Validation of a Short Four-Factor Measure of Psychopathy among Iranian University Students

Razieh Chegeni[1*], Mohammad Atari[2]
[1]Department of Psychology, Alzahra University, Tehran, Iran
[2]Department of Psychology, University of Tehran, Tehran, Iran

Abstract

Background: assessment of psychopathy has gained much attention in the past few decades. The four-factor model of psychopathy has proved to be an efficient model for assessment of psychopathy in forensic and non-forensic samples. Several measures have been developed to capture the four-factor model. These four factors are labeled as interpersonal manipulation, criminal tendencies, erratic lifestyle, and callous affect. Research on psychopathy has remained quite limited in Iran. The present study aimed to validate a 20-item measure of psychopathy consistent with the four-factor model of psychopathy. Williams et al. (2007) model and high-loading items were subjected to a Confirmatory Factor Analysis (CFA). Moreover, reliability coefficients and gender differences were evaluated.

Methods: a convenience sample of 260 university students was recruited from Tehran, Iran. For each factor, a battery of 5 high-loading items (c.f., Williams et al., 2007) was prepared and translated into Persian following the standard back-translation technique. Of note, item 13 (*I enjoy drinking and doing wild things*) was altered a little to be consistent with Iranian culture. The response option was provided in a 5-point Likert-type format. Potential participants were approached and invited to take part in a psychological study about social behavior. Descriptive statistics, factor structure, internal consistency, and gender differences were evaluated.

Results: item 6 (*I've stolen a motor vehicle*) had the lowest mean while item 13 (*I enjoy drinking and doing wild things*) had the highest. For interpersonal manipulation, criminal tendencies, erratic lifestyle, and callous affect, the alpha coefficients were 0.55, 0.78, 0.70, and 0.52, respectively. Additionally, the full-scale alpha was 0.79. Goodness-of-fit indices suggested an acceptable fit for the hypothesized four-factor structure of the scale (CMIN/DF = 1.80, RMSEA = 0.056, CFI = 0.90, TLI = 0.88, and GFI = 0.91). An evaluation of gender differences indicated that men had higher scores in all four subscales ($0.40 < d < 0.66$) as well as the total score ($d = 0.76$).

Conclusion: the present findings supported the factorial validity and internal consistency of the 20-item self-report measure of psychopathy in Iranian university students. Consistent with previous findings, men showed higher psychopathy, as measured by this newly validated measure. This measure could capture the four-factor model of psychopathy. Therefore, this short scale may be used in future psychopathy research in Iran.

Keywords: Psychopathy, Factor Analysis, Antisocial Behavior, Psychometrics, Iran.

* Corresponding Author: raziehchegini@yahoo.com

Introduction

Generally, psychopathy is characterized by a consistent pattern of affective (e.g., lack of empathy), interpersonal (e.g., manipulative tactics), and behavioral (e.g., impulsive actions) features (Hare, 2003). Psychopathy may be considered as one of the most destructive personalities (Hare, 1998), having strong associations with recidivism, criminality, and aggressive behavior (Hare & Neumann, 2009; Olver, Neumann, Wong, & Hare, 2013). Recent studies have indicated that this destructive and dark personality trait can be present in prisons as well as the general population, and that little qualitative differences exist between forensic and non-forensic samples (Edens, Marcus, Lilienfeld, & Poythress, 2006). Such findings indicate that psychopathy is, in nature, dimensional (Neumann & Hare, 2008). As a result, the interest in investigation of this trait in community samples has grown (e.g., Neumann & Pardini, 2012).

Psychopathy Checklist (PCL; Hare, 1980), its revised version (PCL-R; Hare, 1991), and its screening version (PCL-SV; Hart, Cox, & Hare, 1995) were traditionally used in forensic samples. These instruments are difficult to administer in community samples and in large-scale studies (Williams, Paulhus, & Hare, 2007). Therefore, the Self-Report Psychopathy Scale (SRP; Hare, 1980) was developed in order for use in non-clinical and non-forensic samples. SRP-II (Hare, Hemphil, & Harpur, 1989) and SRP-III (Neumann, Schmitt, Carter, Embley, & Hare, 2012) are also used as self-report measures for assessment of psychopathy. Researchers have begun to focus on the development and/or validation of self-report measures of psychopathy, particularly for use in large community and college student samples (e.g., Neumann, Uzieblo, Crombez, & Hare, 2013).

