Personality and Mental Health:
An Investigation of South African Police Trainees[1,2]

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Summary.—The relationship between personality and mental health was investigated in one cohort of police trainees at a South African Police Academy (1145 police recruits; 648 men, 497 women). Male trainees reported less somatisation, depression, anxiety, and phobic anxiety symptoms and lower harm avoidance as well as higher persistence than female trainees. A cluster analysis based on the personality scores was used to identify three clusters with personality profiles characterized as Vulnerable, Healthy, and Intermediate profiles. Sociodemographic variables and temperament and character domain scores contributed separately and differentially to the explanation of variance in mental health symptom scores. Selection tools should be developed to identify Vulnerable individuals in terms of personality characteristics during selection and prior to training, to prevent later problems with stress reactions. Additional training modules focusing on coping skills could possibly reduce vulnerability to stress in some trainees.

The South African society has been characterised by transition during the past 14 years. Its Police Service plays a central role in this process of change; services the police offer do not only reflect the nature of transition, but are also responsible for its promotion. Police services internationally are major role players in societies and are involved in crucial activities such as the combating crime, protection of citizens, and supporting changes in the political system (Marenin, 1996).

Police work has been internationally described as particularly stressful (Violanti, 1997; Anshel, 2000; Johnson, Cooper, Cartwright, Donald, Taylor, & Millet, 2005). One reason for these findings may be that police officers bear a high personal risk of being exposed to violent confrontation as well as various stressful situations which often happen without warning. The effect of stress on police officers has long been a topic of interest for researchers. Many investigations related to mental health have confirmed that police officers are at risk for increased psychosocial stress leading to depersonalization, posttraumatic stress syndrome, suicidal tendency, and feelings of insufficient personal accomplishment (McCafferty, Domingo, & McCafferty, 1990; Berg, Hem, Lau, & Ekeberg, 2006; Ward, Lombard, & Gwebushe, 2006; Bogaerts, Kunst, & Winkel, 2009). Furthermore, research in the South African Police Service consistently indicates increased illness, posttraumatic stress, retirement due to medical or psychological reasons, burnout, alcohol abuse, and suicide as well as decreased job satisfaction and performance as compared to other professions (Nel & Burgers, 1998; Rothman & Agathagelou, 2000; Anshel, 2000; Rothman & Strijdom, 2002; Pienaar, 2003; Johnson, *et al*., 2005). The high demands inherent in the nature of police work in South Africa compared to other countries is reflected in the international crime statistics: South Africa has the highest ranking per 100,000 population in intentional homicide, assault, rape, and robbery (Harrendorf, Heiskanen, & Malby, 2010).

Even though several studies have focused on the relationship between mental health and stressful work environments, less attention has been given to the relationship between aspects of personality and mental health in police trainees. Investigations of this relationship can be based on the idea that environmental stressors affect or change personality—specifically, the “police personality” that is supposedly produced by work experience as a police officer (Wilson, 1968). A focus on police trainees’ personality before training as well as during employment could possibly identify personality characteristics which predispose individuals to psychological vulnerability during their careers as police officers (Ghazinour, Lauritz, du Preez, Cassimjee, & Richter, 2009).

The relationship between personality and mental health is multifaceted. Personality traits may be related to poor mental health manifestations by interacting with constitutional or environmental factors as explained in predisposition or vulnerability models; personality characteristics might also represent subclinical manifestations of mental health phenomena in terms of spectrum models; models of common posit that personality characteristics share common causes and etiological factors with poor mental health manifestations based on genetic diathesis.

While many investigations have focused on clinical populations (Jylhä & Isometsä, 2006; Mörtberg, Bejerot, & Wistedt, 2007; de Winter, Wolterbeek, Spinhoven, Zitman, & Goekoop, 2007) little research has been done in police samples, particularly in South Africa where the stress on police is so high. This is partly due to the lack of funding available in the mental health sector, in competition with the primary health care sector, and the almost exclusive focus on the predictors and prevalence of posttraumatic stress disorder, as this has had the greatest affect on job performance and highest cost to the government. In saying this, the first paper on trauma in a South African journal was published in 1990 and the lack of published research before this date might be in part explained in the light of the political system of apartheid and psychology's passive complicity with the social constructions of apartheid (Young, 2004).

