



HAL
open science

Relationship between the big five personality traits and PTSD among French police officers

Anais Madamet, Catherine Potard, Isabelle Huart, W. El-Hage, Robert Courtois

► **To cite this version:**

Anais Madamet, Catherine Potard, Isabelle Huart, W. El-Hage, Robert Courtois. Relationship between the big five personality traits and PTSD among French police officers. *European Journal of Trauma & Dissociation*, 2018, 2 (2), pp.83-89. 10.1016/j.ejtd.2017.11.001 . hal-02363162

HAL Id: hal-02363162

<https://univ-angers.hal.science/hal-02363162>

Submitted on 17 Sep 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Relationship between the Big Five personality traits and PTSD among French police officers

Liens entre les cinq grands facteurs de personnalité et le SSPT chez des policiers Français

Anaïs Madamet ^{a, b}, Catherine Potard ^{c, d}, Isabelle Huart ^{a, b}, Wissam El-Hage ^d, & Robert Courtois ^{a, d}

^{a, c} Université François-Rabelais de Tours, Département de psychologie, EA 2114

‘Psychologie des âges de la vie, Tours, France, robert.courtois@univ-tours.fr ;
isabelle.huart@univ-tours.fr

^b Centre Régional de Formation de la police Nationale, Tours, France

^c Université d’Angers, Département de Psychologie, EA 4638 ‘Laboratoire de Psychologie des Pays de la Loire’, Angers, France, catherine.potard@univ-angers.fr

^d CHRU de Tours, Clinique Psychiatrique Universitaire, Tours, France, wissam.elhage@univ-tours.fr

Correspondence concerning this article should be addressed to:

Robert Courtois

Université François Rabelais

Département de Psychologie, EA 2114,

3, rue des Tanneurs - BP 4103, F-37041 Tours Cedex 1

Tél. : +33 (0) 2 47 36 66 85

Fax: +33 (0) 2 47 36 64 84

Email: robert.courtois@univ-tours.fr

Conflicts of interest: none

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

1 Personality and PTSD symptoms in police
2

3 **Relationship between the Big Five personality traits and PTSD among French police**
4 **officers**
5

6
7 *Liens entre les cinq grands facteurs de personnalité et le TSPT chez des policiers Français*
8
9

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46 **Conflicts of interest:** none

47
48 **Funding:** This research did not receive any specific grant from funding agencies in the
49 public, commercial, or not-for-profit sectors.
50
51
52
53
54
55
56
57
58
59

Abstract

Introduction: Post-traumatic stress disorder (PTSD) is rare among police officers, but the symptoms of PTSD are not. Personality traits can be a contributing factor of stress disorders. Based on the Big Five personality traits, three personality profiles can be identified: Resilient, Overcontrolled, and Undercontrolled. Resilient people are characterized by high emotional stability (low Neuroticism), high social skills and self-confidence. Overcontrollers have higher scores on Neuroticism and they tend to internalize their negative emotions. Undercontrollers are characterized by low Conscientiousness (impulsivity), a tendency toward social withdrawal and low self-esteem.

Objective: The aim of this study was to examine the role of personality traits and profiles in the emergence of PTSD symptoms among French police officers.

Method: Participants were French national police officers ($N=100$, $M = 32.9$ years, $SD = 9.8$, 19-57) who completed the Posttraumatic Stress Disorder Checklist Scale (PCLS) and the Big Five Inventory (BFI).

Results: Results revealed the three expected personality profiles: Resilients ($n=31$), Overcontrollers ($n=43$) and Undercontrollers ($n=19$). The Resilients presented with the fewest PTSD symptoms and the Undercontrollers with the most (particularly Reexperiencing). The latter also scored the highest on Neuroticism and the lowest on Extraversion and Agreeableness. Police officers with an Undercontrolled profile were also the oldest or those who had served the longest in the police force. Neuroticism and length of service were the two predictors of PTSD symptoms for Reexperiencing and Avoidance.

Conclusion: This study demonstrates the contribution of each personality trait and length of service to PTSD symptoms in French police officers.

Keywords: Posttraumatic stress symptoms; Big Five personality factors; Personality profile; Work-related stress; Police personnel.

Résumé

Introduction : Le trouble de stress post-traumatique (TSPT) est rare parmi les policiers, mais les symptômes ne le sont pas. Les traits de personnalité peuvent être un facteur médiateur des troubles liés au stress. Ils permettent habituellement d'identifier trois profils de personnalité : les « résilients » caractérisés par une forte stabilité émotionnelle, des compétences sociales et une confiance en soi élevées ; les « sur-contrôlés » qui ont des scores élevés de Névrosisme et une tendance à internaliser leurs émotions négatives et des « sous-contrôlés » avec un faible Caractère consciencieux (impulsivité), une tendance à l'isolement social et une faible estime de soi.

Objectif : L'objectif de cette étude était d'examiner le rôle de la personnalité dans l'apparition de symptômes du TSPT chez les policiers français.

Méthode : Les participants étaient des policiers français ($N=100$, $M = 32,9$ ans, $ET = 9,8$, 19-57) qui ont complété l'échelle de l'état de stress post-traumatique (PCLS) et l'inventaire des cinq grands facteurs de personnalité (BFI).

Résultats : Les résultats ont retrouvé les trois profils de personnalité attendus : « résilients » ($n=31$), « sur-contrôlés » ($n=43$) et « sous-contrôlés » ($n=19$). Les premiers présentaient le moins de symptômes de TSPT et les derniers le plus (en particulier la répétition ou intrusion). Ils avaient également les scores les plus élevés de Névrosisme et les plus bas d'Extraversion et d'Agréabilité. Ces policiers étaient aussi les plus âgés ou ceux qui avaient servi le plus longtemps dans la police. Le Névrosisme et la durée du service étaient les deux facteurs prédictifs des symptômes de TSPT pour la répétition et l'évitement.

Conclusion : Cette étude met en évidence la contribution de chaque trait de personnalité et durée de service pour les symptômes de TSPT chez les policiers français.

Mots-clés: Symptômes de stress post-traumatique ; Cinq grands facteurs de personnalité ; Profil de personnalité ; Stress lié au travail ; Police.