In the past several years, SRP-III has gained considerable attention from researchers across the globe. Its psychometric properties have been well-researched in different populations including college students (e.g., Williams et al., 2007) and forensic samples (e.g., Sandvic et al., 2012). Factor analytic studies have consistently suggested a four-factor solution among college students (e.g., Neal & Sellbom, 2012) and community samples (e.g., Freeman & Samson, 2012). Several studies have examined competing factor structures and all reported a better fit for the four-factor solution as compared with one-, two-, and three-factor structure of psychopathy (Mahmut, Menictas, Stevenson, & Homewood, 2011). Of note, reliability and convergent validity of the SRP-III have been also reported as satisfactory. Additionally, evaluation of gender differences in psychopathy, as measured by SRP-III and its short form (SRP-SF), has consistently suggested that men report higher scores of psychopathy (Gordts, Uzieblo, Neumann, Van den Bussche, & Rossi, 2015).

Another interesting topic for research on psychopathy is to examine its measures factorial validity across cultures and languages. Generally, administering a self-report measure of psychopathy in different cultures may affect its underlying structure and external validity (Bolt, Hare, & Neumann, 2007). Broadly, there are few studies to assess psychopathic traits between cultural contexts. Iran may generally be a good cultural context for assessment of psychopathy as a non-Western society. Very little is known about psychopathy in Iran (for exceptions, see: Aghababaei, Mohammadtabar, & Saffarnia, 2014; Shariat et al., 2010). One of the reasons for this lack of research may be lack of short measures with adequate validity and reliability. The present factor-analytic study aimed to validate a short 20-item self-report measure of psychopathy based on the highest-loading items of SRP-III in a college student sample in a Western university setting (Williams et al., 2007). We expected to capture the four factors of psychopathy (interpersonal manipulation, criminal tendencies, erratic lifestyle, and callous affect) in this sample of Iranian university students.

Method

Participants

A sample of 260 participants was recruited from three universities (University of Tehran, Alzahra University, and Tarbiat Modares University) and a counseling clinic in Tehran, Iran. All participants were recruited using convenience sampling strategy. Participants ranged in age between 18 and 39

(*M* = 23.92, *SD* = 4.42). In terms of sex distribution, 151 participants were male and 109 participants were female. Moreover, 214 participants (82.3%) were single.

Measure
As mentioned in Williams et al. (2007), the 20 highest-loading items were included in this factor analytic study. Five items needed reverse scoring. All items were rated along a five-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Therefore, the total score may range between 20 and 100. For purposes of the present study, all items were translated into Persian following the standard back-translation technique. Item 13 was changed a little in order to be consistent with Iranian culture (please see appendix for Persian translation of this 20-item measure).

Procedure
The aforementioned measure was presented in a questionnaire package in a randomized order along with other instruments. Results of other analyses are to be reported elsewhere. All packages started with demographic questions. Potential participants were approached and invited to take part in a psychological study about social behavior. Upon agreement to take part, participants completed the questionnaires. Participation was on a voluntary basis and participants were not remunerated.

Statistical Analysis
An item analysis was conducted before factor analysis. Since we targeted a four-factor model based on previous findings, a Confirmatory Factor Analysis (CFA) was conducted using Maximum Likelihood (ML). After the initial CFA, modification indices were evaluated and modifications were applied where theoretically possible (all modifications were applied on error terms). Instead of relying on stringent model fit indices, we used less strict fit criteria (Hoyle, 1995; CFI ﻉ .90, RMSEA < .08), considering that as model complexity increases, so does the difficulty to achieve conventional levels of model fit (Marsh, Hau, & Wen, 2004). All statistical analyses were conducted using SPSS 22 and AMOS 19.

Results
The descriptive statistics (*M* and *SD*) of all items are presented in Table 1. The confirmatory factor structure of the scale is presented in Figure 1. All standardized coefficients from latent factors to items are also shown in Figure 1. As it can be clearly seen, all four factors are inter-correlated. The error terms were also co-varied considering the modification indices.