According to Krueger (1999) the association between general personality traits and common mental disorders can be conceptualized in personological terms. Eber (1991), who reported on several large scale studies of police applicants, indicated that the most important finding was an unambiguous personality profile characterised by high scores on self discipline and tough poise and low on anxiety. Heinrichs, Wagner, Schoch, Soravia, Hellhammer, and Ehlert (2005) indicated that certain aspects of personality may have contributed to the development of mental health symptoms after exposure to trauma in a sample of professional firefighters. High scores on hostility and low scores on self-efficacy were strong predictors of mental health symptoms in this group. Furthermore, firefighters with both of these personality traits at baseline had an increased Global Severity Index (SCL-90-R: a measure of mental health symptoms) two years later. Taking these data into account, approaching selection and training of police applicants to avoid vulnerabilities to mental health problems is a crucial part of ensuring excellent performance.

The aim of this study was to explore the relationships between temperament and character dimensions and mental health symptoms in South African Police trainees at the

beginning of their training. This study is part of a comprehensive longitudinal research project on personality, coping, and mental health of police officers from the beginning of their training to their duties in daily office practice 18 months after the completion of training (du Preez, Cassimjee, Ghazinour, Lauritz, & Richter, 2009; Ghazinour, *et al.*, 2009). The following hypotheses were that personality characteristics and mental health symptoms would be dependent on the same sociodemographic background variables (Hypothesis 1), there would be particular personality profiles related to particular symptom profiles in this preselected cohort (Hypothesis 2); temperament and character would predict mental health symptoms independently (Hypothesis 3).

METHODS

This investigation was approved by the Ethical Committee of Pretoria University and is carried out in collaboration with the South African Police Service administration in Pretoria, South Africa.

Police trainees (*N*=1480) enrolled at the Police College in Pretoria, South Africa during January 2007 and were asked to voluntarily participate in the study. The final sample consisted of 1145 police recruits (648 men, 497 women). These recruits formed part of 28,000 trainees that were selected on a national basis from a pool of 70,000 applicants. The selected trainees were divided into groups according to the capacity of the various training colleges in South Africa. None of the trainees refused to participate, and the 335 questionnaires that were omitted from the analysis were spoilt or incomplete. Spoilt questionnaires included double marked answers for single items and omission of whole pages of the test. The only four White trainees were excluded from the statistical analysis; therefore, the sample consisted exclusively of African and Coloured individuals[3]. The identity of the participants was not disclosed.

All participants passed the comprehensive selection procedure of the South African Police Service, including intellectual, cognitive, personality, and social skills and traits. All assessments were conducted in English, as English language proficiency is one of the selection criteria. The results of those assessments were not available to the researchers.

Data Collection

[3] African, Coloured, White and Indian/Asian are the official terms used by the South African government to differentiate between the population groups in South Africa

Three assessment opportunities were conducted in a group format and participants were assigned to a specific data collection session. Each session was attended by 10 test administrators who provided information about the aim of the study and the questionnaires. Trainees were asked to complete the Temperament and Character Inventory (Cloninger, Przybeck, Svrakic, & Wetzel, 1994) as well as the Symptoms Checklist-90-Revised (Derogatis, 1994). The investigation was conducted in English and the applied questionnaire was used in its original version.

Questionnaires

Personality.—The Temperament and Character Inventory (TCI; Version 9), in its original English language version, assesses personality characteristics using Cloninger's theory as a model (Cloninger, *et al*., 1994). It is a 238-item forced-choice true/false (scored 1/0) standardized self-administered questionnaire measuring four independent temperament dimensions, as well as three character dimensions which are supposed to be predominantly determined by socialization processes during the life span. The temperament dimensions with possible ranges of scores are Novelty Seeking (NS, 0-40), which is thought to be related to the behavioral activation system, Harm Avoidance (HA, 0-35), thought to be related to the behavioral inhibition system, Reward Dependence (RD, 0-24), linked to the behavioral maintenance system, and Persistence (PS, 0-8), linked to perseverance in behavior. The character dimensions consist of Self-Directedness (SD, 0-44), which refers to an individual's ability to control, regulate and adapt behavior in accord with individual goals and values, Cooperativeness (CO, 0-42), which indicates the tendency towards social tolerance, empathy, helpfulness and compassion, and Self-Transcendence (ST, 0-33), which refers to identification with nature and the ability to accept ambiguity and uncertainty (Cloninger, *et al*., 1994).