Relationship between the Big Five personality traits and PTSD among French police officers

1. Introduction

Several studies have shown that police work is particularly stressful (e.g. Aytac, 2015; Lau, Hem, Berg, Ekeberg, & Torgersen, 2006). Stress is related both to critical events, which are rare, and to everyday working conditions and the way that police officers cope with the pressures they face. Exposure to critical events (sexual trauma and combat trauma) is more predictive of posttraumatic stress disorder (PTSD) than other trauma types (Habersaat, Geiger, Abdellaoui, & Wolf, 2015; Jakob, Lamp, Rauch, Smith, & Buchholz, 2017). About 4.5% to 9% of police officers may suffer from full PTSD (Berger et al., 2012; Maia et al., 2007), but nearly 15-16% suffer from partial PTSD (Maia et al., 2007; Marmar et al., 2006). Work stressors and managing the job can cause other mood disorders in police officers, such as burnout (Kula, 2017; Lau et al., 2006), which are also underpinned by individual vulnerability factors (El Hage, Powell, & Surguladze, 2009). Understanding the protective factors against developing PTSD symptoms or other stress-related disorders is a major public health priority, and yet there have been few studies on protective or aggravating factors (Ellrich & Baier, 2015).

The Big Five personality model (Five-Factor Model or FFM) is the most consensual approach to personality assessment. It proposes five main dimensions of personality, broadly defined as Extraversion *vs.* Introversion, Agreeableness *vs.* Antagonism, Conscientiousness or Control *vs.* Impulsivity, Neuroticism *vs.* Emotional Stability, and Openness to New Experience/Intellect *vs.* Closed-mindedness (John, Naumann, & Soto, 2008; John & Srivastava, 1999). Extraverted people are outgoing, sociable with positive emotionality, talkative, energetic, assertive, and excitement seeking. Agreeable individuals promote

238
239 prosocial and communal orientation toward others, they are cooperative, friendly, considerate
240
241 or empathic, generous, trustful, and kind. Conscientious individuals facilitate goal-directed
242
243 and planned behavior, they are work-oriented, responsible, attentive, careful, dependable,
244
245 persistent, orderly, and impulse controlled. Neuroticism is associated with anxiety and
246
247 instability. Neurotic individuals are moody, angry, easily frustrated, lacking in confidence,
248
249 insecure in relationships, and sometimes anti-social. Individuals high in Openness are
250
251 imaginative, curious, creative, complex and subtle, with artistic values, unusual ideas, and
252
253 varied experiences. They are also quick to learn, clever, insightful, and independent-minded
254
255 (Caspi, Roberts, & Shiner, 2005; John et al., 2008).
256
257

258
259 To understand and prevent mood disorders among police officers, it is important to
260
261 gain a deeper insight into personality traits that may be linked to PTSD symptoms. Police
262
263 officers probably share common personality traits (Lau et al., 2006; Lorr & Strack, 1994),
264
265 although some authors doubt the idea of a single profile (Wagner, 2005). The personality
266
267 profile of police officers is likely to be characterized by low scores on Neuroticism (i.e.,
268
269 emotionally secure), high scores on Extraversion (i.e., more assertive and self-confident), high
270
271 scores on Conscientiousness (i.e., with a strong pattern of self-discipline or sense of control),
272
273 and high scores on Agreeableness (i.e., friendly, sociable and gregarious) (e.g. Lau et al.,
274
275 2006; Lorr & Strack, 1994; Wearing & Hart, 1996). This suggests the existence of a “Rescue
276
277 Personality” of police officers and firefighters (Mitchell & Bray, 1990). Similar results have
278
279 been found with other personality assessment tools (e.g. Eysenck: highly extraverted,
280
281 venturesome and impulsive, but conforming, Gudjonsson & Adlam, 1983).
282
283

284
285 Obviously, personality factors could represent a mediating factor between
286
287 environmental stressors and mental health. For instance, several studies highlighted the role of
288
289 Neuroticism (low Emotional stability) in perceived stress levels and stress reactivity (e.g.
290
291 Garbarino, Chiorri, & Magnavita, 2014; Heinrichs et al., 2005; Jakšić, Brajković, Ivezić,
292
293
294
295

Topić, & Jakovljević, 2012; Vollrath, 2001; Yuan et al., 2011). Neuroticism fosters the subjective experience of negative emotions of events. By contrast, Extraversion and Agreeableness are both related to more positive feelings, and better adaptation to stressful work (e.g. Garbarino et al., 2014; Jakšić et al., 2012; Skomorovsky, 2013).

Three personality profiles were described by Block (1971) using the Q-Sort Method for personality assessment: Resilients, Overcontrollers, and Undercontrollers. These profiles were consistent and stable over time. Various subsequent studies on children or adults found similar results. Subsequently, they were also found using the Big Five personality traits (e.g. Asendorpf, Borkenau, Ostendorf, & Van Aken, 2001; Asendorpf & van Aken, 1999; Boehm, Asendorpf, & Avia, 2002; Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996). Across studies, Resilients obtain the most favorable descriptions on all five scales (high emotional stability and high scores in the other four personality traits). They demonstrate high social skills and self-confidence. They do not have mental disorders, and they succeed academically and socially. Overcontrollers score higher on Neuroticism than Resilients, associated with high Agreeableness and low Extraversion. They share some of the features of Resilients, but tend to internalize their problems and negative emotions. Undercontrollers are characterized by low Conscientiousness (impulsivity) and low Agreeableness, with a tendency toward social withdrawal and low self-esteem. They tend to fail academically and socially and have more emotional and behavioral problems.

Personality traits can thus constitute protective factors against stress and mood disorders, or, on the contrary, they can increase susceptibility to psychic morbidity and anxiety disorders. The aim of this study was to examine the role of personality traits and profiles in the emergence of PTSD symptoms among police officers. We expected to observe that police officers with Resilient characteristics would show the fewest PTSD symptoms and those with features of Undercontrollers would show the most.

2. Material and methods

2.1 Participants and procedure

Participants were recruited in a French national police training center. All the police officers who were contacted agreed to participate in the study. After they had been informed of the aims of the study, they gave their informed consent, and completed the paper self-report questionnaire anonymously. Clear and precise instructions were given, and the importance of giving honest answers was stressed. No incentive was provided. This study complies with the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Our sample comprised 100 French national police officers ($M = 32.9$ years, $SD = 9.8$, 19-57), including 28 women (27.7%); 58 (58%) were patrolmen (*gardiens de la paix*) or judicial police officers (*officiers de police judiciaire*), 41 (41%) were auxiliary police officers, and 1 (1%) was a forensic technician (*technicien de la police scientifique*). Participants were selected consecutively for inclusion in our sample, in close contact with the police districts in the 'Centre-Val de Loire' Region (France). Average length of service in the police force was 10.9 years ($SD = 9.9$, 0-34), 12.2 years ($SD = 9.2$, 0-34) for men and 7.7 years ($SD = 9.3$, 0-30) for women. The median was respectively 10.0, 12.0, and 2.5 years. Eight participants were excluded due to incomplete questionnaires.