Table 1. Descriptive statistics for all 20 items

Item	Range	*M*	*SD*
pp1	1-5	2.092	1.3716
pp2	1-5	3.169	1.3102
pp3	1-5	1.852	1.2499
pp4	1-5	1.585	1.1039
pp5	1-5	1.394	.8606
pp6	1-5	1.100	.4869
pp7	1-5	1.348	.9004
pp8	1-5	1.590	1.2969
pp9	1-5	1.202	.7102
pp10	1-5	1.656	1.2884
pp11	1-5	1.994	1.1662
pp12	1-5	2.702	1.4667
pp13	1-5	3.400	1.4398
pp14	1-5	2.344	1.4264
pp15	1-5	1.719	1.2065
pp16	1-5	1.467	.9515
pp17	1-5	1.937	1.0392
pp18	1-5	1.358	.7951
pp19	1-5	1.538	.8980
pp20	1-5	1.577	1.1415

Note. pp represents psychopathy items
Figure 1. The CFA model with standardized path coefficients
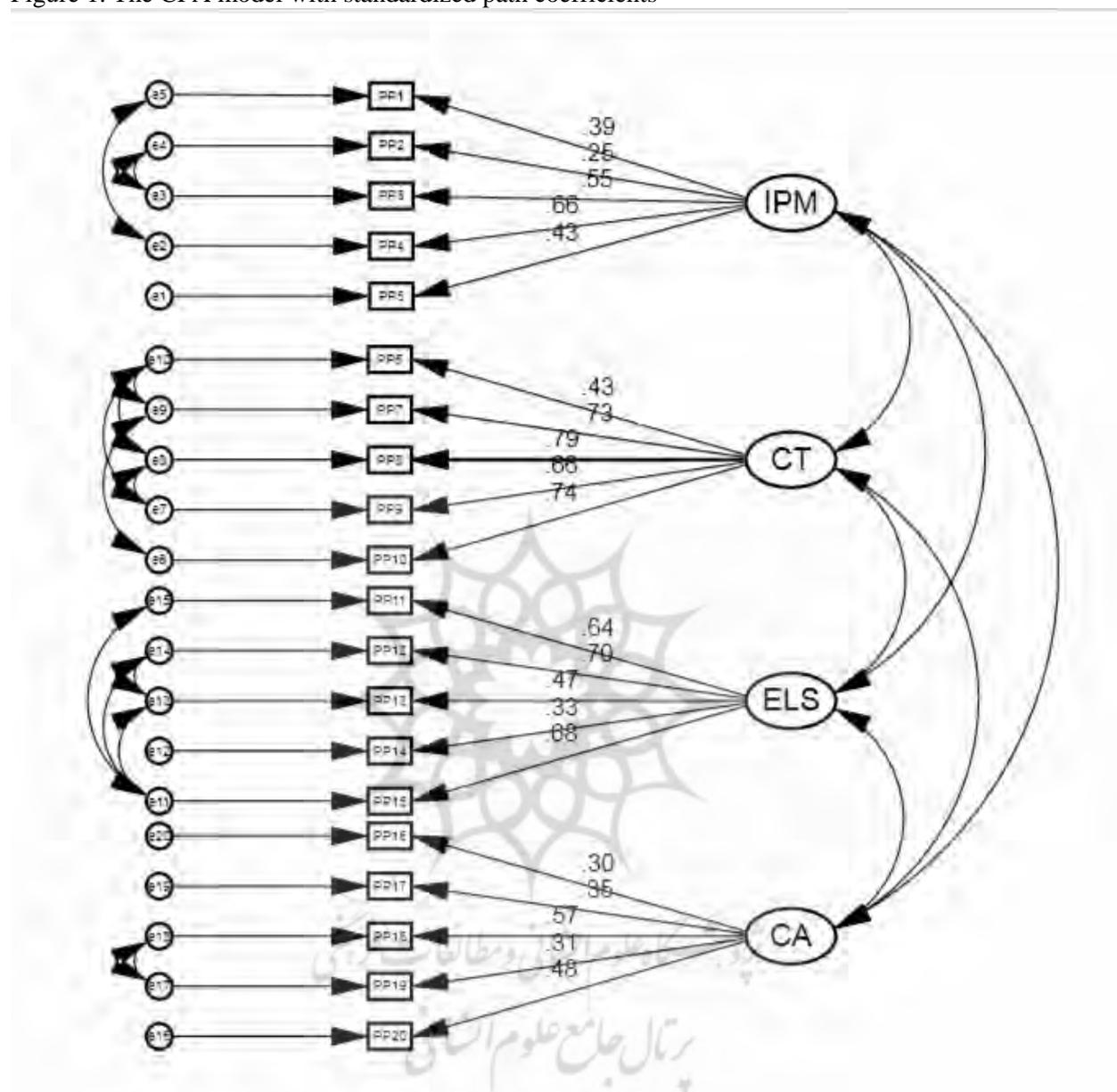
Goodness-of-fit of the structure was evaluated using the minimum discrepancy divided by its degrees of freedom (CMIN/DF), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Goodness-of-Fit Index (GFI). Several fit indices were used to provide a conservative and accurate estimation of model fit after applying the suggested modifications, where theoretically acceptable. The CMIN/DF (1.80), RMSEA (.056), CFI (.90), TLI (.88), and GFI (.91) fell within acceptable ranges. Thus, the four-factor model has a good fit according to these criteria.