The TCI's psychometric properties have been established in several countries, for example, the USA, Sweden, Japan, France, The Netherlands, and Korea (Duijsens, Spinhoven, Goekoop, Spermon, & Eurelings-Bontekoe, 2000; Kijima, Tanaka, Suzuki, Higuchi, & Kitamura, 2000; Brändström, Sigvardsson, Nylander, & Richter, 2008). The use of the TCI in different contexts of psychological research has also increased in the past 15 years and many studies have indicated high construct validity across populations (Brändström, Richter, & Przybeck, 2001). It has also been used before in different groups in South Africa (e.g., Peirson, & Heuchert, 2001; Lochner, Simeon, Niehaus, & Stein, 2002).

Internal consistencies of the subscales (Cronbach's alpha) were found to range from .57 (for PS in Germany) to .89 (CO in the USA) (Richter, Brändström, & Przybeck, 1999).

Mental health symptoms.—The Symptom Checklist-90-Revised (SCL-90-R) is a 90-item symptom inventory with each symptom rated on a five-point scale ranging from 0: Not at all to 4: Extremely to reflect severity of psychological problems and symptoms of psychopathology and their intensity in community, medical, and psychiatric settings at a specific point in time. In addition to nine clinical scales (somatisation, 12 items; obsessive-compulsion, 10 items; interpersonal sensitivity, 9 items; depressivity, 13 items; anxiety, 10 items; hostility, 6 items; phobic anxiety, 7 items; paranoid ideation, 6 items; psychoticism, 10 items), the SCL-90-R yields three global indices. The Global Severity Index (GSI) combines information about the number of symptoms as well as the intensity of distress and represents an operationalisation of general or non-specific psychological symptomatology, whereas the Positive the Positive Symptom Distress Index (PSDI) represents the average severity of reported symptoms.

Reliability and validity of the SCL-90-R have been demonstrated adequately (Derogatis, 1994; Derogatis & Cleary, 1977). The internal consistency (Cronbach's alpha) of the symptom scale scores range from .77 for Psychoticism to .90 Depression (Derogatis & Cleary, 1977).

Statistics

Multivariate analyses of variance (MANOVA) were run with (a) TCI domain scores or (b) SCL-90-R symptom scores as dependent variables and sex and English language proficiency categories as independent variables or (c) cluster as independent variables and TCI domain scores or SCL-90-R symptom scores as dependent variables, each followed by *post hoc* tests (for equal variance, Tukey test; for unequal variance, Games-Howell test). Related effect sizes $\eta.^2$ and power are reported. The latter two MANOVAs were calculated on one randomly selected half of the sample (random selection within each sex group). Hierarchical linear regression analysis were performed on the other half of the sample with the SCL90-R scores as independent variables, the sociodemographic characteristics as independent variables in Block 1, Temperament scores in Block 2, and Character scores in block 3

Cluster analysis, Ward's method with squared Euclidian distance, was applied to the total sample in order to identify groups with similar personality profiles. The cluster-based

groups were compared by means of contingency tests for nominal variables and by means of MANOVAs for personality profile and symptom profile.

RESULTS

In a MANOVA with the TCI domains as dependent variables and sex and English language proficiency as fixed factors, both main effects were significant and of small effect size, but the interaction was not significant (Table 1). Sex was most strongly related to Harm Avoidance and Persistence and difficulties in reading English were related to Harm Avoidance, Persistence, and Self-Directedness.

In a MANOVA with the SCL-90-R scales as dependent variables and sex and English language proficiency as fixed factors, there were significant main effects of sex (medium effect size) for Somatisation, Depression, Anxiety, and Phobic Anxiety. There was also a significant main effect of English language proficiency (medium effect size) for all SCL-90-R scales. Finally, there was a significant interaction of small effect size between sex and language proficiency mostly determined by differences on the phobic anxiety scale, with higher scores in women and when difficulties in reading English language were reported.

Age and education level were found to be unrelated to the mental health measures and personality dimensions in a more complex MANOVA model.

