTS). It was developed to measure criminal thinking by Knight and his colleagues (2006). The scale composes 36 items and includes six subscales to measure entitlement, justification, personal irresponsibility, power orientation, cold heartedness and criminal rationalization. For each of the scales, items are rated using a 5-point Likert-type scale. It was determined that the scale have the appropriate psychometric properties and measures criminal thinkings quickly and reliably. The internal consistency coefficient was ranged from .68 to .81 for the dimensions. Test-retest reliability of the scale ranged from  $r = .66$  to  $.84$  (Knight et al. 2006).

### ***Procedure***

The protocol of the study was approved by the decision of Istanbul University Cerrahpaşa Medical Faculty Clinical Research Ethics Committee dated 08.02.2017 and numbered 52634. In the study, data were collected in two ways; one part of participants were reached through the internet and the other part were reached personally, face to face conditions. The link of the study created via the Internet was delivered to the participants through social media accounts of the researchers (facebook, twitter) along with an explanatory note. The reached persons shared the link through their social media accounts, thus; it was ensured that the link was disseminated. Participants were included in the study after confirming that they approved the consent form and agreed to participate in the study. First of all it was explained that the study was based on voluntariness and the consent form was obtained from those who accepted to participate in the study when the participants were reached personally, face to face conditions. The scales delivered to the participants in the envelope and was taken the same day after the scales was filled out.

Permission was obtained from K. Knight to adapt the scale into Turkish. Five people who have high level of English language proficiency translated the scale from English to Turkish. Then, three people who have high level of English language proficiency examined the translation of the English form into Turkish and the scale was translated from Turkish to English once again. Items of the Turkish form was reviewed with regard to meaning differences and culturel differences and the proper items was determined. A pilot study was conducted with a total of 24 people, 12 women and 12 men aged 18 years and older, using the Turkish form. The feedback from the participants about the intelligibility of the items was evaluated after the pilot study. The Turkish form, which is composed the most understandable and proper items was used in this study.

### ***Statistical Analysis***

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were carried out for the construct validity of the scale. Criterion-related validity and relations among the dimensions of the scale was examined using Pearson product-moment correlation coefficient. The reliability of the scale was analyzed using Cronbach alpha coefficient. SPSS 16.0 statistical package was used for EFA, Cronbach's alpha coefficient and Pearson product-moment correlation coefficient while SPSS Amos 25 was used for DFA.

## Results

The mean age of the participants was 34.3 years (sd=11.9 years). 47% of the participants are women and 53% are men. 13.7% of the participants have primary school education level, 13.9% have middle school education level, 23% have high school education level, 42.7% have university education level and 6.7% have graduate education level. 50.9% of the participants are married and 49.1% are single. 61.9% of the participants are employed and % 38.1 are unemployed.

**Table 1. Factor loadings of the scale**

Items of the scale	Entitlement	Criminal Rationalization	Power Orientation	Cold Heartedness	Justification/ BlamingOthers	Personal Irresponsibility
22- It is okay to commit crime in order to live the life you deserve.	.742					
16- Breaking the law is no big deal as long as you do not physically harm someone.	.735					
21- Your good behavior should allow you to be irresponsible sometimes.	.734					
14- It is okay to commit crime in order to pay for the things you need.	.667					
13- You feel you are above the law.	.476					
11- This country's justice system was designed to treat everyone equally.		.770				
12- Police do worse things than do the "criminals" they lock up.		.717				
6-Bankers,lawyers and politicians get away with breaking the law every day.		.710				
20- Laws are just a way to keep poor people down.		.605				
4- Anything can be fixed in court if you have the right connections.		.499				
23- Prosecutors often tell witnesses to lie in court.		.467				
8- You argue with others over relatively trivial matters.			.636			
7- When not in			.631			

control of a situation, you feel the need to exert power over others.						
9- If someone disrespects you then you have to straighten them out, even if you have to get physical.			.575			
5- Seeing someone cry makes you sad.				.780		
1- You get upset when you hear about someone who has lost everything in a natural disaster.				.748		
10- You feel people are important to you.				.525		
18- You worry when a friend is having problems.				.497		
19- You are not to blame for everything you have done.					.699	
17- You find yourself blaming society and external circumstances for the problems in your life.					.644	
15- Society owes you a better life.					.579	
2- You are locked-up because you had a run of bad luck.						.834
3- The real reason you are locked-up is because of your race.						.749

