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# Agreeableness, conscientiousness, and psychoticism: Distinctive influences of three personality dimensions in adolescence

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Researchers have suggested that the psychoticism (P) personality dimension of the Eysenck Personality Questionnaire may be largely redundant with the agreeableness (A) and conscientiousness (C) constructs of the five-factor model. Little research has examined the distinctiveness of these constructs. We utilized a multi-wave, multi-method design to examine the ability of C, A, and P to uniquely predict a number of important outcomes amongst high school students. A total of 778 students (391 males, 387 females; mean age 15.41 years.) completed personality measures in Grade 10. Self-reported self-esteem, social support, health-related behaviours, religious values as well as teachers' assessments of students, were collected 1 and 2 years later. A, C, and P were distinctive in their ability to predict these outcomes, after controlling for gender and socio-economic status as well as Grade 10 extraversion, openness, and neuroticism. The individual P items explained unique variance over and above that explained by A and C. It was concluded that P is not merely the opposite of A and C. Implications for interventions are raised.

As it has been claimed that personality has important consequential outcomes (Ozer & Benet-Martinez, 2006), an important question for personality and individual difference researchers therefore is to what extent personality dimensions differ in their ability to predict outcomes. Somewhat surprisingly, few longitudinal studies have actually been designed that assess the predictive capacity of personality variables, particularly in settings recognized as important for the individual. Such research is important as the conclusions drawn could have important implications for interventions. As Ozer and Benet-Martinez (2006) recently explained, '…the ultimate test of any individual difference

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personality characteristic is its implicative meaning' (pp. 401–402). In other words, does personality influence real-world behaviours?

In the present study, we address the distinctiveness of personality dimensions using longitudinal data. We focused on the distinctive predictive ability of three major, and somewhat overlapping, personality dimensions known to be important for a wide range of behaviours: agreeableness (A), conscientiousness (C), and Eysenck's psychoticism (P) dimension. Regarded as an indicator of disinhibition, the P dimension correlates negatively with C and A leading to the conclusion that these dimensions, although distinctive, share some overlap (Kotov, Gamez, Schmidt, & Watson, 2010). Goldberg and Rosolack (1994) suggested that P is a blend of A and C, whereas Eysenck argued that A and C are subdimensions of P, that is, P is a higher order factor relative to A and C (Eysenck & Eysenck, 1985). Costa and McCrae (1995) found no evidence for this view. Although they did not check the unique variance explained by each dimension, they did show that the patterns of correlations of A and C with various outcome measures were quite different to P. Recent commentary suggests that P and C can be regarded as markers of an overarching tendency referred to as constraint or self-control (e.g., Zuckerman, 2005).

We were interested in the diagnostic value of these dimensions and their ability to predict, 1 and 2 years later, significant life outcomes among adolescents. As far as we have been able to establish, the unique predictive ability of these variables in the same cohort of individuals is not clear, whilst there has been very little research in this area that is longitudinal. There are two important reasons for focusing on the distinctiveness of these personality measures. First, if variables are redundant, then there is no compelling reason to use them with other personality measures in which important behavioural outcomes are being predicted. Second, from a theoretical standpoint, if two variables are largely identical, then this suggests that there may be only one process that might be targeted for intervention. For example, if we assume redundancy, then an intervention that seeks to improve C would also decrease P. In addition, naturally occurring environmental factors that produce C would also produce low P. In contrast, if there is no redundancy, then A, C, and P are likely to have distinctive environmental causes and may require distinctive interventions.