Cluster analyses were then calculated on the TCI domain scores with solutions for two to eight clusters. The three-cluster solution was chosen to be meaningful because it is a simple, easily to understand grouping and no particularities were found in the other solutions in the sense of special differences on a particular personality domain that would provide additional information (Table 2; Fig. 1). Personality profiles of the three clusters as defined by the general mean scores indicated that there was no particular group of personality domains characterising a cluster profile. A subsequently performed MANOVA with the TCI domains as dependent variables and cluster as a fixed factor yielded significant between-subject effects on all seven TCI domains but only those for Harm Avoidance, Self Directedness, Cooperativeness, and Self Transcendence had high effect size (those for Reward Dependence and Persistence showed medium, and that for Novelty Seeking had low effect size, Table 2).

Cluster 1 was characterised by the lowest score on Harm Avoidance and Self Transcendence and the highest on Self Directedness and Cooperativeness; it was labelled the *Healthy* profile. Cluster 2 could be regarded as an *Intermediate* profile primarily characterised by the highest Novelty Seeking, Reward Dependence and Persistence. Cluster 3 represented a

Vulnerable profile with the highest scores on Harm Avoidance combined with the lowest scores on Reward Dependence, Persistence, Self Directedness and Cooperativeness. Cluster membership was related to sex (χ^2 = 6.81; p = .033) with fewer women than men trainees in the Healthy cluster and more women in the Vulnerable cluster. The clusters were independent of level of education (χ^2= 6.33; p = .176). However, those police trainees who did not have difficulties in reading English language were classified more often into Clusters 1 or 2 than those who had such difficulties (69.2% versus 30.8%), whereas they were relatively underrepresented in Cluster 3 (25.1% versus 40.1%) (χ^2 = 22.40; p < .001).

When the clusters' mean SCL-90-R scores were analyzed, the differences between mean scores for clusters were consistent (Fig. 2), differing only on the intensity of all symptom scales with significant higher scores from individuals in the Vulnerable cluster compared to the other two clusters indicated by significant *post hoc* tests, and the closely parallel profiles. A significant main effect of cluster with a medium effect size occurred in the MANOVA with the SCL-90-R scales as dependent variables; the source of this effect was the significant between-subject effects of medium to large effect size on all mental health domains with higher scores of those in Cluster 3 (Vulnerable profile) compared to the other two groups indicated by significant *post hoc* test results (Table 3, Fig. 2).

In hierarchical linear regression analyses with the SCL-90-R symptom scores and two global indices as dependent variables, the sociodemographic variables sex, education, language proficiency, and ethnic group as independent variables in the first block, the Temperament scores (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence) in the second block, and the Character scores (Self Directedness, Cooperativeness, and Self Transcendence) in the third block a small amount of variance in the symptom scores (3% to 10%) was explained by the sociodemographic variables. The Temperament domain scores contributed additionally and significantly to the explanation of the variance in symptom scores (ranging in effect size from PSDI, r^2=.04, to anxiety, r^2=.14). The Character domain scores explained further variance in the symptom scores, ranging in effect size from Somatisation (r^2=.01) through PSDI (r^2=.14). In addition, 26% of the variance in the Global Severity Index and 6% of the variance in the Positive Symptom Distress Index was explained by the combination of sociodemographics and Temperament and Character domain scores.

DISCUSSION

The results indicate that sex and English language proficiency were the two demographic variables that most strongly predicted scores on personality and mental health measures.

According to research at the National Institute of Mental Health, of all demographic variables in epidemiological research, sex is the single strongest correlate of risk for different types of mental disorders (National Institute of Health, 2000). Depressive disorders and most anxiety disorders are, on average, two to three times more common in women than men. Men again are more likely to be affected by developmental disorders such as attention deficit disorder (ADD) and by substance and alcohol abuse as well as conduct disorders. For all disorders, including those more common in men than women and those in which sex prevalence is equal (e.g., schizophrenia; bipolar disorder), sex-related differences may occur in etiological risk factors or in clinical aspects. The importance of the person's sex is supported by current results indicating that Somatisation, Depression, Anxiety, and Phobic Anxiety scores all were associated with sex. In the temperament and character domains, sex was associated with Harm Avoidance and Persistence scores, while language ability was associated with Self Directedness scores. The latter results are in agreement with results of Hansenne, Delhez, and Cloninger (2005) indicating differences by sex: women scored higher on Harm Avoidance, Reward Dependence, and Cooperativeness, whereas men scored higher on Persistence.

