SOCIAL SUPPORT DOES NOT MODERATE THE RELATIONSHIP BETWEEN PERSONALITY AND RISK-TAKING/ ANTISOCIAL BEHAVIOUR

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Abstract

Perceived social support from family, friends, and significant others is as a key influence on positive behaviour, so potentially reduces risk-taking and offending. Research on these constructs was examined in relation to the influence of personality. We recruited 429 general population participants who completed self-reports of personality, the Dark Triad (DT), risk-taking, offence history, and social support, testing whether social support moderated the expected associations between personality, risk, and offending. As expected, risk-taking and offence history were correlated with, and predicted by, personality, namely, higher psychopathy and Machiavellianism, and lower emotionality and Honesty-Humility. Of the three social support constructs – friends, significant others, and family, only family history had any significant association with offending. While perceived level of social support from family was weakly associated with lower offence history, this effect fell out when personality was entered into the model, and overall social support did not moderate offence history or risk-taking. Social support may idiosyncratically influence lives via stress buffering or relational regulation, but these data suggest SS does not have *a priori* systematic effects on troublesome outcomes like risk-taking and offending.

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Keywords: Personality, Dark Triad, HEXACO, offending, Risk-taking, Social Support

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Introduction

The expressive and emotional support ("social support", SS) one gets from relationships, peers, and partners helps improve physical and mental health (Hochstetler, DeLisi, & Pratt, 2010; Wills, 1991). SS works operates through stress buffering (protecting against negative aspects of stressful events) and direct effects of interpersonal support, such as raising mood through affiliation and attachment. Irrespective of actual stress, persons with more SS report better physical and mental health (Cohen & Wills, 1985), possibly because SS informs coping skills and relational regulation (Thoits, 1995; Lakey & Orehek, 2011). Self-management requires emotional regulation and is lower in persons who engage in more risk-taking and antisocial activity (Quinn & Fromm, 2010; Garofalo, Neumann, & Velotti, 2018). More SS should hence lead to reduced risk-taking and offending (Cullen, 1994). This study tests if perceived social support moderates associations between personality, risk-taking and antisocial behaviours.

The Dark Triad (DT), describes three constructs underlying antagonistic behaviour: Machiavellianism, narcissism, and psychopathy (Paulhus & Williams, 2002; Jones & Paulhus, 2014). These constructs map onto core personality traits captured by the Big Five and HEXACO models (Muris, Merckelbach, Otgaar & Meijer, 2017). Higher psychopathy and Machiavellianism traits correlate with low agreeableness, and to a lesser degree with low conscientiousness and high neuroticism; narcissism is also associated with higher extraversion and openness (Egan, Chan, & Shorter, 2014; Lee & Ashton, 2005). The HEXACO model extends Big Five models of personality via a sixth trait, Honesty-Humility, that also correlates with lower DT scores (Lee et al., 2005; Muris et al., 2017). As the DT shares more

variance with HEXACO than other FFM assessments (Book, Visser, & Volk, 2015), HEXACO models are, arguably, better for explaining risky behaviour than other such indices (Burtăverde, Chraif, Anitei, & Dumitru, 2017).

Risk-taking typically involves hedonic self-focused acts with potentially negative outcomes (Boyer, 2006) such as substance use, unsafe sex, smoking, driving, and gambling (Zuckerman & Kuhlman, 2000). Individuals take risks to raise arousal and excitement, and this behaviour is driven by biological mechanisms that give rise to such sensations (Maples-Keller, Berke, Few, & Miller 2016). Risk-taking occurs across many domains; Frey, Pedroni, Mata, Rieskamp, and Hertwig (2017) propose a general factor of risk preference similar to *g* in intelligence. Nicholson, Soane, Fenton-O'Creevy, & Willman (2005) developed a 12-item instrument assessing current and past risk-taking across recreational, safety, social, career, finance, and health risk-taking areas. They found overall risk propensity correlated with high extraversion and openness, and lower neuroticism, agreeableness, and conscientiousness. It was theorised that extraversion and openness were risk-approaching mechanisms, whereas low neuroticism and agreeableness blocked emotional reactions or guilt, and low conscientiousness enabled individuals to deviate from social norms. The DT is also associated with risk-taking. Crysel, Crosier, and Webster (2013) found sensation-seeking and risky behaviour (i.e., higher blackjack bets, steeper temporal discounting) positively correlated with all DT dimensions, perhaps because of the future-discounting nature of psychopathy, and the over-confidence of grandiose narcissism.