2.2 Instruments

PCLS. The Posttraumatic Stress Disorder Checklist Scale (Ventureyra, Yao, Cottraux, Note, & De Mey-Guillard, 2002; Weathers, Litz, Herman, Huska, & Keane, 1993) is a brief and practical self-report assessment of the severity of PTSD-related symptoms of intrusion/reexperiencing, avoidance/numbing, and hyperarousal (DSM-IV symptom criteria) in the past month. The 17 items are rated on a 5-point scale (from 1 - not at all - to 5 -

415
416 extremely); total score is the sum of all 17 items. Participants report the level of distress
417
418 experienced for each item. The total score can be divided into 3 sub-scores: reexperiencing
419
420 (items 1–5), avoidance (items 6–12), and hyperarousal (items 13–17). Scores range from 17 to
421
422 85, with higher scores indicating greater severity of PTSD symptoms. A cutoff score of 44 has
423
424 demonstrated high diagnostic accuracy for PTSD (.97), with good specificity (.87) and
425
426 sensitivity (.94) (Ventureyra et al., 2002).
427

428
429 **BFI.** The Big Five Inventory (John, Donahue, & Kentle, 1991; Plaisant, Srivastava,
430
431 Mendelsohn, Debray, & John, 2005) is a self-administered questionnaire containing 45 items
432
433 for five dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism and
434
435 Openness to experience. Participants answer on a Likert scale ranging from 1 (strongly
436
437 disagree) to 5 (strongly agree). The BFI has good psychometric properties.
438
439

440 **2.3 Data analysis**

441
442
443 Internal consistency of the dimensions of the Big Five Inventory, as assessed by
444
445 Cronbach's alpha coefficient, was > .70. We conducted a k-means cluster analysis, which
446
447 allocates each case to the cluster with the nearest center point. To compare clusters
448
449 (personality prototypes), we used analysis of variance (ANOVA), with post hoc comparisons
450
451 (Bonferroni test) to assess the differences between groups (group interactions). Next, we
452
453 calculated Bravais Pearson's correlations to evaluate the relationship between PTSD
454
455 symptoms and personality traits. Next, we conducted a multiple regression analysis to
456
457 determine the relative weights of length of service and Big Five personality traits on the
458
459 PTSD symptoms. Finally, Structural Equation Modeling (SEM) was performed using the
460
461 maximum likelihood estimation. In this study, selected values were greater than 0.90 for the
462
463 comparative fit index (CFI) and the Normed Fit Index (NFI), less than 0.08 for the root mean-
464
465 square error of approximation (RMSEA), and less than 3 for the χ^2/df (Arbuckle & Wothke,
466
467
468
469
470
471
472

474
475 2003; Byrne, 2010; Hu & Bentler, 1999). An alpha level of less than 5% was considered
476 statistically significant. Statistical analyses were performed with Statistica® and AMOS®.
477
478
479
480
481

482 **3. Results**

483
484
485 Descriptive statistics of PTSD symptoms and the BFI scores are provided in Table 1,
486 including Cronbach's alpha coefficient. Based on the cut-off score of 44 on the PCLS, 3
487 police officers (3.2%) had a very probable diagnosis of PTSD. Based on the broader cut-off
488 score of 34 on the PCLS, 12 police officers (12.9%) were affected by partial PTSD. Using a
489 diagnostic approach based on DSM-IV criteria, with at least 1 item reported for
490 Reexperiencing (with a score ≥ 3), associated with three or more items for Avoidance, and at
491 least 2 items for Hyperarousal, 4 police officers (4.3%) met the criteria for PTSD diagnosis.
492 These 4 police officers were male (M = 37.5 years, SD = 8.5, 27-47), had been working for a
493 long time in the police (M = 15.8 years, SD = 8.2, 8-27), and had high PTSD total severity
494 scores (M = 45.5, SD = 6.3, 39-54) (with high sub-scores for Reexperiencing (M = 14.0, SD =
495 3.9, 10-19), Avoidance (M = 16.2, SD = 1.3, 15-18), and Hyperarousal (M = 15.2, SD = 5.3,
496 11-23)).
497
498
499
500
501
502
503
504
505
506
507
508
509

510
511
512 -----
513 Please Insert Table 1 here
514 -----
515

516 Next, we conducted a k-means cluster analysis, which divided the police officers into
517 three clusters according to personality prototypes (Asendorpf et al., 2001; Block, 1971). BFI
518 scores yielded the three expected personality types: Resilients, Overcontrollers and
519 Undercontrollers (Figure 1). The Resilients had the most positive personality traits, with high
520 scores on Extraversion, Agreeableness, Conscientiousness, and Openness, and low scores on
521 Neuroticism (high emotional stability). The Overcontrollers had a similar but less positive
522
523
524
525
526
527
528
529
530
531

533
534 profile, while the Undercontrollers had high scores on Neuroticism and low scores on
535
536 Conscientiousness (impulsivity). The Resilients group ($n = 31$) comprised 58.1% men, young
537
538 adults ($M = 27.5$ years, $SD = 7.9$, 20-57), with the shortest length of service in the police ($M =$
539
540 5.2 , $SD = 6.5$ years, 2-30). The Overcontrollers group ($n = 43$) was composed predominantly
541
542 of men (81.4%), young adults ($M = 33.0$ years, $SD = 9.6$, 19-52), with longer service ($M =$
543
544 10.9 years, $SD = 9.0$, 0-31). The Undercontrollers group ($n = 19$) was composed of 73.7%
545
546 men, who were older ($M = 38.3$ years, $SD = 8.9$, 20-51) and had spent the longest time in the
547
548 police ($M = 16.9$ years, $SD = 8.6$, 1-32).
549
550

551
552

553 Please Insert Figure 1 and Table 2 here
554

555

556
557 Between these three groups, differences in the BFI scores were significant for all traits
558
559 (Table 2). Post hoc comparisons (Bonferroni test) were performed to assess the differences
560
561 between groups (group interactions). Next, we compared PTSD symptoms according to
562
563 personality profile (Figure 2). These symptoms were greater in the Undercontrollers than in
564
565 the Resilients and Overcontrollers. All differences between groups are shown in Table 3,
566
567 including *Post hoc* comparisons (Bonferroni test).
568
569

570
571

572 Please Insert Figure 2 and Table 3 here
573

574

575 Undercontrollers had higher scores on Neuroticism, and lower scores on
576
577 Conscientiousness and Agreeableness than Resilients and Overcontrollers. They also had
578
579 more symptoms of PTSD (Reexperiencing, Avoidance, and Hyperarousal) than the other
580
581 personality profiles. They were the oldest police officers, or those who had worked the
582
583 longest in the police. The correlation between age and length of service was high ($.97$, p
584
585 $<.001$). Therefore, we looked for links between PTSD symptoms (related to reexperiencing,
586
587
588
589
590

avoidance, or hyperarousal), length of service, and personality traits. Table 4 shows correlations between PTSD symptoms and length of service (respectively .55, .41 and .26, $p < .001$).