### ***Construct Validity***

#### **Exploratory Factor Analysis**

EFA was carried out to examine the factor structure of the scale on the Turkish sample. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity was used to examine suitability of the data for factor analysis. The analysis showed that the KMO value was 0.87 while the Bartlett's Test of Sphericity result was  $\chi^2=5717.37$  and significant at  $p<0.001$ . These results indicate that the data are suitable for factor analysis (Büyükoztürk 2004).

The principal component analysis was carried out with promax rotation. It was determined that a cutoff of the factor loading of 0.40 for each item. No restrictions was imposed on the factor structure. A total of 10 items were excluded from the scale, items 36, 4, 12, 11, 15, 30, 21, 9, 16 and 35, which had a cross-loading. According to the findings, it was observed that initially a structure formed by 7 factors, however, there were 6 factors that interpretable. The 7th factor which composed of 7th, 20th and 28th items of the scale was excluded from the scale due to its similar content to that of the power orientation factor, and analysis was conducted once again. As a result of the

analysis, the KMO value was found to be 0.82 and the Bartlett's Test of Sphericity was  $\chi^2=2930.25$  and significant at  $p<0.001$ . It was observed that the measurement instrument consisting of 23 items and 6 factors explained 52.97% of the total variance. The scree plot in Figure 1 confirms that the scale consisted of 6 factors.

**Table 2. Item values of scale**

Factors	Items	Mean	Standart Deviation	Item-Total Correlation	Eigenvalues of the factors	Variance %
Entitlement	22	1.55	0.76	0.57	4.56	19.83
	21	2.11	0.92	0.50		
	14	1.56	0.81	0.52		
	13	2.11	1.06	0.33		
	16	2.12	1.05	0.49		
Criminal Rationalization	11	3.67	1.19	0.46	2.33	10.17
	12	3.39	1.10	0.48		
	6	2.83	1.09	0.52		
	20	2.73	1.26	0.53		
	4	3.12	1.24	0.45		
	23	2.36	0.99	0.46		
Power Orientation	8	2.41	1.0007	0.30	1.60	6.96
	7	1.99	1.03	0.36		
	9	2.15	1.14	0.41		
Cold Heartedness	5	1.82	0.85	0.44	1.38	6.04
	1	1.57	0.89	0.34		
	10	1.73	0.79	0.32		
	18	2	0.79	0.34		
Justification/Blaming Others	19	3.36	1.09	0.27	1.15	5.02
	15	2.97	1.19	0.34		
	17	2.90	1.10	0.34		
Personal Irresponsibility	2	2.14	1.14	0.40	1.13	4.94
	3	2.16	1.18	0.40		

In this study, 25th item added to the items that composes the entitlement factor which is 1th factor in the original scale. 31th item added to the items that composes the criminal rationalization in the original scale. The power orientation factor was represented by 3 items while the cold heartedness factor was represented by 4 items and the personal irresponsibility was represented by 2 items. 7th, 11th, 16th and 35th items of the scale which had a cross-loading and that composes the justification in the original scale were excluded from the scale. The 25th item was added to the items that composes the entitlement. However, considering its content, the factor that composed of 29th, 24th and 26th items of the scale was conceptualized as the justification/blaming others. Factor loadings of the scale are presented in Table 1.