The correlates of risk-taking and offending are similar, lower agreeableness, conscientiousness, and neuroticism, and higher DT scores (Miller & Lynam, 2001; Jones, Miller, & Lynam, 2011). Persons higher in DT traits use more moral neutralization (Egan, Hughes, & Palmer, 2015); are more likely to be violent (Pailing, Boon, & Egan, 2014); sexually

harass (Zeiger-Hill, Besser, Morag, & Campbell, 2016), and bully peers (Baughman, Dearing, Giammarco, & Vernon, 2012). High correlations between DT traits suggest a common antagonism construct (O'Boyle, Forsyth, Bank, & McDaniel 2011; Bertl, Pietschnig, Tran, Stieger, & Voracek, 2017) that drives Machiavellianism and the socially negative (but otherwise less dark) aspects of narcissism (Rauthmann & Kolar, 2012).

A common criticism of trait approaches is that they neglect the contextual, relational, and social influences on risk-taking and offending behaviour. Environmental factors such as social modelling, peer and contextual influences on actions, and future-discounting all influence behaviour (Centifanti, Modecki, MacLellan, & Gowling, 2018; McCoy, & Natsuaki, 2018). Cullen (1994) suggests social support serves as a protective factor to stop someone engaging in criminal or deviant behaviour. Indirectly, Wright, Cullen, and Miller (2001) found social support from family positively related to moral beliefs; elsewhere, Michael and Ben-Zur (2007) found adolescents with positive parental relationships were less risk-taking. Hochstetler et al. (2010) found individuals on parole receiving more SS from family and friends reported fewer hostile feelings. Lastly, Carre and Jones (2017) looked at the effects of experimental games and the DT, and found persons high on psychopathy more likely to take risks if subjected to coercion, whereas narcissists given SS were less likely to make risky choices. This suggests differential risk-taking and offending profiles in relation to DT propensities arising from different SS types.

In summary, personality, especially low agreeableness and psychopathy, correlate with offending and risk-taking behaviour. Some research suggests SS acts as a buffer against negative outcomes. The present research seeks to integrate these positions; to replicate the relationships between personality and brief measures of offending and risk-taking behaviour, and test if an individual's level of perceived SS moderates these relationships. This research

focusses on adults, for whom behaviour is more settled than adolescents, and perceived (subjective) SS which is more consistently linked to positive outcomes than structural factors such as social network size (Haber, Cohen, Lucas, & Baltes, 2007).

It was predicted that:

1. Self-reported offending will be associated with lower honesty-humility, agreeableness, and conscientiousness, and higher DT traits, particularly psychopathy.
2. Risk-taking behaviour will be associated with lower honesty-humility, agreeableness, and conscientiousness. Lower emotionality and higher extraversion, openness, and DT traits generally
3. Higher levels of perceived SS will moderate this relationship.

As a final summary of the simultaneous integrated effects in the data set, and how measures predict one-another, a structural equation model will be calculated to see how the different constructs fit together.

Methods

Participants

For 12 predictor variables, an effect size of 0.1, an error probability of 0.05, and a sought power of 0.95, G-Power recommended a sample size of 270 participants (Faul, Erdfelder, Lang & Buchner, 2007). The actual obtained sample size was 432. Participants were recruited from the general population using opportunity sampling through an online link, which was advertised on social media websites and participant recruitment platforms. The

cohort comprised 44.6% females, 53.8% males, and 1.6% other, mean age 27.95 years (SD=9.60); participants had a mode of 16 years education (range 11 to 25).

Measures

All measures had good validity, with reliabilities ranging from 0.72 to 0.91 (see table 1).

1. The HEXACO-60 (Ashton & Lee, 2009)

The HEXACO-60 measures 6 personality dimensions: honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience. This measure has 60 items (6 10-item subscales for each of the dimensions). Each item is rated on a Likert scale between 1 and 5 representing the agreeability of the participant to the statement where '1' is 'strongly disagree', and '5' is 'strongly agree'.