Please Insert Table 4 here

Next, we carried out a step-by-step multiple regression analysis to determine the relative weights of length of service, Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness on the PTSD symptoms, starting with Reexperiencing. They explained 42% of the variance ($p < .001$), with length of service, which made up the first step, contributing 31% ($p < .001$), followed by Neuroticism bringing about 11% of additional variance ($p < .001$). We carried out the same procedure for Avoidance. The same independent variables explained 28% of the variance ($p < .001$), with Neuroticism accounting for 21% ($p < .001$) and length of service 7% ($p < .01$). Finally, we carried out the same procedure for Hyperarousal. Only Neuroticism explained more than 18% of the variance ($p < .001$). When we removed Neuroticism from the equation, Agreeableness emerged in part as a predictor for PTSD symptoms: for Reexperiencing, only length of service explained 30% of variance ($p < .001$); for Avoidance, Agreeableness brought 4% additional variance ($p < .05$) to the 17% explained by length of service ($p < .005$), and it was the only predictor for Hyperarousal, but explaining only 8% of the variance ($p < .005$).

We summarized these relations using a structural equation model (SEM). SEM provides a parsimonious and logical explanation of observed relationships for the measured variables. Relationships are shown in Figure 3.

Please Insert Figure 3 here

4. Discussion

The aim of our study was to identify which personality traits, and particularly which personality profile, were most likely to be associated with PTSD or PTSD symptoms. The results confirmed the three expected personality profiles: Resilients, Overcontrollers, and Undercontrollers. The Resilient group comprised 31 police officers, the Overcontrollers group 43, and the Undercontrollers group 19. The Resilients had the fewest PTSD symptoms and the Undercontrollers the most (particularly for Reexperiencing). Specifically, the Undercontrollers had the highest Neuroticism scores and the lowest Extraversion and Agreeableness scores (i.e. the most vulnerable personality profile). They were also the oldest or those who had served longest in the police. Correlational analysis showed that both length of service and personality traits were associated with PTSD symptoms. Neuroticism and length of service were the two predictors of Reexperiencing and Avoidance. While Agreeableness and Extraversion had negative correlations with PTSD symptoms (i.e., both, but particularly Agreeableness, are protective traits or associated with an absence of disorders), they were no longer significant when the police officers had high scores on Neuroticism.

Our results for personality profiles are in line with those in the literature. Resilients are more resistant to job stressors and do the best job (Garbarino et al., 2014; Jakšić et al., 2012; Lau et al., 2006). Personality traits can moderate perceived stress levels. The proportion of police officers in our sample with full PTSD was relatively low compared to the findings of other authors (Maia et al., 2007; Marmar et al., 2006), but participants were not part of an elite unit and they had not experienced a traumatic event such as 9/11 in New York. In France, in general, little consideration is given to the traumatic events that occur during police

709
710
711 work. Officers rarely benefit from debriefing with structured psychological support. On the
712
713 whole, they do not talk about any distress they may have suffered, and their supervisors also
714
715 tend to ignore it. Older police officers in the lowest ranks are often those with the lowest
716
717 education level and the least training. Consequently, if these police officers remain isolated,
718
719 they are more at risk of developing psychic morbidity. With increasing length of service,
720
721 police officers accumulate experiences of violent situations or the distress of others. They are
722
723 more vulnerable to the negative effects of acute or chronic stress. Stress can be caused both by
724
725 critical events and by daily stressors. Older police officers report more job pressure and fewer
726
727 work injuries (Berg, Hem, Lau, Håseth, & Ekeberg, 2005). The protective role of personality
728
729 traits changes over time. Personality traits tend to change in a stressful environment and to be
730
731 more associated with anxiety and psychological distress. This may call into question the idea
732
733 that young police officers are inevitably more prone to post-trauma reactions (Hodgins,
734
735 Creamer, & Bell, 2001). It also suggests that police officers should be selected on personality
736
737 criteria in order to ensure their capacity to adapt to their work and to cope with the stress that
738
739 it involves.
740
741
742

743 The main limitations of this study are the size of the sample, the fact that participants
744
745 were still in training, and the use of self-administered questionnaires. The results should be
746
747 interpreted with caution, even though the participants were from a regional training center for
748
749 all categories of police officers.
750
751

752 This study highlights the role of personality and length of service in coping with stress
753
754 and in the occurrence of PTSD symptoms in French police officers, and particularly the role
755
756 of neuroticism (low emotional stability). It suggests the relevance of screening young recruits,
757
758 giving precedence to those presenting with personality traits that could have a protective role
759
760 (high Extraversion, high Agreeableness, high Conscientiousness or low impulsivity). It is
761
762 important to recognize the stress experienced by police officers in their work and to develop
763
764

768 Personality and PTSD symptoms in police

769
770 strategies to help them cope with it throughout their career (Pole, Kulkarni, Bernstein, &
771 Kaufmann, 2006), such as developing social relationships and promoting peer support during
772 and after stressful situations (Bowling, Eschleman, & Wang, 2010). More specific support
773 should also be given to police officers who show the characteristics of Undercontrollers
774 because of their greater risk of developing PTSD symptoms. In sum, this research work
775 should be replicated with a larger sample in order to gain a clearer view of the issue and
776 perhaps to adapt actions to promote resilient functioning in a population that is often subject
777 to post-traumatic stress.
778
779
780
781
782
783
784
785
786
787
788
789

790 Acknowledgment.

791
792 We would like to thank the Regional Training Center of police officers.
793
794
795
796

797 **Conflicts of interest:** none

798
799 **Funding:** This research did not receive any specific grant from funding agencies in the
800 public, commercial, or not-for-profit sectors.
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826