### *The characteristics of agreeableness, conscientiousness, and psychoticism*

#### *Agreeableness (A)*

Graziano and Eisenberg (1997) report various conceptions of A throughout the last century including 'social interest', 'friendly compliance', 'likeability', and 'possessing a friendly disposition'. Those higher on A tend to be more trusting of others, generous, warm, kind, and good-natured (John, 1990). They feel comfortable when in close relationships with others, find it easy to form close attachments, and are easily moved by the needs of others (Dunkley, Blankstein, Zuroff, & Hui, 2006). Higher As are not affected by negative cues in their social environment and, compared to disagreeable individuals, are better able to self-regulate and diffuse aggressive thoughts leading to a reduction in aggressive tendencies (Meier, Robinson, & Wilkowski, 2006). It was shown that high As were able to demonstrate a level of self-control and actively moderate the effects of aggressive cues. It would seem that agreeable people are more successful at accessing pro-social thoughts and 'turning the other cheek' in aggressive-inducing situations (Meier *et al.*, 2006).

*Conscientiousness(C)*

Also referred to as Dependability and Will to Achieve, the conscientious individual is described as cautious, deliberate, reliable, dependable, planful (John, 1990), punctual (Back, Schmukle, & Egloff, 2006), and at ease with authority figures (Hogan & Ones, 1997). According to Costa, McCrae, and Dye (1991), the C dimension comprises both inhibition and being proactive. Higher Cs actively pursue their goals and value achievement and excellence, and are purposeful and adhere to plans. As Costa and McCrae (1998, p. 123) put it, high C people are '…hard-working, goal-oriented people' and are likely to carry tasks through to completion. They require very little supervision and '…get things done' (p. 127). Not surprisingly, C is a strong predictor of scholastic success (Heaven, Ciarrochi, & Vialle, 2007), healthy lifestyle behaviours, longevity (Hampson & Friedman, 2008), and religiosity (Saroglou, 2010).

*Psychoticism (P)*

Eysenck (Eysenck & Eysenck, 1976) proposed that P be viewed as a '…continuum from normal, through criminal, psychopathic…to schizoid and finally entirely psychotic states' (Eysenck & Eysenck, 1985; p. 65). Zuckerman (2005) suggested that impulsivity, lack of socialization, and sensation-seeking lie at the heart of the P dimension and, together with C, is regarded as an index of constraint. Current evidence suggests that, although P predicts poor adjustment and personality disorders, it does not predict psychosis (Claridge, 1997). Among youth, P predicts deteriorating emotional well-being over time (Ciarrochi & Heaven, 2007) as well as later criminal convictions (Lane, 1987) and drug-taking behaviour (Kirkcaldy, Siefen, Surall, & Bischoff, 2004).

## *The present study*

Very little research has directly examined the unique predictive value and distinctiveness of A, C, and P and it is not clear from the existing literature whether these dimensions explain unique variance in important and consequential outcomes. Thus, the aim of this longitudinal study was to assess the ability of these three personality dimensions in Grade 10 to predict important outcomes in Grades 11 and 12. We used self-report and observer ratings of outcomes that are important during the teenage years, including self-esteem, their integration into a social support network, health-related behaviours, and self-reported religious values.

*Self-reports*

We assessed self-esteem as it captures thinking about the self and one's evaluations about one's social worth as a person (Baumeister, Campbell, Krueger, & Vohs, 2003). This is a significant outcome for teenagers as they negotiate late adolescence and prepare for the transition to emerging adulthood. Given the known links between P and maladjustment (Claridge, 1997), we expected P to be significantly negatively related to self-esteem and that the opposite pattern of relationships would apply to A and C.

We assessed teenagers' integration into a social network. Such networks provide support in times of stress and those with poor psychological adjustment are known to have fewer people who can be called on when needed, and report higher levels of dissatisfaction with the support that they do have (Coyne & Downey, 1991). A good social

support network is important for youth and we expected those high on P to have lower levels of and satisfaction with social support. We expected the opposite pattern for A.

We assessed students' drinking- and smoking-related behaviours including their use of stimulant drinks, alcohol, cigarettes, and marijuana. About 37% of 16- to 19-year-olds in Australia drink at levels that puts them at risk for short-term harm. The proportion of teenagers who smoke increases with age from 3% for those aged 12–15 years to 17% for 16- to 19-year-olds (Australian Institute of Health & Welfare, 2007). We expected these behaviours to be positively related to P and negatively related to C. These behaviours are not typically related to A and so we made no predictions regarding this variable.