In order to evaluate the internal consistency of the four subscales, we computed Cronbach s alpha for each subscale as well as for the whole 20-item scale. Results of the internal consistency coefficients are presented in Table 2.

Table 2. Reliability coefficients of the four factors and full scale

	IPM	CT	ELS	CA	Full-scale
No. of items	5	5	5	5	20
Alpha	0.55	0.78	0.70	0.52	0.79

Note. IPM: interpersonal manipulation; CT: criminal tendencies; ELS: erratic lifestyle; CA: callous affect.

Gender differences were also evaluated in the present study. Scores of men and women in all four factors and the total score were compared using 5 distinct *t*-tests. Cohen s *d* was also calculated as a measure of effect size. Results of comparisons are presented in Table 3.

Table 3. Gender differences in subscales and total score of the measure

Measure	Men (n=151)		Women (n=109)		*t*-test statistic	Cohen s *d*
	M	*SD*	*M*	*SD*		
IPM	10.80	3.54	9.10	3.33	3.93[*]	0.48
CT	7.90	4.32	5.49	1.43	6.38[a*]	0.66
ELS	13.19	4.57	10.72	4.12	4.48[*]	0.54
CA	8.35	2.89	7.22	2.62	3.21[*]	0.40
Total score	40.25	10.39	32.54	7.82	6.82[a*]	0.76

[*]$p<0.01$ [a]Equal variances not assumed.

Note. IPM: interpersonal manipulation; CT: criminal tendencies; ELS: erratic lifestyle; CA: callous affect.

Discussion

Valid and reliable self-report measures of psychopathy play a crucial role in assessment of psychopathy in community samples. Such measures are currently lacking in Iranian context. The present study aimed to validate a short measure of psychopathy according to the four-factor model of psychopathy. The 20 highest-loading items from a previous study (Williams et al., 2007) were factor-analyzed in a CFA. We primarily aimed to replicate Williams et al. (2007) model of psychopathy in an Iranian sample of university students. Interpersonal manipulation, criminal tendencies, erratic lifestyle, and callous affect were the four inter-related factors of psychopathy. A subset of SRP-III, including five high loading items for each factor, was used in this factor-analytic study.

Reliability of the subscales was assessed using Cronbach s alpha coefficients. Criminal tendencies (CT) subscale and erratic lifestyle (ELS) subscale had satisfactory internal consistency; however, interpersonal manipulation (IPM) subscale and callous affect (CA) subscale did not have satisfactory internal consistency (s< 0.60). These alpha coefficients may be marginally acceptable. Additionally, low coefficients of internal consistency have been reported for different subscales SRP-SF in previous work (Gordts et al., 2015). The full-scale alpha was high, indicating that the total score of this 20-item psychopathy scale may provide a reliable index of psychopathy as measured by the four-factor model of psychopathy.

Gender differences in the current Iranian sample were consistent with previous work (e.g., Gordts et al., 2015; Neumann et al., 2012). Men had significantly higher scores in interpersonal manipulation, criminal tendencies, erratic lifestyle, and callous affect. Such gender differences have been reported in previous studies using different measurement tools (e.g., SRP-III). All five effect sizes were moderate, indicating a consistent moderate difference between men and women.

The factor structure of this 20-item measure was evaluated using CFA. Overall, the analyses supported an underlying four-factor solution. Because of the novelty of the translation of self-report psychopathy scales in Iran, these findings add incremental information to the literature regarding the four-factor structure of psychopathy in non-forensic samples. The CMIN/DF value indicated a good

fit for the current modified four-factor model (see Fig. 1). The inter-correlation of factors is in line with previous research (Neumann, Hare, & Pardini, 2015). Furthermore, these findings are consistent with early theory on the psychopathy construct (Hare & Neumann, 2008) and structural equation modeling studies, showing strong correlations among the four first-order factors (e.g., Neumann & Hare, 2008). CFI, RMSEA, and GFI also indicated a fit model.