References

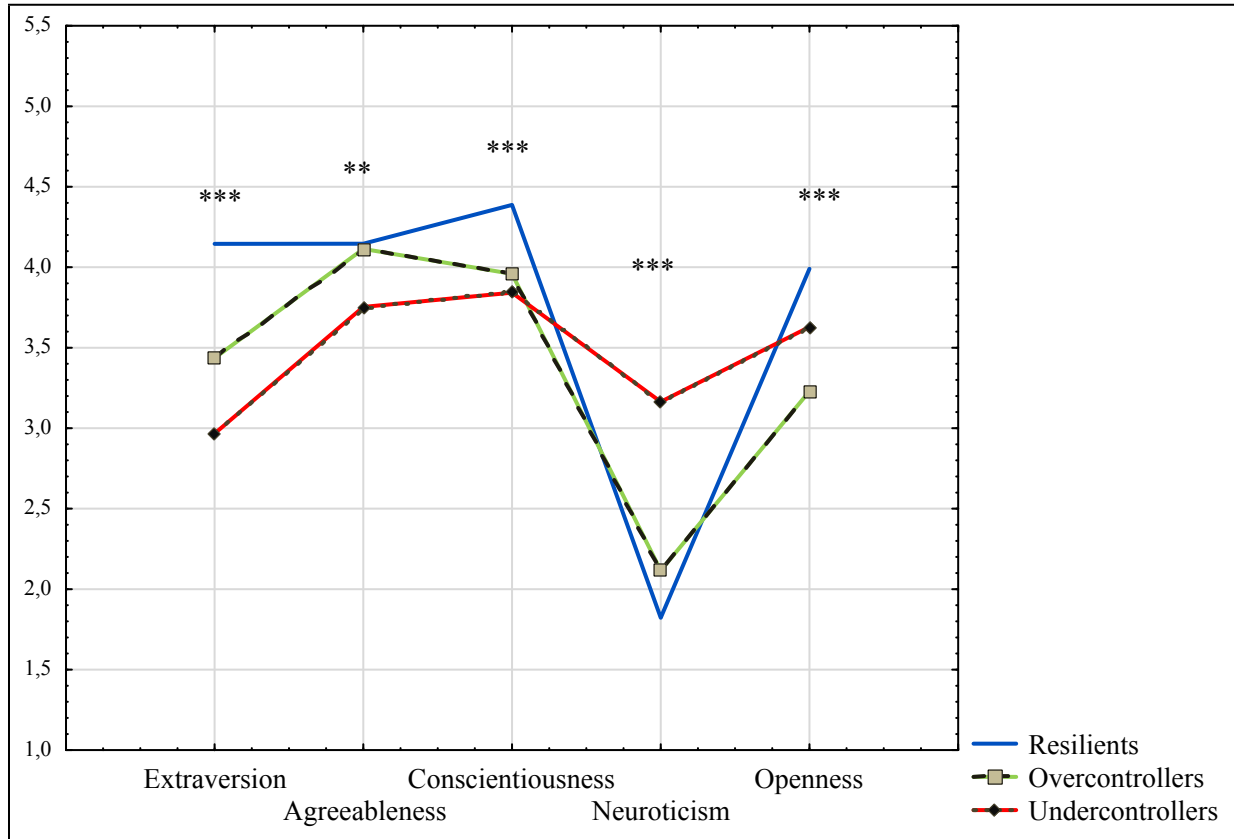
- Arbuckle, J. L., & Wothke, W. (2003). *AMOS (Version 5.0)[Computer software]*. Chicago, IL, US: SmallWaters Corporation.
- Asendorpf, J. B., Borkenau, P., Ostendorf, F., & Van Aken, M. A. G. (2001). Carving personality description at its joints: Confirmation of three replicable personality prototypes for both children and adults. *European Journal of Personality, 15*(3), 169-198. doi:10.1002/per.408
- Asendorpf, J. B., & van Aken, M. A. G. (1999). Resilient, overcontrolled, and undercontrolled personality prototypes in childhood: Replicability, predictive power, and the trait-type issue. *Journal of Personality and Social Psychology, 77*(4), 815-832. doi:10.1037/0022-3514.77.4.815
- Aytac, S. (2015). The sources of stress, the symptoms of stress and anger styles as a psychosocial risk at occupational health and safety: A case study on turkish police officers. *Procedia Manufacturing, 3*, 6421-6428. doi:10.1016/j.promfg.2015.07.915
- Berg, A. M., Hem, E., Lau, B., Håseth, K., & Ekeberg, Ø. (2005). Stress in the Norwegian police service. *Occupational Medicine, 55*(2), 113-120. doi:10.1093/occmed/kqi023
- Berger, W., Coutinho, E. S. F., Figueira, I., Marques-Portella, C., Luz, M. P., Neylan, T. C., . . . Mendlowicz, M. V. (2012). Rescuers at risk: A systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. *Social Psychiatry and Psychiatric Epidemiology, 47*(6), 1001-1011. doi:10.1007/s00127-011-0408-2
- Block, J. (1971). *Lives through time*. Berkeley, CA: Bancroft.
- Boehm, B., Asendorpf, J. B., & Avia, M. D. (2002). Replicable types and subtypes of personality: Spanish NEO-PI samples. *European Journal of Personality, 16*(S1), S25-S41. doi:10.1002/per.450
- Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology, 83*(4), 915-934. doi:10.1348/096317909X478557
- Byrne, B. M. (2010). *Structural Equation Modeling with AMOS: Basic concepts, Applications, and Programming* (2 ed.). New York, NY, US: Routledge.
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: stability and change. *Annual Review of Psychology, 56*, 453-484. doi:10.1146/annurev.psych.55.090902.141913
- El Hage, W., Powell, J. F., & Surguladze, S. A. (2009). Vulnerability to depression: What is the role of stress genes in gene × environment interaction? *Psychological Medicine, 39*(9), 1407-1411. doi:10.1017/S0033291709005236
- Ellrich, K., & Baier, D. (2015). Post-traumatic stress symptoms in police officers following violent assaults. *Journal of Interpersonal Violence, 32*(3), 331-356. doi:10.1177/0886260515586358
- Garbarino, S., Chiorri, C., & Magnavita, N. (2014). Personality traits of the five-factor model are associated with work-related stress in special force police officers. *International Archives of Occupational and Environmental Health, 87*(3), 295-306. doi:10.1007/s00420-013-0861-1
- Gudjonsson, G. H., & Adlam, K. R. C. (1983). Personality patterns of British police officers. *Personality and Individual Differences, 4*(5), 507-512. doi:10.1016/0191-8869(83)90081-8
- Habersaat, S. A., Geiger, A. M., Abdellaoui, S., & Wolf, J. M. (2015). Health in police officers: Role of risk factor clusters and police divisions. *Social Science and Medicine, 143*(Supplement C), 213-222. doi:10.1016/j.socscimed.2015.08.043
- Heinrichs, M., Wagner, D., Schoch, W., Soravia, L. M., Hellhammer, D. H., & Ehlert, U. (2005). Predicting posttraumatic stress symptoms from pretraumatic risk factors: A 2-year prospective follow-up study in firefighters. *The American journal of psychiatry, 162*(12), 2276-2286.
- Hodgins, G., Creamer, M., & Bell, R. (2001). Risk factors for posttrauma reactions in police officers: A longitudinal study. *The Journal of Nervous and Mental Disease, 189*(8), 541-547.