Finally, participants reported their religious values. Ozorak (1996) described the adolescent years as a period of readjustment of faith and religious sentiment (see also Hood, Hill, & Spilka, 2009). Following meta-analyses by Saroglou (2010), we expected C and A to show a strong association with religious values, whilst the opposite pattern would hold for P (Eysenck & Eysenck, 1976).

#### *Observer ratings*

To minimize some of the risks associated with relying only on self-report measures, we also included criterion measures based on teacher ratings of students taken in Grade 11. We obtained ratings of behavioural problems, emotional problems, and adjustment. We expected A and C to be significantly associated with indices of good adjustment and the opposite pattern of relationships to hold for P.

## Method

### *Participants*

Participants attended five widely dispersed Catholic high schools in one Diocese in New South Wales, Australia. At Time 1, respondents were 778 students in Grade 10 (391 males, 387 females, *M*age = 15.41 years) participating in the *Wollongong Youth Study* (WYS) who were surveyed again 12 months later in Grade 11 (267 males, 298 females) and 1 year after that in Grade 12 (187 males, 206 females). Attrition is mainly due to the fact that Grade 10 is an exit point for those moving to other schools or leaving for other forms of education before the final Grade 12 examinations. Those who provided data in Grade 12 (completers) scored significantly higher than non-completers on C $t(767) = 2.96, p < .001$, and A $t(767) = 3.87$, $p < .001$. Non-completers scored significantly higher than completers on P, $t(775) = 2.70$, $p < .001$. Descriptive statistics were based on all data, and all longitudinal relationships involving two time points were based on participants who completed both time points.

Our sample was diverse: The spread of some occupations of the fathers of our participants at the commencement of the WYS closely resembled national distributions (Australian Bureau of Statistics, ABS, 2004): for example, professionals, 20.4% (16.5% nationally); associated professionals, 15.1% (12.7%); intermediate production and transport, 11.2% (13.4%); tradespersons, 34.3% (21%); managers, 4.8% (9.7%); labourers, 3.3% (10.8%); advanced clerical, 1.2% (0.9%); intermediate clerical, 5.5% (8.8%); and elementary clerical, 4.3% (6.1%). In addition, 22% lived in non-intact families, whereas the national divorce rate at the time was 29% (ABS, 2005), and 19.77% were exposed to a language other than English at home, whereas the national figure was 15.8% (ABS, 2006).

### *Measures*

*Grade 10 self-assessments*

*Big Five personality dimensions (Goldberg et al., 2006).* We used the 50-item measure of personality taken from the International Personality Item Pool. This measure has concurrent validity as assessed against the NEO-PI (Gow, Whiteman, Pattie, & Deary, 2005). In addition to assessing A and C, we also assessed extraversion (E), openness to experience (O), and neuroticism (N). We obtained alpha coefficients of .76 (for A), .74 (C), .85 (N), .80 (O), and .85 (E).

*Psychoticism (Eysenck & Eysenck, 1976).* We used Corulla's (1990) 12-item revision of the junior P scale (alpha = .71).

*Grade 11 teacher reports*

*Teacher ratings (Pulkkinen, Kaprio, & Rose, 1999).* This is a 34-item multidimensional nomination inventory with parallel forms for teachers and parents and has demonstrated reliability and discriminative validity. Teachers were asked to rate each student across a number of dimensions on a 4-point scale from *not observed in this student* (0) to *this characteristic fits the student very well* (3). The composite dimensions, with alpha coefficients shown in brackets, were behavioural problems (.91), emotional problems (.87), and overall adjustment (.88).

*Grade 12 self-assessments*

*Self-esteem (Rosenberg, 1979).* This well-known 10-item inventory, with excellent reliability and validity, measures global self-esteem rather than specific views of the self (Baumeister *et al.*, 2003). Participants were asked to indicate their agreement with statements about the self. High scores indicate high self-esteem and on the present occasion internal consistency was .86.

