THE FIVE-FACTOR MODEL OF PERSONALITY AND AGGRESSIVENESS IN PRISONERS AND ATHLETES

Viktorija Trninić1, Maximilijana Barančić2 and Mirjana Nazor1
1Faculty of Science, Mathematics and Kinesiology, University of Split, Croatia
2University of Zadar, Croatia

Abstract:
The study examined the type of relationship between the trait of aggressiveness and the dimensions of the Five-Factor Model (FFM) of personality on samples of prisoners (N=106) and athletes (N=109). The relationship between the five factors of personality and six measures of aggressiveness was determined by the Pearson’s correlation coefficient, whereas multiple regression analysis was used to determine the relations between the five personality factors and the total measure of aggressiveness separately for each sample. In the prisoners it was found that aggressiveness is significantly correlated with agreeableness, conscientiousness and emotional stability, whereas in the athletes a significant correlation was found between aggressiveness and extraversion, agreeableness and emotional stability. Multiple regression analysis showed that all the factors, except agreeableness, were significant predictors of aggressiveness in the prisoners, whereas in the athletes only emotional stability was a significant predictor.

Key words: aggression, extraversion, agreeableness, conscientiousness, emotional stability, intellect, openness, neuroticism

Introduction
Aggressiveness and aggressive behaviour is a highly multifaceted construct (Parrott & Giancola, 2007) and a widespread social phenomenon. Within the framework of Eysenck’s personality theory it is included within the wider structure of the dimension psychoticism (Knezović et al., 1989; Milas, 2004; Hudek-Knežević, Krapić, & Kardum, 2006). It may be defined as any behavioural pattern the aim of which is to hurt others, physically or mentally (Glavota, 1990; Maxwell & Moores, 2007; Parrott & Giancola, 2007). With regard to behaviour, we differentiate between verbal and physical aggression. Verbal aggression is manifested as shouting, swearing, threatening, insulting and similar, whereas physical aggression is characterized by a more or less direct physical assault on a person (Smits, De Boeck, & Vansteelandt, 2004; Žužul, 1989). Further, according to the object of aggression manifestation, we distinguish direct from indirect aggression. Direct aggression is oriented directly towards the source of frustration, whereas indirect aggression is oriented towards substituted goals, other persons, or any other objects (Campbell, 2006; Garandeau & Cillessen, 2006; Žužul, 1989). Aggressiveness as a personality trait is manifested on two levels: as latent and manifest aggressiveness. Under the term latent aggressiveness we understand a latent tendency or just a disposition to assault the perceived source of frustration, whereas manifest aggressiveness is an open manifestation of aggressive behaviour or response. Or, more precisely, latent aggressiveness is usually defined as a relatively permanent and stable personality trait thanks to which an individual in provoking situations responds by the elevation of affect tension and by the occurrence of motivation to assault the source of the provocation. On the other hand, the manifest aggressiveness is usually defined as a relatively permanent and stable personality trait of a person who reacts in provoking situations by the manifestation of either physical or verbal aggression against the source of frustration or the substituted goals (Garandeau & Cillessen, 2006; Žužul, 1989). So, manifest aggressiveness is a function of latent aggressiveness and restraining inhibition mechanism. The development of the inhibition mechanism is primarily influenced by a learning process, especially social learning (Žužul et al., 1989), which embraces the adopted moral, ethical and social values and, generally, attitudes towards aggression and violence. However, there is also a moderate genetic base for the mechanism of
inhibition (Žužul, 1989; Richetin & Richardson, in press; Keller, Hurst, & Uskul, 2008).

As far as the relationship between aggressiveness and cognitive competence is regarded (Feschbach & Price, 1984; Richetin & Richardson, in press), the longitudinal study indicates the causal connection between cognitive competence and aggressive behaviour. The development of cognitive competence would in many cases decrease the incidence or level of aggressiveness in humans.

Personality can be defined as a cluster of traits that determine individual-specific responses to the environment (Musek, 1999). So, on the one hand, the concept of personality explains why one individual differs from all other individuals and, on the other hand, it explains his/her behavioural consistency in diverse situations (Asendorpf & van Aken, 2003; Macdonald, Bore, & Munro, 2008; Knezović et al., 1989).

Every personality theory tries to embrace as wide a range of human behavioural patterns as possible by its limited system of assumptions or constructs (Buško, 1990). The Big Five Model or the Five-Factor Model (FFM) is substantially descriptive, with the emphasis on the taxonomic aspect, that is, on the way in which personality can be divided into a smaller number of fundamental constructs (Bucik, Boben, & Hruševar-Bobek, 1997; Macdonald, Bore, & Munro, 2008). According to that theory, personality can be described by means of five factors: extraversion, agreeableness, conscientiousness, emotional stability and intellect (Pervin & John, 1997). These five factors represent personality in the highest degree of abstraction, and each of these dimensions includes a large number of distinct specific characteristics.