Kurtz (2008) reiterated the importance of sex influences in the analysis of stress among law enforcement personnel: men and women officers work in the same environments, yet in different "genderised" worlds. Hegemonic masculinity (Connell & Messerschmidt, 2005) is a relevant concept in considering effects of sex on personality and mental health. Police services worldwide are imbedded in organisational structures that support a hegemonic masculinity associated with the traditional characteristics of a good police officer—fearlessness, assertiveness, and a heroic attitude (Darien, 2002). Kurtz (2008) furthermore states that this established relationship between hegemonic masculinity and police work does not easily allow feminine traits to be expressed in the daily activity of officers and also discourages alternative response patterns when faced with stressful situations. Differences in personality profiles, which are partly confounded by sex differences, should therefore be taken into account in the context of police training and work, especially with regard to Harm Avoidance, Persistence, Reward Dependence, Cooperativeness and Self Directedness, which are relevant to and inherent in the nature of police work. Consideration should be given to

women's work styles (higher on Harm Avoidance, Cooperativeness and Reward Dependence and lower on Persistence) in developing training material as well in the placement of candidates after the completion of their training to facilitate appropriate fit to minimise work stress. This is supported by Loo (2004) who stated that certain stressful environments generate only moderate burnout for men, whereas women officers show higher stress.

English language proficiency was associated with reports of all mental health symptoms, as can be expected, and should be considered in the interpretation of the severity of the symptoms. Age and education were not associated with personality or symptoms in this preselected sample of police trainees upon entry to police academy. However, sex and English language proficiency had associations of similar magnitude upon personality and mental health, suggesting that personality characteristics may be a direct cause and simultaneously a moderating variable between sex and mental health. This would support the assumptions of either the vulnerability model or a common cause model.

Based on the three-cluster solution on TCI scores, relative parallelism in clusters' personality profiles and a mental health profile (SCL-90-R-profile) was observed, confirming the hypotheses that there are particular personality profiles related to particular symptom profiles in this preselected cohort. Although the personality scores of the police trainees were found, on average, substantially elevated in a more positive direction compared to other South African students (see Peierson & Heuchert, 2001) a Vulnerable profile was identified with high Harm Avoidance and Self Transcendence and low Self Directedness, Reward Dependence, and Cooperativeness combined highest scores in all mental health symptom scores. Clusters differed on the intensity of all symptom scales, yielding parallel temperament and character domain profiles, although the TCI domain scores independently explained variance in the symptom scores. This suggests that police trainees with Vulnerable profiles were characterised by worrying, pessimism, doubtfulness and fatigability, combined with tendencies to escape from reality by immature, unreliable, ineffective and self-striving behaviour tendencies, and display more detached, socially intolerant, critical, unhelpful and destructive tendencies in social relationships. Based on such characteristics, the close association with symptoms of depression and anxiety is obvious. Indeed, patients suffering from depressive and anxiety disorders were repeatedly found to score high on Harm Avoidance and Self Directedness (Peirson & Heuchert, 2001; Richter, Eisemann, & Richter, 2000), as also noted among medical students (Tanaka, Mizuna, Fukuda, & Watanabe (2010).

Temperament and character dimensions were differentially associated with the various types of mental health symptoms. The temperament dimensions were associated with somatisation and anxiety and the character dimensions with hostility, paranoid ideation, and psychoticism. This corresponds with Ha, Kim, Abbey, and Kim (2007) in Korea, who indicated that character and temperament dimensions were associated with different aspects of mental health symptoms and patterns. Krueger (1999), Eber (1991), and Bishop and colleagues (2001) as well as Heinrichs *et al*. (2005) all have indicated that certain aspects of personality may contribute to the development of mental health symptoms.

The findings of this study align with existing research and confirm the importance of developing selection and assessment criteria that will be sensitive to personality in terms of character and temperament. Alternatively or additionally, training modules for coping skills focusing upon the improvement of self-directedness, cooperativeness, and self-transcendence skills could possibly reduce vulnerability to stress in trainees. Training should, amongst other things, include training in purposeful and goal-oriented problem solving, self-reflection, effectiveness, tolerance and openness towards self and others, and mindfulness skills.

The current response to mental health problems in the South African Police Service is reactive. There are two national programs, trauma debriefing and suicide prevention, both under the jurisdiction of Employee Assistance Services. The argument for proper and sensitive selection in the recruitment and assignment of police officers is supported by results indicating that a combination of certain temperament and character traits are related to the development of specific mental health difficulties.