*Social support (Sarason, Sarason, & Shearin, 1986).* This instrument yields separate scores for total number and type of support available and the participant's satisfaction with that support. For each item, a situation is posed and respondents are asked to list the initials of the people who would be sources of support as well as their overall satisfaction with the support received. All sources of support were summed to yield a total support score and the four satisfaction items were summed to yield a total satisfaction score with an alpha coefficient of .88.

*Health-related behaviours (Currie, Hurrelmann, Settertobulte, Smith, & Todd, 2000).* Participants were asked the age at which they first consumed alcohol, got drunk, smoked a cigarette, and smoked marijuana. They were also asked whether they consume stimulant drinks such as 'red Bull' or 'V' as mixers or on their own. We used principal axis factoring to explore the underlying structure of these items. On the basis of the eigenvalues and scree plot, we extracted two factors explaining a total of 63.45% of the variance. The two items dealing with stimulant drinks formed a separate scale with an

alpha coefficient of .74 and loaded on the second factor. The first factor, which we labelled drug use, contained the remaining items (alpha coefficient = .73).

*Religious values (Braithwaite & Law, 1985.* We asked participants to indicate the endorsement of religious values, namely, 'being at one with God or the universe', 'following your religious faith conscientiously', and 'being saved from your sins and at peace with God' (Braithwaite & Law, 1985). Responses were indicated on a 7-point scale from *I reject this as a guiding principle* (scored 1) to *I accept this of the greatest importance* (7). Alpha coefficient was .94.

### *Statistical analyses*

We used correlational analyses to examine the strength of association between variables followed by step-wise regression analyses to assess the significant predictors of the outcome variables. In these analyses, we controlled for gender and socio-economic status of participants as well as their levels of E, O, and N. The regression analyses allowed us to estimate the extent that A, C, and P contributed unique variance to outcomes, when controlling for each other and for the other key variables in the study.

### *Procedure*

After obtaining annual university, parental, and student consent, participants were invited to participate in a survey on 'Youth issues'. Questionnaires were completed in class in the presence of one of the authors or a school teacher. Questionnaires were completed anonymously in about 50 min without discussion. Students were fully debriefed at the end of each annual testing session.

## Results

### *Correlations*

Psychoticism, C, and A were significantly interrelated: C correlated .24 and −.32, respectively, with A and P (both $p$s < .001), whilst P correlated −.42 ($p$ < .001) with A. Although significantly related, these variables do not share more than about 16% of their variance. Moreover, although related, it is possible for two variables not to predict any distinct variance in outcomes.

To determine the associations between personality assessed in Grade 10 and later outcomes, Pearson correlations were computed (Table 1). There are a number of interesting patterns. First, the three personality variables of interest were significantly related to self-esteem, with A having the weakest association with a small effect size. Second, only P was significantly related to all three teacher assessments of students. Third, C had the weakest overall relationships with social support indicators. Fourth, as expected, C had the strongest positive relationship with religious values ($p$ < .001).

### *Multiple regression analyses*

We ran a series of multiple regression analyses to assess the ability of P, C, and A to explain unique variance in our outcome measures. We tested a number of models. In all models,

**Table 1.** Intercorrelations between personality variables (Grade 10) and self-reported outcomes in Grade 12 and teacher ratings in Grade 11