- 886
887
888
889 Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis:
890 Conventional criteria versus new alternatives. *Structural Equation Modeling: A*
891 *Multidisciplinary Journal*, 6(1), 1-55. doi:10.1080/10705519909540118
- 892 Jakob, J. M. D., Lamp, K., Rauch, S. A. M., Smith, E. R., & Buchholz, K. R. (2017). The impact of trauma
893 type or number of traumatic events on PTSD diagnosis and symptom severity in treatment
894 seeking veterans. *The Journal of Nervous and Mental Disease*, 205(2), 83-86.
895 doi:10.1097/nmd.0000000000000581
- 896 Jakšić, N., Brajković, L., Ivezić, E., Topić, R., & Jakovljević, M. (2012). The role of personality traits in
897 posttraumatic stress disorder (PTSD). *Psychiatria Danubina*, 24(3.), 256-266.
- 898 John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory--Versions 4a and 54*.
899 Retrieved from Berkeley, CA, US:
- 900 John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big-five trait
901 taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A.
902 Pervin (Eds.), *Handbook of personality: Theory and research* (3 ed., pp. 114-158). New York,
903 NY, US: Guilford Press.
- 904 John, O. P., & Srivastava, S. (1999). The big five trait taxonomy: History, measurement, and
905 theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: theory*
906 *and research* (2 ed., pp. 102-138). New York, NY, US: Guilford Press.
- 907 Kula, S. (2017). Occupational stress, supervisor support, job satisfaction, and work-related burnout:
908 Perceptions of Turkish National Police (TNP) members. *Police Practice and Research*, 18(2),
909 146-159. doi:10.1080/15614263.2016.1250630
- 910 Lau, B., Hem, E., Berg, A. M., Ekeberg, Ø., & Torgersen, S. (2006). Personality types, coping, and stress
911 in the Norwegian police service. *Personality and Individual Differences*, 41(5), 971-982.
912 doi:10.1016/j.paid.2006.04.006
- 913 Lorr, M., & Strack, S. (1994). Personality profiles of police candidates. *Journal of Clinical Psychology*,
914 50(2), 200-207. doi:10.1002/1097-4679(199403)50:2<200::AID-JCLP2270500208>3.0.CO;2-1
- 915 Maia, D. B., Marmar, C. R., Metzler, T., Nóbrega, A., Berger, W., Mendlowicz, M. V., . . . Figueira, I.
916 (2007). Post-traumatic stress symptoms in an elite unit of Brazilian police officers: Prevalence
917 and impact on psychosocial functioning and on physical and mental health. *Journal of*
918 *Affective Disorders*, 97(1), 241-245. doi:10.1016/j.jad.2006.06.004
- 919 Marmar, C. R., McCaslin, S. E., Metzler, T. J., Best, S., Weiss, D. S., Fagan, J., . . . Neylan, T. (2006).
920 Predictors of Posttraumatic Stress in Police and Other First Responders. *Annals of the New*
921 *York Academy of Sciences*, 1071(1), 1-18. doi:10.1196/annals.1364.001
- 922 Mitchell, J. T., & Bray, G. (1990). *Emergency services stress: Guidelines for preserving the health and*
923 *careers of emergency services personnel*. Englewood Cliffs, NJ, US: Prentice Hall.
- 924 Plaisant, O., Srivastava, S., Mendelsohn, G. A., Debray, A., & John, O. P. (2005). Relations entre le Big
925 Five Inventory français et le manuel diagnostique des troubles mentaux dans un échantillon
926 clinique français [Relations between the French version of the Big Five Inventory and the
927 DSM classification in a French clinical sample of psychiatric disorders]. *Annales Médico-*
928 *psychologiques, revue psychiatrique*, 163(2), 161-167. doi:10.1016/j.amp.2005.02.002
- 929 Pole, N., Kulkarni, M., Bernstein, A., & Kaufmann, G. (2006). Resilience in Retired Police Officers.
930 *Traumatology*, 12(3), 207-216. doi:10.1177/1534765606294993
- 931 Robins, R. W., John, O. P., Caspi, A., Moffitt, T. E., & Stouthamer-Loeber, M. (1996). Resilient,
932 overcontrolled, and undercontrolled boys: Three replicable personality types. *Journal of*
933 *Personality and Social Psychology*, 70(1), 157-171. doi:10.1037/0022-3514.70.1.157
- 934 Skomorovsky, A. (2013). Psychological well-being of Canadian forces officer candidates: The role of
935 personality and coping strategies. *Military Psychology*, 25(1), 3-12. doi:10.1037/h0094752
- 936 Ventureyra, V. A. G., Yao, S. N., Cottraux, J., Note, I., & De Mey-Guillard, C. (2002). The validation of
937 the Posttraumatic Stress Disorder Checklist Scale in posttraumatic stress disorder and
938 nonclinical subjects. *Psychotherapy and Psychosomatics*, 71(1), 47-53.
939 doi:10.1159/000049343
940
941
942
943
944

Personality and PTSD symptoms in police

- 945
946
947 Vollrath, M. (2001). Personality and stress. *Scandinavian Journal of Psychology*, 42(4), 335-347.
948 doi:10.1111/1467-9450.00245
949 Wagner, S. L. (2005). The "Rescue Personality": Fact or fiction? *Australasian Journal of Trauma and*
950 *Disaster Studies*, 2(2005-2).
951 Wearing, D. A. J., & Hart, P. M. (1996). Work and non-work coping strategies: their relation to
952 personality, appraisal and life domain. *Stress Medicine*, 12(2), 93-103.
953 doi:10.1002/(SICI)1099-1700(199604)12:2<93::AID-SMI694>3.0.CO;2-X
954 Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The PTSD Checklist*
955 *(PCL): Reliability, validity, and diagnostic utility*. Paper presented at the annual convention of
956 the international society for traumatic stress studies, San Antonio, TX.
957 Yuan, C., Wang, Z., Inslicht, S. S., McCaslin, S. E., Metzler, T. J., Henn-Haase, C., . . . Marmar, C. R.
958 (2011). Protective factors for posttraumatic stress disorder symptoms in a prospective study
959 of police officers. *Psychiatry Research*, 188(1), 45-50. doi:10.1016/j.psychres.2010.10.034
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000
1001
1002
1003

Figure 1. Resilient, overcontrolled and undercontrolled personality profiles.