The interpretation of findings is possibly limited by the effect of the English language proficiency variable upon the self-rating of the personality characteristics and the mental health scores. English represents the official language in the South African Police Service and a successful completion of Grade 12, which is performed in English, is a prerequisite for becoming a South African Police Service member. In personnel selection, police applicants from six different ethnic groups had a standardized path coefficient between language proficiency and a personality test of .08 (De Meijer, Born, Terlouw, & van der Molen, 2006). This evidence minimizes the concern about a possible bias due to reported difficulties with English language. Trainees' subjective reports of difficulties maybe inaccurate.

The sample consisted of a complete intake of trainees at one of the five police training colleges in South Africa and can therefore be regarded as representative. The similarities to internationally reported findings support the validity of the results and indicate that the

findings are probably not heavily biased by social desirability as the study was clearly independent of any pre-selection procedures performed prior to intake.

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Table 1

Multivariate Analyses of Variance With Dependent Variables (a) Temperament and Character, (b) Mental Health Symptoms, and (c) Cluster.

Effects by Analysis	Pillai's trace	*F*	*df*	*p*	η^2	Power
Analysis A: TCI						
Language proficiency	.05	8.95	7/1118	< .001	.04	1.0
Sex	.04	6.02	7/1118	< .001	.05	1.0
Analysis B: SCL-90-R						
Language proficiency	.06	7.91	9/1105	< .001	.06	1.0
Sex	.09	12.22	9/1105	< .001	.09	1.0
Sex x language proficiency	.02	2.56	9/1105	< .001	.02	0.94
Analysis C						
Cluster (TCI)	.68	82.24	14/2258	< .001	.34	1.0
Cluster (SCL-90-R)	.16	11.13	18/2254	< .001	.08	1.0

Table 2

Personality and Mental Health Scores by Cluster

	Cluster 1		Cluster 2		Cluster 3	
Females (N/%)	201 / 40.7		100 / 20.2		193 / 39.1	
Males (N/%)	297 / 46.3		141 / / 22.0		203 / 31.7	
	M	SD	M	SD	M	SD
TCI						
Novelty Seeking	15.6	3.5	16.1	2.9	15.2	3.2
Harm Avoidance	9.3	4.1	9.6	3.8	14.0	4.4
Reward Dependence	15.7	3.2	16.2	2.5	14.1	2.9
Persistence	5.6	1.5	6.3	1.1	5.3	1.8
Self Directedness	34.8	3.7	30.4	3.1	28.4	4.0
Cooperativeness	31.5	3.2	30.7	2.9	27.9	3.6
Self Transcendence	20.2	3.8	22.8	2.4	23.5	3.3
SCL90-R						
Somatisation	0.4	0.4	0.5	0.6	18	0.6
Obsessive-compulsion	0.7	0.5	0.8	0.6	1.1	0.7
Interpersonal sensitivity	0.4	0.5	0.6	0.6	0.9	0.6
Depressivity	0.5	0.4	0.5	0.5	0.9	0.6
Anxiety	0.4	0.4	0.4	0.5	0.8	0.6
Hostility	0.4	0.4	0.4	0.5	0.7	0.7
Phobic anxiety	0.3	0.4	0.3	0.5	0.7	0.6
Paranoid ideation	0.6	0.5	0.7	0.7	1.0	0.7
Psychoticism	0.5	0.4	0.6	0.6	0.8	0.6
Positive Symptom Distress Index	0.5	0.5	0.6	0.6	0.9	0.5