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 C 10 | – | | | | | | | | | | | | | | |
| 2 A 10 | .24*** | – | | | | | | | | | | | | | |
| 3 N 10 | −.28*** | −.05 | – | | | | | | | | | | | | |
| 4 O 10 | .33*** | .41*** | −.09* | – | | | | | | | | | | | |
| 5 E 10 | .03 | .27*** | −.26*** | .22*** | – | | | | | | | | | | |
| 6 P 10 | −.32*** | −.42*** | .10** | −.13*** | .08* | – | | | | | | | | | |
| 7 Religiosity 12 | .30*** | .09 | −.08 | .03 | .05 | −.13** | – | | | | | | | | |
| 8 Self-esteem 12 | .23*** | .10* | −.49*** | .09 | .19*** | −.21*** | .08 | – | | | | | | | |
| 9 Total SS 12 | .14** | .33*** | −.19*** | .14** | .26*** | −.23*** | .12* | .24*** | – | | | | | | |
| 10 Satisfaction SS 12 | .12* | .23*** | −.23*** | .07 | .20*** | −.23*** | .12* | .37*** | .38*** | – | | | | | |
| 11 Adjustment 11 | .01 | .16** | .05 | .06 | .05 | −.21*** | −.06 | .04 | .22*** | .18** | – | | | | |
| 12 Emotional problems 11 | −.07 | −.05 | .06 | −.06 | −.22*** | −.10* | .03 | −.07 | −.04 | −.05 | −.08 | – | | | |
| 13 Behaviour problems 11 | −.08 | −.15** | .03 | −.07 | .03 | .24*** | .03 | −.12* | −.00 | −.05 | −.34*** | .31*** | – | | |
| 14 Drug use 12 | −.24*** | −.09 | .06 | −.12* | .34*** | .33*** | −.18*** | −.10* | .02 | −.02 | −.15** | −.23*** | .18** | – | |
| 15 Stimulant drinks 12 | −.11* | −.17** | .01 | −.13* | .13** | .21*** | −.12* | −.07 | −.08 | .02 | −.07 | −.03 | .05 | .23*** | – |

*Note.* *$p < .05$; **$p < .01$; ***$p < .001$.

we controlled for respondents' socio-economic status and gender at step 1 and the personality dimensions N, O, and E at step 2 of the respective analyses. At step 3 we varied the order in which we entered P, C, and A as individual variables and we also entered them as a block. This made no difference in their ability to predict outcomes in Grades 11 and 12. For the sake of brevity, the results of the final model (N, O, and E as a block at step 2; A, C, and P as a block at step 3) are presented in Table 2.

Although SES was not a significant predictor of any of the outcomes, gender of the respondent was predictive of total level of social support (females reported higher levels) and the consumption of stimulant drinks, with males consuming more. There were distinct differences in the ability of A, C, and P to predict the outcome variables after controlling for the demographic factors and other personality dimensions. Of the three dimensions being considered, A was the only factor predictive of social integration, predicting total levels of support and satisfaction with support; C predicted higher scores on the religious values measure; and P was predictive of lower self-esteem and higher reported use of drugs. Although P was significantly related to teacher assessments of our participants, it was not a distinctive predictor of these outcomes when controlling for all personality factors.

### *P-residual analyses*

Given evidence that P predicts variance over and above A, C, and the other personality factors, we sought a deeper understanding of the extent of overlap of P with A and C. To accomplish this, we used regression to remove the effects of A and C from P and formed a new variable called P-residual. (The residual is the difference between the predicted value of P, with A and C as predictors, and the actual value).

Correlational analyses revealed that P-residual correlated substantially with the original P scale, $r = .88$, indicating that 77% of the variance in the original scale was not shared with A and C. Correlations between P-residual and individual P items were all highly significant, $p < .001$, indicating that all individual P items explained unique variance over and above A and C. The size of the correlation varied between .32 ('Should people always try to not be rude; Is it important to have good manners') to .56 (would you enjoy practical jokes that would sometimes hurt people).

Other top correlates of P-residual include the items: 'Do you seem to get into more disagreements/fights than other kids your age?' ($r = .49$); 'Do you get into more trouble at school than most other kids?' ($r = .52$); 'Do you get picked on by your teachers more than other kids at school?' ($r = .47$); 'Do you like playing pranks (tricks) on others?' ($r = .46$), and 'Do you sometimes bully and tease other kids?' ($r = .46$).