Several limitations of the present study are worth noting. First, the present 20-item scale has been extracted on the basis of high loadings in a factor analysis (Williams et al., 2007). This set of items has not been subjected to psychometric evaluation independently. Therefore, the present study may be considered a preliminary work onto cross-cultural adaptation of self-report psychopathy measures in Iran. We strongly recommend cross-cultural adaptation of SRP-III in Iran using robust psychometric methods. Second, the utilized sampling method was not a probability sampling method. Therefore, the present study may not be representative of Iranian university students. It is recommended for future research to replicate the present findings using larger random samples. Third, the present study was, in nature, factor-analytic. No concurrent measures of psychopathy were used in this study to evaluate concurrent validity of the measure. Fourth, the test-retest reliability of the present set of items was not assessed. It is suggested to evaluate the temporal stability of the present instrument in the future.

In conclusion, the present 20-item four-factor measure of psychopathy is a valid and reliable tool for self-report assessment of psychopathy among Iranian university students. The present findings may also represent an initial step toward psychopathy research in non-forensic Iranian samples.

Acknowledgement

References

Aghababaei, N., Mohammadtabar, S., & Saffarinia, M. (2014). Dirty Dozen vs. the H factor: Comparison of the Dark Triad and Honesty˚Humility in prosociality, religiosity, and happiness. *Personality and Individual Differences*, *67*, 6-10.

Bolt, D. M., Hare, R. D., & Neumann, C. S. (2007). Score metric equivalence of the Psychopathy Checklist˚Revised (PCL-R) across criminal offenders in North America and the United Kingdom: A critique of Cooke, Michie, Hart, and Clark (2005) and new analyses. *Assessment*, *14*, 44-56.

Edens, J. F., Marcus, D. K., Lilienfeld, S. O., & Poythress, N. G. (2006). Psychopathic, not psychopath: Taxometric evidence for the dimensional structure of psychopathy. *Journal of Abnormal Psychology*, *115*, 131-144.

Freeman, J. E., & Samson, F. (2012). Are you telling the truth? Psychopathy assessment and impression management in a community sample. *Open Criminology Journal*, *5*, 16-23.

Gordts, S., Uzieblo, K., Neumann, C.S., Van den Bussche, E., & Rossi, G.M.P. (2015). Validity of the Self-Report Psychopathy Scales (SRP-III full and short versions) in a community sample. Assessment http://dx.doi.org/1073191115606205 (in press).

Hare, R. D. (1980). A research scale for the assessment of psychopathy in criminal populations. *Personality and Individual Differences*, *1*, 111-117.

Hare, R. D. (1991). *The Hare Psychopathy Checklist-Revised (PCL-R).* Toronto, Ontario, Canada: Multi-Health Systems.

Hare, R. D. (1998). Psychopathy, affect and behavior. In D. Cooke, A. Forth & R. Hare (Eds.), *Psychopathy: Theory, research and implications for society* (pp. 105-139). Dordrecht, Netherlands: Kluwer.

Hare, R. D. (2003). *Hare Psychopathy Checklist-Revised (PCL-R)* (2nd ed.). Toronto, Ontario, Canada: Multi-Health Systems.

Hare, R.D., Hemphill, T.J., & Harpur, T.D. (1989). *Scoring pamphlet for the Self-Report Psychopathy Scale: SRP-II.* Unpublished Report, University of British Columbia, Vancouver, Canada.

Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology*, *4*, 217-246.

Hare, R. D., & Neumann, C. S. (2009). Psychopathy: Assessment and forensic implications. *Canadian Journal of Psychiatry*, *54*, 791-802.

Hart, S. D., Cox, D. N., & Hare, R. D. (1995). *The Hare Psychopathy Checklist: Screening version*. Toronto, Ontario, Canada: Multi-Health Systems.

Hoyle, R. H. (1995). *Structural equation modeling*. Thousand Oaks, CA: Sage.

Mahmut, M. K., Menictas, C., Stevenson, R. J., & Homewood, J. (2011). Validating the factor structure of the Self-Report Psychopathy scale in a community sample. *Psychological Assessment*, *23*, 670-678.

Marsh, H. W., Hau, K. T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indices and dangers in overgeneralizing Hu and Bentler s (1999) findings. *Structural Equation Modeling*, *11*, 320-341.

Neal, T. M. S., & Sellbom, M. (2012). Examining the factor structure of the Hare Self-Report Psychopathy Scale. *Journal of Personality Assessment*, *94*, 244-253.