2. The Multidimensional Scale of Perceived SS (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988)

The MSPSS has three subscales measuring perceived SS from family, friends, and a 'special person' (i.e., a significant other). There are 12 items in total, and participants are asked to rate each item on a 5-point Likert scale between 'strongly disagree' to 'strongly agree' (1-5).

3. The Risk-taking Index (RTI; Nicholson, Soane, Fenton-O'Creevy, & Willman, 2005)

The RTI is a 12-item measure of an individual's engagement across 6 risk-taking domains rated for the present and past, using single items to index recreational, health, career, financial, social, and safety risks. The items are rated on a scale ranging from 'never', 'rarely', 'quite often', 'often', to 'very often'. Higher scores indicate greater risky behaviour.

4. Self-Report Early Delinquency (SRED; Charles & Egan, 2005; Moffit & Silva, 1988)

The SRED was used to gather offence histories. Items ask whether participants have engaged in a specific anti-social act 'never', 'once', or 'more than once'. The scale, initially composed by Moffit and Silva (1988), was used in the modified UK version (Charles & Egan, 2005).

Charles and Egan's measure comprised of 58 items. Here we used the 25 highest-loading items of the scale. SRED wording in the items were made more adult-focused, for example the inclusion of the workplace instead of school, making it suitable for adult participants.

5. The Short Dark Triad (D3; Jones & Paulhus, 2014)

The D3 is a brief measure of the Machiavellianism, narcissism, and psychopathy DT dimensions. It comprises 27 items, with 9 items in each subscale. Participants rate each item on a 5-point Likert scale to reflect their agreeability with the statement ('1'= 'strongly disagree', '5'= 'strongly agree').

Procedure

Ethical approval was obtained from the Faculty of Medicine and Health Sciences Research Ethics Committee, where the study was preregistered. Participants completed the anonymous online questionnaire through Bristol Online Surveys. Participants gave informed consent prior to the questionnaire set described above, also providing some demographic details (age, gender, and years in education). The questionnaires were given in the following order: HEXACO-60, D3, MSPSS, SRED, and finally RTI. Prior to each measure, participants were given task instructions.

Data Analysis

Data were imported into SPSS, and scored as per instructions. Each participant had total and subscale scores computed for all questionnaires. Means, standard deviations, and Cronbach's alpha reliabilities for the scales and subscales were computed. Correlational analyses tested basic relationships between variables. Next, regression analyses identified significant predictor variables. The macro PROCESS for SPSS (Hayes, 2013), calculated moderation analyses to determine if there was a protective moderation influence of SS on the relationship between personality and behaviour. Finally, a structural equation model using

AMOS fitted our data into an integrated model that considered all information simultaneously. Data are available on request from the corresponding author.

Results

Tables 1, 2 and 3

Data were checked for normality. MSPSS (SS) scores were negatively skewed for all subscales, whilst SRED and RTI scores were positively skewed, so adjusted with log and square root transformations. Summary total measures and their intercorrelation are presented in tables 1-3. To optimize focus on strong effects, we focused on associations of 0.001 or below. DT Psychopathy correlated with Machiavellianism and Narcissism scales at approximately 0.46 ($p<0.001$), and negatively with Honesty-Humility, Agreeableness, and Emotionality, as expected. The boxed section in table 1 shows the correlations between the personality measures and risk-taking, delinquency, and SS total scores. Correlations with personality were greater for risk-taking and offending than for SS, for which the strongest correlation was with Extroversion ($r = 0.36$, $p <0.001$). Risk-taking and offending correlated at 0.58 ($p<0.001$). The SS total was not correlated with either of these outcomes.

Risk-taking and SS measures and subscales were analysed separately. Though comprising few items, the RTI and SS scales were highly reliable (table 2). These were correlated with the measures of personality, and offending (table 3). Single risk facets (comprising past and present versions of the construct) and the total risk-taking score were substantially associated with personality and offending indices, but the only SS-risk correlations were between career risk and family / friends SS ($r = -0.15$, and -0.21, $p < 0.001$, respectively), and health risk and family SS (-0.15, $p < 0.001$). The SS family / offending

correlation was -0.18, $p < 0.001$ (SS family support / psychopathy correlation = -0.19, $p < 0.001$). No other aspect of SS was associated with offending.