Finally, we examined the extent that P-residual explained variance in our Grade 11 and 12 outcome measures when controlling for personality. P-residual explained significant variance in self-esteem (1.2%), social support satisfaction (1.5%), social support amount (1.1%), drug use (4.4%), and stimulant drinks (1.6%). P-residual also explained teacher ratings of behavioural problems (3.8%), emotional problems (1.7%), and adjustment (3%).

## Discussion

The main aim of this research was to determine the unique predictive value and distinctiveness of A, C, and P in relation to outcomes that are critical in the teenage years. We used a prospective design assessing these personality dimensions amongst adolescents in Grade 10 and important outcomes provided through self-reports and observer ratings in Grades 11 and 12. After controlling for gender and socio-economic status, the

**Table 2.** Results of multiple regression analyses: Grade 10 personality predicting later outcomes

| Variable | B | SEB | β | *t* | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|---|
| Dependent variable Grade 12 satisfaction with social support | | | | | | |
| Step 1: Demographics | | | | | .007 | .007 |
| Gender | .04 | .10 | .02 | .36 | | |
| SES | .01 | .03 | .03 | .46 | | |
| Step 2: Personality | | | | | .085 | .078*** |
| Neuroticism | −.17 | .07 | −.17 | −2.54** | | |
| Openness | −.02 | .08 | −.01 | −.20 | | |
| Extraversion | .12 | .07 | .12 | 1.89 | | |
| Step 3: A, C, and P | | | | | .116 | .032* |
| Agreeableness | .22 | .10 | .16 | 2.28* | | |
| Conscientiousness | −.04 | .08 | −.04 | −.54 | | |
| Psychoticism | −.45 | .30 | −.10 | −1.50 | | |
| Dependent variable: Grade 12 total social support | | | | | | |
| Step 1: Demographics | | | | | .055 | .055*** |
| Gender | .87 | .28 | .19 | 3.16** | | |
| SES | −.05 | .09 | −.03 | −.51 | | |
| Step 2: Personality | | | | | .171 | .116*** |
| Neuroticism | −.39 | .19 | −.13 | −2.03* | | |
| Openness | .23 | .23 | .06 | .10 | | |
| Extraversion | .51 | .19 | .17 | 2.77** | | |
| Step 3: A, C, and P | | | | | .201 | .029* |
| Agreeableness | .55 | .27 | .13 | 2.02* | | |
| Conscientiousness | .24 | .22 | .07 | 1.10 | | |
| Psychoticism | −.93 | .85 | −.07 | −1.10 | | |
| Dependent variable: Grade 12 Self-esteem | | | | | | |
| Step 1: Demographics | | | | | .018 | .018 |
| Gender | −.05 | .03 | −.09 | −1.54 | | |
| SES | .00 | .01 | .01 | .19 | | |
| Step 2: Personality | | | | | .261 | .243*** |
| Neuroticism | −.15 | .02 | −.42 | −7.06*** | | |
| Openness | .01 | .03 | .01 | .21 | | |
| Extraversion | .03 | .02 | .09 | 1.60 | | |
| Step 3: A, C, and P | | | | | .274 | .013 |
| Agreeableness | .00 | .03 | .01 | .13 | | |
| Conscientiousness | .01 | .02 | .02 | .40 | | |
| Psychoticism | −.18 | .09 | −.12 | −1.94* | | |
| Dependent variable: Grade 12 Religious values | | | | | | |
| Step 1: Demographics | | | | | .000 | .000 |
| Gender | −.07 | .22 | −.02 | −.33 | | |
| SES | −.02 | .07 | −.01 | −.24 | | |
| Step 2: Personality | | | | | .009 | .009 |
| Neuroticism | .09 | .15 | .04 | .57 | | |
| Openness | −.32 | .18 | −.12 | −1.80 | | |
| Extraversion | .13 | .15 | .06 | .89 | | |
| Step 3: A, C, and P | | | | | .094 | .084*** |
| Agreeableness | .27 | .21 | .09 | 1.27 | | |
| Conscientiousness | .78 | .17 | .30 | 4.49*** | | |
| Psychoticism | .24 | .67 | −.02 | −.36 | | |