Global Severity Index	0.5	0.4	0.5	0.3	0.9	0.5

Table 3

Hierarchical multiple regression analyses predicting each symptom score

Predicted Symptom Scores	Adjusted r^2	*F*	*p*	Adjusted r^2	*F*	*p*	Adjusted r^2	*F*	*p*	Significantly contributing variables
Symptom Checklist-90-Revised	Step 1			Step 2			Step 3			
Somatisation	.10	15.57	<.001	.18	15.43	<.001	.19	12.79	<.001	Sex, educational level, *English language difficulties, HA, PS, -SD
Obsessive-compulsion	.06	9.49	<.001	.16	14.05	<.001	.18	12.05	<.001	*Ethic groups, *English language difficulties, HA, -SD
Interpersonal sensitivity	.06	9.04	<.001	.16	13.90	<.001	.19	12.43	<.001	*Ethic groups, *English language difficulties, HA, *CO
Depressivity	.08	12.76	<.001	.19	16.84	<.001	.22	14.91	<.001	Sex, educational level, *English language difficulties, HA, *SD
Anxiety	.07	11.27	<.001	.21	19.21	<.001	.25	17.67	<.001	Sex, educational level, *English language difficulties, HA, *SD, ST
Hostility	.05	8.57	<.001	.14	12.38	<.001	.19	12.78	<.001	Educational level, *English language difficulties, HA, *SD, *CO, ST
Phobic anxiety	.07	10.80	<.001	.18	16.40	<.001	.22	14.68	<.001	Sex, -English language difficulties, HA, *SD

Paranoid ideation	.03	5.33	<.001	.11	9.14	<.001	.15	9.01	<.001	Educational level, *English language difficulties, HA, *SD, ST
Psychoticism	.06	9.58	<.001	.13	11.48	<.001	.19	12.66	<.001	Educational level, *English language difficulties, HA, *SD, ST
Positive Symptom Distress Index	.01	.56	.691	.05	4.45	<.001	.06	3.86	<.001	Educational level, *English language difficulties, HA, *SD, ST
Global Severity Index	.08	13.27	<.001	.22	20.06	<.001	.26	18.78	<.001	HA, *SD

Note.—Step 1 included the sociodemographic variables sex, education, English language difficulties, and ethnic group; Step 2 included all Temperament scores (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence); Step 3 included all Character scores (Self-Directedness, Cooperativeness, and Self-Transcendence). *Indicates negative relationship.

Fig. 1. Mean scores on Temperament and Character Inventory dimensions by cluster (vertical axis: standardised personality domain scores).

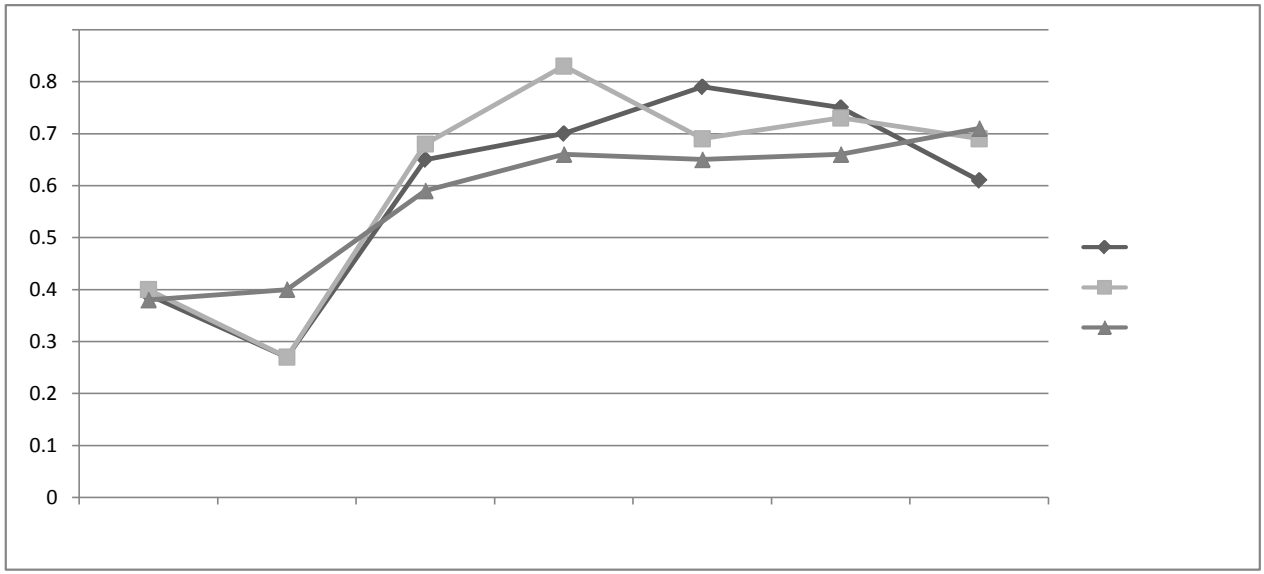

Fig. 2. Mean Intensity scores from Symptom Check List-90-Revised by cluster. (Vertical axis: Intensity rated on a 5-point scale from 0 to 4)