*: $p < .05$; **: $p < .01$ and ***: $p < .001$

Figure 2. PTSD symptoms (means and standard deviations) according to personality profiles (Resilient, overcontrolled and undercontrolled).

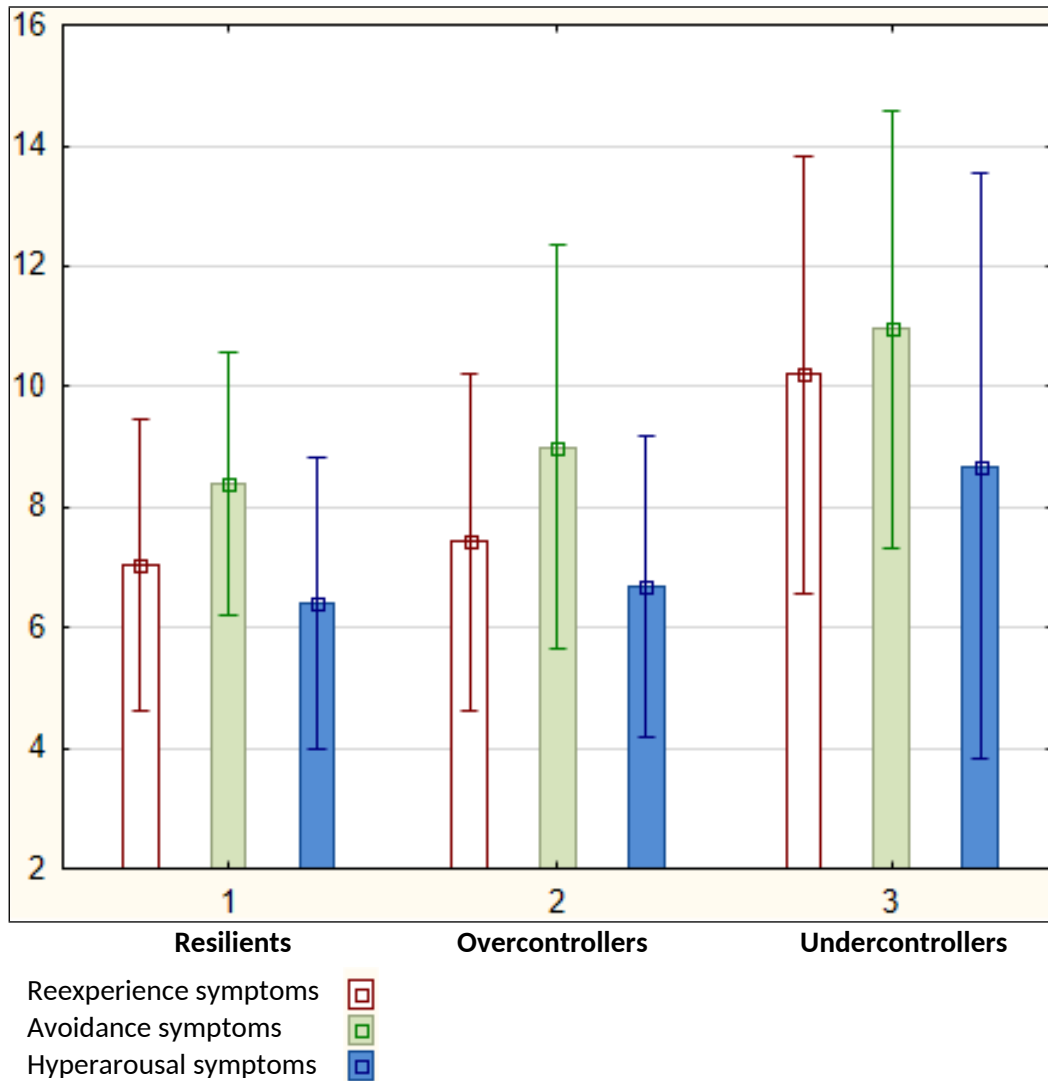
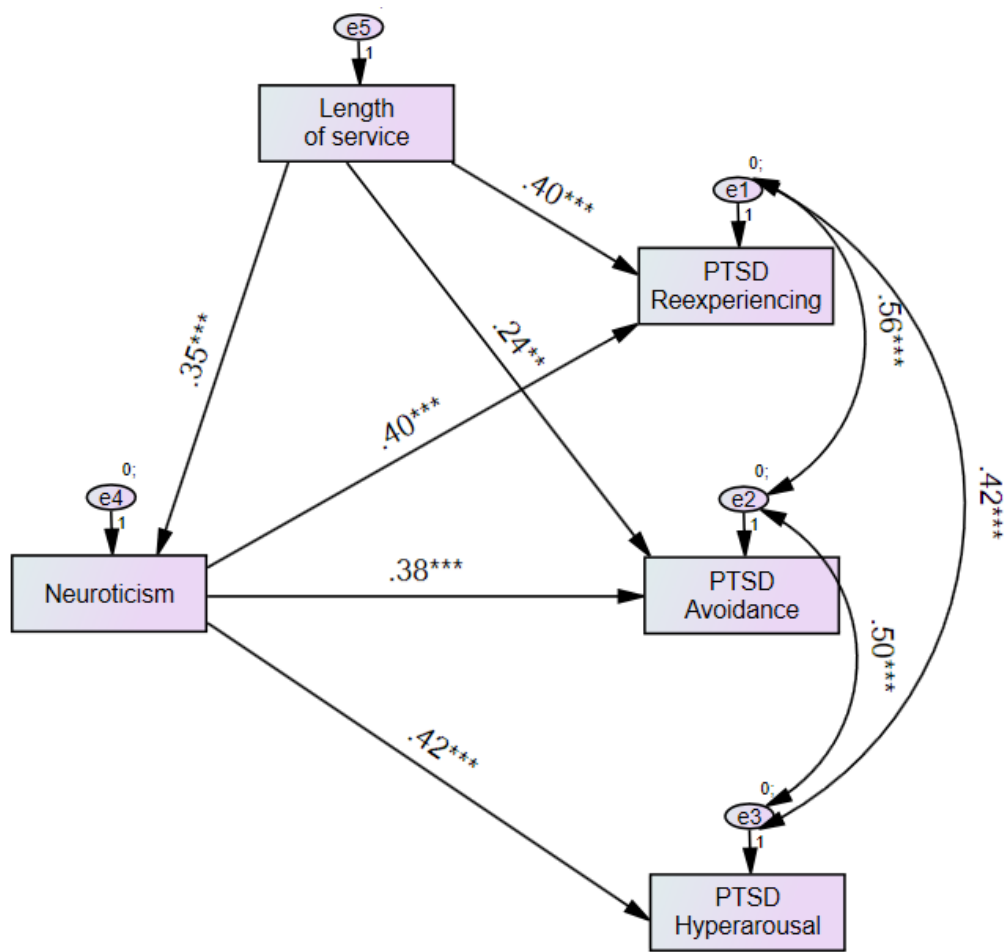