**Table 2.** (*Continued*)

| Variable | B | SEB | β | *t* | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|---|
| Dependent variable: Grade 12 stimulant drinks | | | | | | |
| Step 1: Demographics | | | | | .03 | .03** |
| Gender | −.65 | .33 | −.13 | −2.00* | | |
| SES | .15 | .11 | .08 | 1.38 | | |
| Step 2: Personality | | | | | .084 | .054*** |
| Neuroticism | .21 | .23 | .06 | .91 | | |
| Openness | −.34 | .27 | −.08 | −1.26 | | |
| Extraversion | .62 | .22 | .18 | 2.80** | | |
| Step 3: A, C, and P | | | | | .103 | .019 |
| Agreeableness | −.37 | .32 | −.08 | −1.15 | | |
| Conscientiousness | −.08 | .27 | −.02 | −.32 | | |
| Psychoticism | 1.54 | 1.01 | .11 | 1.53 | | |
| Dependent variable: Grade 12 Drug use | | | | | | |
| Step 1: Demographics | | | | | .001 | .001 |
| Gender | .11 | .15 | .04 | .71 | | |
| SES | .01 | .05 | .01 | .18 | | |
| Step 2: Personality | | | | | .152 | .151*** |
| Neuroticism | .07 | .11 | .04 | .61 | | |
| Openness | −.15 | .13 | −.07 | −1.16 | | |
| Extraversion | .56 | .10 | .32 | 5.40*** | | |
| Step 3: A, C, and P | | | | | .223 | .071*** |
| Agreeableness | .01 | .15 | −.00 | −.06 | | |
| Conscientiousness | −.19 | .12 | −.10 | −1.57 | | |
| Psychoticism | 2.00 | .47 | .27 | 4.24*** | | |
| Dependent variable: Grade 11 teacher ratings of overall adjustment | | | | | | |
| Step 1: Demographics | | | | | .042 | .042* |
| Gender | .69 | .44 | .14 | 1.57 | | |
| SES | .05 | .14 | .03 | .39 | | |
| Step 2: Personality | | | | | .055 | .013 |
| Neuroticism | .52 | .31 | .15 | 1.65 | | |
| Openness | .36 | .37 | .08 | .95 | | |
| Extraversion | .25 | .28 | .08 | .89 | | |
| Step 3: A, C, and P | | | | | .073 | .018 |
| Agreeableness | .20 | .47 | −.04 | −.43 | | |
| Conscientiousness | −.27 | .34 | −.07 | −.79 | | |
| Psychoticism | −2.37 | 1.35 | −.16 | −1.75 | | |
| Dependent variable: Grade 11 teacher ratings of behavioural problems | | | | | | |
| Step 1: Demographics | | | | | .035 | .035* |
| Gender | −.32 | .27 | −.10 | −1.20 | | |
| SES | −.07 | .08 | −.06 | −.88 | | |
| Step 2: Personality | | | | | .050 | .015 |
| Neuroticism | −.08 | .19 | −.04 | −.42 | | |
| Openness | .01 | .23 | .01 | .05 | | |
| Extraversion | .11 | .17 | .06 | .65 | | |
| Step 3: A, C, and P | | | | | .087 | .038 |
| Agreeableness | −.28 | .28 | −.09 | −.99 | | |
| Conscientiousness | −.11 | .21 | −.04 | −.51 | | |
| Psychoticism | 1.50 | .82 | .16 | 1.82 | | |