**Table 3. The correlation coefficients among the dimensions**

Factors	Entitlement	Criminal Rationalization	Power Orientation	Cold Heartedness	Justification/Blaming Others	Personal Irresponsibility
Entitlement	---					
Criminal Rationalization	0.30 **	---				
Power Orientation	0.37 **	0.29 **	---			
Cold Heartedness	0.27 **	0.01	0.19 **	---		
Justification/Blaming Others	0.27 **	0.38 **	0.34 **	0.04	---	
Personal Irresponsibility	0.29 **	0.25 **	0.13 *	0.18 **	0.12 *	---

\*  $p<0.05$  \*\*  $p<0.001$

**Table 4. Correlations between Psychopathic Deviate Scale scores and dimensions of the Criminal Thinking Scale**

Dimensions	Psychopathic Deviate Scale scores
Entitlement	0.23**
Criminal Rationalization	0.24**
Power Orientation	0.33**
Cold Heartedness	0.11*
Justification/Blaming Others	0.24**
Personal Irresponsibility	0.20**

\*p<0.05 \*\*p<0.001

The eigenvalues of the factors were determined as 4.56 for the entitlement, 2.33 for the criminal rationalization, 1.60 for the power orientation, 1.38 for the cold heartedness, 1.15 for justification/blaming others and 1.13 for the personal irresponsibility. It was found that item-total test correlations were ranged from 0.27 to .057 for 23 items. Mean, standart deviation and item-total test correlations for each items, eigenvalues of the factors and variance explained by each factors are presented in Table-2.

While there was not a significant relationship between cold heartedness and three other scales: justification, criminal rationalization and power orientation, intercorrelations of the other subscales were statistically significant in the original scale (Knight et al. 2006). In this study; it was not found a significant relationship cold heartedness and two other scales: justification/blaming others and personal irresponsibility. Intercorrelations of the other subscales were statistically significant. The correlation coefficients that the relationship were found to be statistically significant ranged from 0.12 to 0.38 in the Turkish form while ranged from 0.13 to 0.66 in the original form. The correlation coefficients among the dimensions are presented in Table 3.

**Table 5. Cronbach Alpha coefficient for the dimensions of the scale**

Dimensions	Cronbach Alpha
Entitlement	0.71
Criminal Rationalization	0.74
Power Orientation	0.54
Cold Heartedness	0.58
Justification/Blaming Others	0.50
Personal Irresponsibility	0.57

### Confirmatory Factor Analysis

CFA was conducted to determine whether the factorial structure resulting from the EFA is in good agreement with the data. Many fit indices are used to evaluate the goodness-of-fit of the model tested in CFA. Chi-square, the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Comparative Fit Index (CFI), the Normed-fit index (NFI), Root Mean Square Residual (RMR) and Root Mean Square Error of Approximation (RMSEA) was examined in this study.

Modifications were made between the items 8 and 18, 19 and 18, 1 and 6 in accordance with the recommendations in the CFA. As a result of these modifications, the fit indices values of the best available structure were determined as  $\chi^2=555.77$ ,  $df=212$ ,  $p<0.01$ ,  $GFI=0.92$ ,  $AGFI=0.90$ ,  $CFI=0.87$ ,  $NFI=0.81$ ,  $RMR=0.05$ ,  $RMSEA=0.05$ .

If the model is in excellent agreement with the data, the chi-square ratio should be close to 0 and it should not be statistically significant (Hu and Bentler 1999). However, this value is very sensitive to the sample size and can be mostly significant in the large samples. Therefore, it is suggested a calculation that dividing the Chi-square ratio by

the number of degrees of freedom (Sümer 2000, Büyüköztürk et al. 2004, Çankaya 2009, Duyan and Gelbal 2010, Çapık 2014). In this study, it was found to be  $\chi^2/df=2.62$ .

### **Criterion-Related Validity**

MMPI Psychopathic Deviate Scale was applied to 627 participants to examine the criterion-related validity of the scale. As a result of the correlation analysis, it was found that there was a statistically significant and positive relationship between the Psychopathic Deviate Scale scores and all dimensions of the Turkish version of the Criminal Thinking Scales. The findings are presented in Table 4.

### **Reliability**

The Cronbach Alpha coefficient was found to be 0.79 for the 23-items scale. It ranged from 0.50 to 0.74 for the six dimensions of the scale. The Cronbach Alpha coefficient for the dimensions are presented in Table-5.