Regression

Table 4

Data did not have multicollinearity concerns. Regression tested the variables predicting risk and offending (table 4). PROCESS then tested whether SS moderated psychopathy's relationship with risk-taking and offending effects. Two four-stage stepwise hierarchical regressions were computed. Due to non-normality for some predictor variables, 95%, bias-corrected and accelerated confidence intervals were calculated using bootstrapping, ensuring a more robust solution (Efron & Tibshirani, 1993; Field, 2013). The first model examined offending (SRED), the second risk (RTI total). In both models, blockwise entry first introduced demographics (age, sex, education), secondly the 6 HEXACO dimensions, thirdly, DT traits, and finally, the three dimensions of perceived SS. In both cases the introduction of demographics, then HEXACO, then the DT significantly ($p < 0.001$) increased the prediction of the outcome. Overall, 30.1% of offending variance was explained, 27.6% of risk-taking. The significant independent predictors for offending were lower Honesty-Humility, lower Emotionality, higher Openness, higher Psychopathy, and lower family SS. The significant independent predictors for risk-taking were sex, lower Emotionality, higher Openness, lower Machiavellianism, and higher Psychopathy. Risk-taking showed a small (trend) association with SS from friends. To test the strongest predictive relationships, 4 regressions were calculated using PROCESS; offending and psychopathy with offending by SS total, and by SS

family. Neither were significant. Similar analyses were done between psychopathy and risk-taking, for SS total, and SS from friends and not significant. The printouts associated with these results are in the downloadable materials.

Structural equation model of the results.

Figure 1

To integrate all results, a structural equation model (SEM) was calculated using AMOS (figure 1). The model had two latent variables to accommodate correlation of the DT indicators (DTg) and the SS subscales (Soc Support). Risk-taking and offending were entered as total scores. HEXACO was theorised to antecede higher-level constructs. The final model had a goodness of fit index (GFI) of 0.952 (adjusted GFI =0.920), and low RMSEA (0.058) and CMIN (2.429) indicators, showing the data fitted the model well. Only SEM pathways with critical ratios of $p < 0.001$ are shown. (Output available in the downloadable materials.)

In the model honesty-humility and agreeableness predicted DTg, though DTg did not significantly predict risk or offending compared to specific residual variance associated with DT psychopathy. Openness, low emotionality and specific psychopathy variance predicted risk-taking, while offending was predicted by risk-taking and the direct and indirect effects of psychopathy. SS was predicted by greater HEXACO emotionality and extroversion. SS had no pathways from general or residual specific SS measures to risk or offending, and did not mediate personality associations. These results suggest SS is not a strong third variable directly or indirectly influencing the association between personality, offending and risk-taking behaviour.

Discussion

We sought to replicate findings correlating personality with risk-taking and offending, and test if SS had a 'protective' factor on these constructs. Expected correlations between personality with risk taking and offending history were found. Predictive models found high psychopathy the main contributor to risk-taking, followed by low Machiavellianism, low emotionality, and high openness. SS had some small effects at the univariate stage, but did not mediate these relationships.

Reflecting Nicholson et al. (2005)'s differentiation of risk, correlations for psychopathy and risk were stronger for negative risks (safety, and financial risks such as gambling and fast driving), and weaker for positive recreational risks. Lower honesty-humility and conscientiousness, and higher emotionality had modest associations with greater risk, whereas higher psychopathy was strongly and systematically associated with positive and negative expressions of risk. The SEM indicated the meshing of general personality and the DT, the latent construct of the DT being predicted by honesty-humility and agreeableness alone, while residual, specific elements of psychopathy predicted risk-taking and offending. SS was predicted by extroversion and emotionality, but did not moderate risk or offending.