**Table 2.** (*Continued*)

| Variable | B | SEB | β | *t* | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|---|
| Dependent variable: Grade 11 teacher ratings of emotional problems | | | | | | |
| Step 1: Demographics | | | | | .002 | .002 |
| Gender | .22 | .20 | .09 | 1.06 | | |
| SES | .01 | .06 | .01 | .17 | | |
| Step 2: Personality | | | | | .062 | .060** |
| Neuroticism | −.15 | .14 | −.10 | −1.03 | | |
| Openness | .08 | .17 | .04 | .48 | | |
| Extraversion | −.40 | .13 | −.26 | −3.08** | | |
| Step 2: A, C, and P | | | | | .072 | .017 |
| Agreeableness | −.37 | ..22 | −.16 | −1.70 | | |
| Conscientiousness | −.02 | .16 | −.01 | −.14 | | |
| Psychoticism | −.15 | .63 | −.02 | −.23 | | |

*Note.* *$p < .05$; **$p < .01$; ***$p < .001$.

three personality dimensions varied in their ability to predict outcomes. As expected, A predicted elements of social integration, C was a significant predictor of religious values, and P was a significant predictor of low self-esteem and increased drug use. Once the effects of A and C had been removed from each P item, it was found that the residual P items explained unique variance in all outcome measures above and beyond that explained by A and C.

Whereas A predicted success at social integration, P was predictive of low self-esteem and elevated drug use. Thus, those youth deemed to be toughminded and hostile (aspects of P), compound their poor prospects by having few individuals whom they can turn to for support. Whereas agreeable teenagers have a social network that assists them to thrive, youth high on P appear to lack such a support base. In contrast, C was predictive of religious values such as 'following your religious faith conscientiously' and 'being saved from your sins and at peace with God'. Future research should assess the extent to which C is also predictive of other forms of religiosity and religious sentiment.

Psychoticism ($\beta = .25$) was a stronger predictor of future health-related behaviours than C ($\beta = -.10$), a finding that fits with many previous studies that link P to drug use (e.g. Eysenck & Eysenck, 1976) and which supports the view that a strong component of the P dimension is low constraint (Zuckerman, 2005). However, this is contrary to the prominence accorded to C as reported in Bogg and Roberts (2004) and others (e.g., Hampson & Friedman, 2008). Finally, that C was the best predictor of religious values is in line with the results of meta-analyses by Saroglou (2010).

### *Distinctive personality dimensions*

Although the three personality dimensions of interest in this project have moderate levels of overlap, our study has revealed that, over the longer term, they predict critical outcomes quite independently of each other. Of theoretical significance, these dimensions are not mirror images of one another and they relate to quite separate and distinct behaviours, at least in this sample. Future research should broaden the range of outcome measures and assess the predictive ability of these dimensions over a longer time span.

This is the first longitudinal study to assess the distinct predictive value of P, C, and A. Our data support the contention of Kotov *et al.* (2010) that these dimensions share some

overlap. However, we do not conclude that the patterns of consequential predictions of these dimensions are reverse images of one another. For instance, it has been suggested that P and C are the opposite ends of a dimension referred to as Constraint (Zuckerman, 2005). Yet, this was not supported by the results of the residual or regression analysis; P is not merely the opposite of A and C.

In conclusion, we would agree that A and C generally mark the presence of pro-social behaviours, whilst P appears to mark anti-social behaviour (Costa & McCrae, 1995). Adolescent interventions designed to increase pro-social tendencies (e.g., reinforcing nurturing behaviour) may not be maximally effective at reducing anti-social tendencies, and *vice versa*. Distinctive intervention components may be needed to simultaneously increase A and C, and decrease P. For example, one might seek to develop an intervention that teaches the benefits of careful planning and keeping long–term commitments (C) and empathy and perspective taking (A), but such an intervention might be inadequate if it does not seek also to decrease anti-social behaviours (e.g., psychoticism). It may, for example, lead to psychopaths who are careful with their anti-social behaviour and able to utilize perspective taking to better manipulate others. We would suggest that any intervention needs to decrease the distinctive, negative aspects of P, including bullying, fighting, teasing, and cruelty.

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