## **Discussion**

In this study, Criminal Thinking Scales which developed to measure criminal thinking by Knight and his colleagues (2006) was adapted into Turkish. Previously, there was no study that adapted the scale into Turkish. Results of the exploratory factor analysis revealed a factor structure that is close to the original form. The measurement instrument which composed of 23 items and 6 factors, explains 52.97% of total variance. Factor loading of the items ranged from .46 to .83. According to the sequence of the scale which composed of 23 items; 13th, 14th, 16th, 21th and 22th items compose the entitlement, 4th, 6th, 11th, 12th, 20th and 23th items compose the criminal rationalization, 7th, 8th and 9th items compose the power orientation, 1th, 5th, 10th and 18th compose the cold heartedness, 15th, 17th and 19th items compose the justification/blaming others and 2th and 3th items compose the personal irresponsibility.

The confirmatory factor analysis that was conducted to determine whether the factorial structure resulting from the EFA is in good agreement with the data, showed that the fit indices values of the model were satisfactory. Of the fit indices values frequently used in studies, value of  $\chi^2/df$  that is less than 5 indicates an acceptable fit (Büyüköztürk et al. 2004, Çapık 2014). Values of the GFI and the AGFI that are greater than and equal to .90 indicate a good fit (Sümer 2000). Values of the RMSEA and the RMR that are less than and equal to 0.05 indicate very good fit (Sümer 2000, Büyüköztürk et al. 2004). Hair and his colleagues (1998) suggested that the cutoff criterion for the NFI should be 0.80 (as cited in Wu and Wang 2006). It is also recommended that 0.80 can be used as a cutoff criterion of CFI (Büyüköztürk et al. 2004). The fit indices values of the model obtained in CFA were examined and it was found that  $\chi^2/df=2.62$ , GFI=0.92, AGFI=0.90, CFI=0.87, NFI=0.81, RMR= 0.05, RMSEA= 0.05. These values revealed that fit indices of the model were satisfactory.

The item-total test correlations ranged from .27 to .57. Although there is no consensus on which the cutoff value of the correlation coefficient should be, the cutoff level of 0.20 is mostly used by researchers (Aker et al. 2005). Accordingly, it is seen that the consistency of item-total test correlations are sufficient.

Because of the intercorrelations of the subscales in the original scale, the intercorrelations of the dimensions were also examined in this study and it was found that the

results were similar to the original form. While there was not a significant relationship between cold heartedness and three other scales: justification, criminal rationalization and power orientation, intercorrelations of the other subscales were statistically significant in the original scale. The correlation coefficients that the relationship were found to be statistically significant ranged from 0.13 to 0.66 (Knight et al. 2006). In this study; it was not found a significant relationship cold heartedness and two other scales: justification/blaming others and personal irresponsibility. Intercorrelations of the other subscales were statistically significant. The correlation coefficients that the relationship were found to be statistically significant ranged from 0.12 to 0.38.

Many studies showed that certain cognitive distortions are related to problematic behaviours and criminal behaviours, especially self-serving cognitive distortions predict antisocial behaviours (Barriga et al. 2000, Barriga et al. 2008, Van Der Velden et al. 2010, Wallinius et al. 2011). It is suggested that the criminal thinkings are highly predictive of repetition of such behaviours (Walters 2012). Therefore, it was decided to assess antisocial behaviours to examine the criterion-related validity of the scale. The results showed that there was a statistically significant and positive relationship between the Psychopathic Deviate Scale scores and all dimensions of the Turkish version of the Criminal Thinking Scale. Although the correlation coefficients are significant, one of the possible reasons for not having high values is that criminal thinkings and antisocial behaviors do not have the same structures. However, the positive and significant relationship that was found between the scales can be accepted as sufficient for criterion-related validity.

The Cronbach Alpha coefficient was found to be 0.79 for the 23-items scale. This result indicated that the scale had good reliability (Kılıç 2016). The Cronbach Alpha coefficient of the six dimensions of the scale ranged from 0.50 to 0.74.