Figure 3. Impact of personality traits and length of service on PTSD symptoms.



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

$\chi^2 = 1.60$, $df = 1$

$\chi^2/df = .87$

$p < .21$

CFI = 99.6

NFI = 99.1

RMSEA = .077

Table 1. Descriptive statistics of PTSD symptoms and personality traits.

	Mean [CI 95%]	Median	Minimum	Maximum	Q1	Q3	SD	<i>Cronbach's coefficient</i>
PCLS								
Reexperiencing score	7.9 [7.2-8.5]	7	5	19	5	10	3.1	.76
Avoidance score	9.2 [8.5-9.8]	8	7	24	7	10	3.2	.69
Hyperarousal score	7.0 [6.4-7.7]	5	5	23	5	8	3.2	.85
Total score	24.1 [22.4-25.7]	21	17	54	18	27	8.1	.88
BFI								
Extraversion	3.6 [3.4-3.7]	3.6	1.9	4.9	3.1	4.0	.7	.84
Agreeableness	4.0 [4.0-4.1]	4.1	2.9	5.0	3.8	4.3	.4	.75
Conscientiousness	4.1 [4.0-4.2]	4.1	2.4	5.0	3.8	4.3	.5	.80
Neuroticism	2.2 [2.1-2.4]	2.1	1.1	4.4	1.7	2.6	.7	.83
Openness	3.6 [3.4-3.7]	3.5	2.2	4.8	3.2	4.0	.5	.80

BFI: Big Five Inventory; PCLS: Posttraumatic Stress Disorder Checklist Scale; CI: Confidence interval; Q1: 1st Quartile; Q3: 3rd Quartile

Table 2. Resilient, overcontrolled and undercontrolled personality profiles (means, standard deviations and inter-group comparisons)

	Resilients (Cl.1)	Overcontrollers (Cl. 2)	Undercontrollers (Cl. 3)	F	<i>p</i>	Bonferroni post-hoc test
Extraversion	4.14 (.44)	3.28 (.51)	3.47 (.76)		***	Cl. 3 > Cl. 1 ** Cl. 3 > Cl. 2 (ns) Cl. 2 > Cl. 1 ***
Agreeableness	4.20 (.40)	4.08 (.33)	3.41 (.29)	6.53	**	Cl. 3 > Cl. 1 *** Cl. 3 > Cl. 2 *** Cl. 2 > Cl. 1 (ns)
Conscientiousness	4.43 (.31)	3.93 (.43)	3.77 (.60)		***	Cl. 3 > Cl. 1 *** Cl. 3 > Cl. 2 (ns) Cl. 2 > Cl. 1 ***
Neuroticism	1.71 (.43)	2.31 (.42)	3.45 (.61)		***	Cl. 3 > Cl. 1 *** Cl. 3 > Cl. 2 *** Cl. 2 > Cl. 1 ***
Openness	3.80 (.52)	3.33 (.42)	3.88 (.67)		***	Cl. 3 > Cl. 1 (ns) Cl. 3 > Cl. 2 ** Cl. 2 > Cl. 1 ***

*: $p < .05$; **: $p < .01$ and ***: $p < .001$

Table 3. PTSD symptom clusters (means, standard deviations and inter-group comparisons) in the three personality prototypes

	Resilients (Cl.1)	Overcontrollers (Cl. 2)	Undercontrollers (Cl. 3)	F	<i>p</i>	Bonferroni post-hoc test
Reexperiencing	7.03 (2.42)	7.41 (2.79)	10.21 (3.63)		***	Cl. 3 > Cl. 1 *** Cl. 3 > Cl. 2 ** Cl. 2 > Cl. 1 (ns)
Avoidance	8.39 (2.17)	9.00 (3.39)	10.95 (3.64)	4.26	*	Cl. 3 > Cl. 1 * Cl. 3 > Cl. 2 (ns) Cl. 2 > Cl. 1 (ns)
Hyperarousal	6.42 (2.42)	6.70 (2.49)	8.68 (4.84)	3.58	*	Cl. 3 > Cl. 1 * Cl. 3 > Cl. 2 (ns) Cl. 2 > Cl. 1 (ns)

*: $p < .05$; **: $p < .01$ and ***: $p < .001$

Table 4. Correlations between Big Five personality traits and PTSD symptoms.

	BFI personality traits					PTSD clusters		
	E	A	C	N	O	Reexperience	Avoidance	Hyperarousal
Length of service	-.36***	-.26*	-.22*	.34***	-.03	.55***	.41***	.26*
Extraversion	1	.11	.26*	-.31**	.15	-.20	-.27**	-.20
Agreeableness		1	.30**	-.36***	-.05	-.22*	-.31**	-.29**
Conscientiousness			1	-.34***	.34**	-.08	-.15	-.19
Neuroticism				1	-.02	.50***	.46***	.43***
Openness					1	.13	.09	.07
Reexperience						1	.70***	***
Avoidance							1	.61***
Hyperarousal								1

*E: Extraversion; A: Agreeableness; C: Conscientiousness; N: Neuroticism; O: Openness; *: $p < .05$; **: $p < .01$; ***: $p < .001$*