SS and RTI subscales were examined individually; in basic correlations perceived SS from family had significant negative correlations with higher offending and psychopathy, and for taking more health and career risks. Having SS from friends was associated with taking less career risks, but SS from a significant other was not associated with personality, risk, or offending. We were surprised to find SS had so few effects, nor moderated associations. Significant small univariate effects disappeared when multivariate data was introduced. Subjective SS was primarily a reflection of extroversion and emotionality. Extroversion

mainly reflects more positive risk-taking, and stress-buffering effects may be irrelevant to such outcomes, relational regulation being insufficiently systematic to show effects. Family support has an idiosyncratic protective role in antisocial behaviour (Michael & Ben-Zur 2007), as the qualities of the family concerned are important (Thornberry, Freeman-Gallant, Lizotte, Krohn, & Smith, 2003). Likewise, the role of "supportive" friends varies, given peers can be as much facilitators of offending as much as inhibitors (Michael et al., 2007). It is for this reason that moderation analyses probably did not find SS systematically and significantly inhibited offending or risk-taking.

General Limitations and Future Research

Given the sample size, proven reliable measures, and replicated effects, this is a powerful study. Though coarse, our measures of risk and offending were highly reliable, even at the level of two-item subscales. The offending measure sampled basic offending history constructs (e.g., truancy, criminal damage, drug taking, theft, and fighting) which are broad indicators of more frequent antisocial acts, so more common in the general population, and as ever, associated with personality and risk-taking. There was ample variance in the study, and some strong effects were found bar those for SS's moderation of these effects. Other SS indices might have been more informative; Zimet et al. (1988) observed that the meaning of family changes throughout the lifetime, so the level of SS one perceives might also change over time; our sample ranged from 18 and 65 years of age; family means different things at different ages, as does friendship. Nevertheless, it is clear from the current study that while claiming concepts like perceived SS are invariably important to understand how personality influences offence history and risk, the empirical evidence for this not apparent.

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Table 1: Correlation matrix of all total summary measures, alpha reliabilities on leading diagonal in parentheses (n = 429).

	1	2	3	4	5	6	7	8	9	10	11	12
1. Machiavellianism	(0.77)	**0.24 ****	**0.45 ****	**-0.52 ****	**-0.15 ***	-0.07	**-0.33 ****	-0.03	-0.01	0.11	**0.22 ****	**-0.13 ***
2. Narcissism		(0.74)	**0.47 ****	**-0.45 ****	**-0.21 ****	**0.53 ****	**-0.17 ****	-0.04	-0.03	**0.22 ****	**0.17 ****	0.05
3. Psychopathy			(0.72)	**-0.48 ****	**-0.28 ****	0.08	**-0.32 ****	**-0.31 ****	-0.05	**0.45 ****	**0.49 ****	**-0.15 ****
4. Honesty-Humility				(0.75)	0.05	-0.07	**0.32 ****	**0.21 ****	**0.14 ***	**-0.20 ****	**-0.27 ****	0.05
5. Emotionality					(0.83)	**-0.26 ****	**-0.15 ***	0.01	-0.07	**-0.32 ****	**-0.28 ****	**0.16 ****
6. Extroversion						(0.84)	0.08	**0.16 ****	0.01	**0.14 ***	0.08	**0.36 ****
7. Agreeableness							(0.80)	0.00	**0.14 ***	-0.07	-0.09	-0.01
8. Conscientiousness								(0.77)	**0.11***	**-0.15 ***	**-0.17 ****	**0.17 ****
9. Openness									(0.78)	0.11	**0.16 ****	0.01
10. RTI total										(0.83)	**0.58 ****	-0.11
11. SRED total											(0.89)	-0.09
12. Social Support total												(0.91)
Mean	3.13	2.52	2.31	3.41	3.05	2.99	3.11	3.49	3.56	2.15	33.7	3.72
SD	0.61	0.62	0.62	0.65	0.77	0.74	0.67	0.62	0.67	0.69	8.86	0.84

Table legend: RTI = Risk Taking Inventory; SRED = Self-=reported offending; Significance: * = p < 0.01; ** = p <0.001 (two tailed); significant correlations in **bold**.

Table 2: Means, SD and reliabilities for SS and RTI subscales (n = 432).