The findings showed that validity and reliability of the Turkish version of the Criminal Thinking Scales were acceptable. However, the findings of the validity and reliability of the scale have some limitations because of the sample that the study conducted on. In the study, when the data were collected by face to face conditions that the participants were reached personally, it was ensured that the participants filled out the scales themselves. However, one of the most limitations of the internet data collection method which is widely used in recent years, is not knowing exactly that who filled out the scale. Future researches that will be conducted with samples that different as qualitatively and quantitatively will provide more generalizable findings on the validity and reliability of the scale. Researches that will be conducted with adolescents and clinical samples will provide more detailed and enlightening knowledge on the psychometric properties of the scale. Criminal Thinking Scale is an easily applicable and evaluable measurement instrument which can be used in studies related to criminal behaviours. The scale is expected that to provide significant contributions to studies in Turkey that will examine criminal behaviours.

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## Addendum 1. Criminal Thinking Scales (Turkish version)

Please indicate how much you agree or disagree with each statement.

		1. Kesinlikle katılmıyorum	2. Katılmıyorum	3. Kararsızım	4. Katılıyorum	5. Kesinlikle katılıyorum
1	Bir doğal felakette her şeyini yitirmiş birisini duyduğunuzda çok üzülürsünüz.					
2	Kanunlarla başınız şansızın yaver gitmediği için derde girer.					
3	Kanunlarla başınızın derde girmesinin gerçek nedeni etnik kökeninizdir.					
4	Eğer doğru bağlantılara sahipseniz, mahkemede her şey ayarlanabilir.					
5	Birini ağlarken görmek sizi üzer.					
6	Bankacılar, hukukçular ve siyasetçiler hemen her gün yaptıkları yasa ihlallerinden yakalarını kurtarırlar.					
7	Kontrolsüz bir ortamda, başkaları üzerinde güç kullanma ihtiyacı hissedersiniz.					
8	Nispeten önemsiz konular hakkında diğer insanlarla tartışırsınız.					
9	Biri size saygısızlık yaptığında, fiziksel güç kullanmak pahasına, onu yola getirmek zorundasınızdır.					
10	İnsanlar sizin için önemlidir.					
11	Bu ülkenin adalet sistemi, herkese eşit muamele edecek şekilde tasarlanmıştır.					
12	Polisler, tutukladıkları suçlulardan daha kötü şeyler yaparlar.					
13	Kanunların üzerinde olduğunuzu hissedersiniz.					
14	İhtiyaçlarınızı karşılamak için suç işlemenizde bir sakınca yoktur.					
15	Toplum size daha iyi bir hayat borçludur.					
16	Birisine fiziksel bir zarar vermediğiniz sürece kanunları çiğnemek, büyük bir mesele değildir.					
17	Kendinizi hayatınızdaki sorunlar için toplumu ve çevresel koşulları suçlarken bulduğunuz olur.					
18	Bir arkadaşınızın sorunları olduğunda endişelenirsiniz.					
19	Yaptığımız her şey için suçlanamazsınız.					
20	Kanunlar yalnızca zavallı insanları baskı altında tutmanın bir yoludur.					
21	İyi davranışlarda bulunmanız bazen size sorumsuz davranma hakkı vermelidir.					
22	Hak ettiğiniz hayatı yaşamak için suç işlemekte bir sorun yoktur.					
23	Savcılar sıklıkla tanıklardan mahkemede yalan söylemelerini isterler.					

***Scoring Instructions***

Scores for each scale are calculated as follows..

1. No more than half of the items for any subscale can be missing.
2. Scoring of the 1st, 5th, 10th, 11th and 18th items of the scale are reversed. The response value for these items should be subtracted from 6. For example; if the response is “2”, the revised score is “4” [i.e.,  $6-2=4$ ])
3. Sum the response values of all items for each scale
4. Divide the sum of item responses by the number of items included
5. Multiply this average by 10  
For example; an average response of “2.6” for a scale therefore becomes a score of “26” [i.e.,  $2.6 \times 10 = 26$ ])

**Items of Subscales (Dimensions)**

Entitlement: 13, 14, 16, 21, 22

Criminal Rationalization: 4, 6, 11, 12, 20, 23.

Power Orientation: 7, 8, 9

Cold Heartedness: 1, 5, 10, 18

Justification/Blaming Others: 15, 17, 19

Personal Irresponsibility: 2, 3