Neumann, C. S., & Hare, R. D. (2008). Psychopathic traits in a large community sample: Links to violence, alcohol use, and intelligence. *Journal of Consulting and Clinical Psychology*, *76*, 893-899.

Neumann, C. S., Hare, R. D., & Pardini, D. A. (2015). Antisociality and the construct of psychopathy: Data from across the globe. *Journal of personality*, *83*, 678-692.

Neumann, C. S., & Pardini, D. (2012). Factor structure and construct validity of the Self-Report Psychopathy (SRP) Scale and the Youth Psychopathic Traits Inventory in young men. *Journal of Personality Disorders*, *26*, 1-15.

Neumann, C. S., Schmitt, D. S., Carter, R., Embley, I., & Hare, R. D. (2012). Psychopathic traits in females and males across the globe. *Behavioral Sciences & the Law*, *30*, 557-574.

Neumann, C. S., Uzieblo, K., Crombez, G., & Hare, R. D. (2013). Understanding the Psychopathic Personality Inventory (PPI) in terms of the unidimensionality, orthogonality, and construct validity of PPI-I and -II. *Personality Disorders*, *4*, 77-79.

Olver, M. E., Neumann, C. S., Wong, S. C. P., & Hare, R. D. (2013). The structural and predictive properties of the Psychopathy Checklist˚Revised in Canadian Aboriginal and non-Aboriginal offenders. *Psychological Assessment*, *25*, 167-179.

Sandvik, A. M., Hansen, A. L., Kristensen, M. V., Johnsen, B. H., Logan, C., & Thornton, D. (2012). Assessment of psychopathy: Inter-correlations between Psychopathy Checklist Revised, Comprehensive Assessment of Psychopathic Personality˚Institutional Rating Scale, Self-Report of Psychopathy Scale-III. *International Journal of Forensic Mental Health*, *11*, 280-288.

Shariat, S. V., Assadi, S. M., Noroozian, M., Pakravannejad, M., Yahyazadeh, O., Aghayan, S., . . . Cooke, D. (2010). Psychopathy in Iran: A cross-cultural study. *Journal of Personality Disorders*, *24*, 676-691.

Williams, K. M., Paulhus, D. L., & Hare, R. D. (2007). Capturing the four-factor structure of psychopathy in college students via self-report. *Journal of Personality Assessment*, *88*, 205-219.

Appendix

The Persian Translation of the 20-Item Four-Factor Measure of Psychopathy

کاملا مخالفم	کمی مخالفم	نه موافقم نه مخالفم	کمی موافقم	کاملا موافقم	عبارت	ردیف
					به راحتی می توانم مردم را به بازی بگیرم.	۱
					معمولا وقتی دروغ می گویم، مردم تشخیص می دهند.	۲
					خودم را آدم آب زیرکاه و فریبکاری نمی دانم.	۳
					کلاه گذاشتن بر سر مردم، من را ناراحت می کند.	۴
					از اینکه بر سر مردم کلاه بگذارم، لذت می برم.	۵
					تا به حال، یک وسیله نقلیه (موتور، ماشین و …) دزدیده ام.	۶
					در فعالیت های گروه های خلافکار شرکت داشته ام.	۷
					تا به حال توسط پلیس دستگیر شده ام.	۸
					تا به حال به قصد سرقت یا خرابکاری وارد ساختمان یا ماشینی شده ام.	۹
					بعضی از دوستانم به زندان رفته اند.	۱۰
					به قوانین پایبندی کمی دارم.	۱۱
					خیلی وقت ها صرفا برای داشتن هیجان، کارهای خطرناک کرده ام.	۱۲
					از انجام کارهای بی پروا و ماجراجویانه لذت می برم.	۱۳
					اگر موضوع بهتری پیش آید، از قرار ملاقاتی که قبلا تعیین شده، می گذرم.	۱۴
					تا به حال پیش آمده که پول چیزی (مانند سینما، غذا یا تاکسی) را پرداخت نکنم.	۱۵
					معمولا در قبال مردم، گستاخ و بی ادب هستم.	۱۶
					احتمالا دوستانم مرا آدمی مهربان می بینند.	۱۷
					حاضرم حقوق دیگران را ضایع کنم تا به آنچه که می خواهم برسم.	۱۸
					من مهم ترین آدم جهان هستم و هیچ آدم دیگری مهم نیست.	۱۹
					برایم مهم است که به احساسات دیگران آسیبی نزنم.	۲۰