	Mean	Standard Deviation	Cronbach's Alpha
SS subscale			
Family	3.55	1.09	0.90
Friends	3.76	0.97	0.92
Significant Other	3.86	1.16	0.95
RTI subscale			
Recreational	2.53	1.33	0.90
Health	2.83	1.26	0.85
Career	1.66	0.91	0.84
Financial	1.66	0.85	0.89
Safety	2.36	1.21	0.87
Social	1.89	1.00	0.87

Table legend: SS = Social Support; RTI – Risk-taking Inventory.

Table 3: (Pearson's r) of RTI item indicators and total score in relation to personality, Dark Triad, Social support, and offending indicators.

	Mach	Narc	PP	HH	E	X	A	C	O	SS total	SS family	SS friends	SS sig other	SRED
RTI Recreational	0.01	**0.18** ***	**0.25** ***	-0.04	**-0.37** ***	**0.30** ***	0.04	0.00	0.10	0.05	0.07	0.03	0.01	**0.30** ***
RTI Health	0.05	-0.04	**0.21** ***	**-0.18** ***	0.02	-0.12	-0.10	**-0.20** ***	0.11	-0.11	**-0.15** ***	-0.04	-0.06	**0.50** ***
RTI Career	0.09	0.10	**0.24** ***	-0.11	**-0.17** ***	-0.04	-0.02	-0.10	0.04	**-0.19** ***	**-0.15** ***	**-0.21** ***	-0.10	**0.30** ***
RTI Financial	0.13	**0.17** ***	**0.37** **	**-0.17** ***	**-0.15** ***	-0.01	-0.06	**-0.20** ***	-0.01	**-0.15** ***	-0.12	-0.12	-0.10	**0.38** ***
RTI Safety	0.09	**0.18** ***	**0.40** ***	**-0.16** ***	**-0.30** ***	0.11	-0.03	-0.11	0.02	-0.07	-0.04	-0.06	-0.06	**0.43** ***
RTI Social	0.09	**0.27** ***	**0.25** ***	-0.11	**-0.19** ***	**0.25** ***	-0.12	0.01	**0.15** ***	-0.01	-0.08	0.01	0.04	**0.24** ***
RTI Total score	0.11	**0.22** ***	**0.45** ***	**-0.20** ***	**-0.32** ***	0.14	-0.07	**-0.15** ***	0.11	-0.11	-0.11	-0.09	-0.07	**0.58** ***

Table legend. N = 432; all coefficients over 0.15 significant at $p < 0.001$ and in **bold**. Risk Taking Inventory; SRED = Self-reported offending; Mach = .Machiavellianism, Narc = Narcissism, PP = Psychopathy, HH = Honesty-Humility; E = Emotionality; X = Extroversion; A = Agreeableness; C = Conscientiousness; O = Openness; SS Sig other = SS from Significant Other.

Table 4: Regression predicting total RTI and SRED offending scores.

	RTI			SRED		
	Standardised Beta	t-statistic	p	Standardised Beta	t-statistic	p
Constant		2.879	0.004		3.648	0.000
Age	0.060	1.386	0.166	**0.113**	**2.653**	**0.008**
Sex	**0.124**	**2.542**	**0.011**	0.046	0.958	0.338
Education	0.080	1.844	0.066	0.038	0.905	0.366
Honesty-Humility	-0.071	-1.264	0.207	**-0.126**	**-2.285**	**0.023**
Emotionality	**-0.132**	**-2.628**	**0.009**	**-0.127**	**-2.563**	**0.011**
Extraversion	0.108	1.840	0.067	0.040	0.699	0.485
Agreeableness	-0.015	-0.312	0.755	0.024	0.499	0.618
Conscientiousness	-0.035	-0.759	0.448	-0.047	-1.033	0.302
Openness	**0.094**	**2.138**	**0.033**	**0.150**	**3.468**	**0.001**
Machiavellianism	**-0.153**	**-2.900**	**0.004**	-0.023	-0.442	0.659
Narcissism	-0.027	-0.458	0.647	-0.084	-1.454	0.147
Psychopathy	**0.405**	**6.963**	**0.001**	**0.418**	**7.300**	**0.001**
MSPSS family	-0.004	-0.083	0.934	**-0.110**	**-2.307**	**0.022**
MSPSS friends	-0.086	-1.653	0.099	0.063	1.221	0.223
MSPSS sig other	0.013	0.276	0.783	0.046	0.961	0.337
R	0.549			0.571		
Adjusted R2	0.276			0.301		
F (15, 414)	11.931, $p < 0.001$			13.339, $p < 0.001$		

Table legend: Significant standardised betas in bold, 2-tailed significance (p) based on 1000 bootstrap samples.

Figure 1: Structural equation model fitting HEXACO, DT, and SS measures to risk taking and delinquency outcomes.

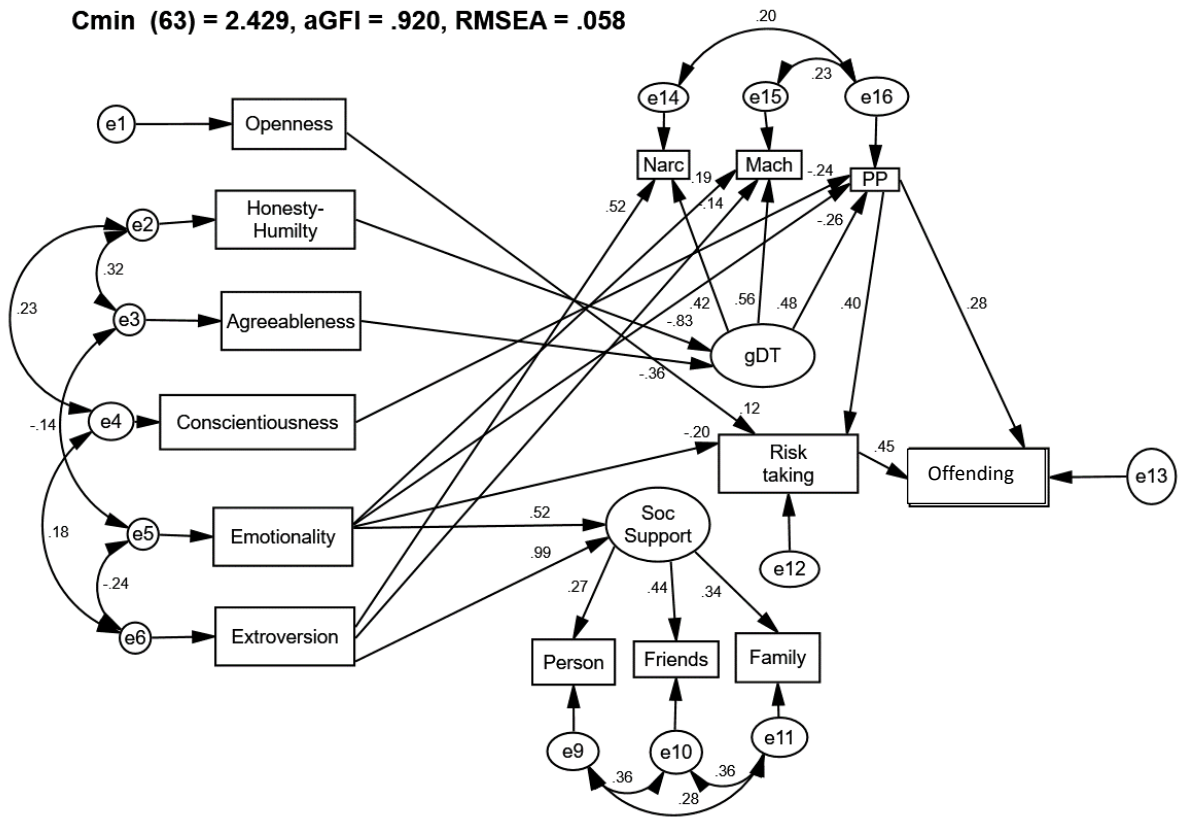

Figure legend: Measured variables in boxes, latent variables in ovals, circled arrows are error variances, arrowed lines are significant (p = 0.001) standardised regression pathways, double-headed arrows are covariances between subscale measures. DT=Dark Triad; PP=Psychopathy; Mach=Machiavellianism; Narc=Narcissism; gDT = general DT latent variable; Soc Support = SS latent variable.