Factor EXTRAVERSION accounts for the amount and intensity of social interaction, activity level, the need for external stimulation and the feature of joy. Individuals scoring high on that dimension can be described as sociable, active, venturous, talkative, and optimistic, as ones who like parties and fun, who are warm-hearted. Opposite to them, persons low on that dimension are described as unsociable, quiet, reserved, unexuberant, balanced, serious, aloof, and task-oriented.

Factor AGREEABLENESS assesses quality of interpersonal orientation towards the others along a continuum from pity and compassion to adversity, antagonism in thoughts, emotions and actions. Persons scoring high on that dimension can be described as soft-hearted, as a being of a good nature, trusting, helping, forgiving, open persons, straightforward, honest, whereas those on the opposite pole of the dimension are seen as cynical, mocking, rude, irritable, suspicious, vengeful, ruthless, uncooperative, and manipulative.

Factor CONSCIENTIOUSNESS describes task-oriented and goal-oriented behaviour and socially required impulse control. Individuals scoring high on that dimension are known as organized, reliable, assured, self-disciplined, punctual, scrupulous, neat, polite, considerate, ambitious, committed, and persevering. Opposite to them, persons with low scores are unreliable, lazy, careless, negligent, imprudent, inconsiderate, indifferent, weak-willed, inert, hedonistic, aimless, and with no aspirations.

Factor NEUROTICISM identifies persons who tend to feel negative emotions (anxiety, bitterness, sorrow), who suffer from unrealistic ideas, excessive yearning and urges and have or suffer from maladaptive stress-coping strategies. Persons highly positioned on that dimension exemplify as worrying, nervous, irritable, easy jumping, too emotional, insecure, unreliable, inadequate, and frequently hypochondriacal. Low positioned individuals are calm, relaxed, not too emotional, hardy, secure, and self-satisfied.

Factor INTELLECT/OVERNESS TO EXPERIENCE assesses proactive seeking and appreciation of experience for its own sake, tolerance for the unknown and exploration of the unfamiliar; in other words, it assesses the width, depth and complexity of one’s “spiritual world” and life experience. Persons scoring high on this dimension are described as curious, of broad interests, creative, operational, imaginative and non-conventional. On the contrary, those scoring low are traditional, down-to-earth, narrow-hearted, limited, inartistic, not curious and not interested to explore (Pervin & John, 1997).

Several research studies demonstrated that extraversion and emotional stability from FFM are congruent to extraversion and neuroticism from the Eysenck’s model (Mlačić & Knezović, 1997). Agreeableness and conscientiousness from FFM have a moderate high correlation with the factor psychoticism. Eysenck’s theory and FFM, however, have quite different explanations for the finding. The first theory states that psychoticism is a super-factor and that agreeableness and conscientiousness are its compounds (Eysenck, 1991, 1992, 1993, 1994). The second theory, however, says that agreeableness and conscientiousness are fundamental dimensions, whereas psychoticism is their particular combination (Goldberg & Rosalack, 1994; Costa & McCrae, 1992). As far as the relationship between aggressiveness and Eysenck’s personality theory regards (Eysenck, 1992), aggressiveness is classified within the framework of psychoticism.

According to certain studies (Žužul, Fietze, & Arambašić, 1989), aggressiveness is in no correlation with the dimension of extraversion. Not big, but significant correlation was found between neuroticism and aggressiveness, with the latent aggressiveness having a higher correlation with neuroticism than the manifest one. Psychoticism is in the highest correlation with latent and manifest aggressiveness.
The goal of the present study was to examine the type of relationship between the trait of aggressiveness and the dimensions of the Five-Factor Model (FFM) of personality in the populations of prisoners and athletes. These two populations were presumed more aggressive than other populations – the prisoners by definition have already endangered others by their behaviour and are either under investigation or are already serving their sentence for it; athletes must be “aggressive” when striving to beat their opponents in their sports (especially in contact sports; Rogulj, Nazor, Srhoj, & Božin, 2006). We hypothesized that prisoners will score lower on agreeableness and conscientiousness because in several previous research studies (e.g. Tani et al., 2003) it has been evidenced that lower levels on these dimensions predict delinquency. On the other hand, athletes score lower (Cox, 2000; Tušak, Kandare, & Bednarik, 2005) on the neuroticism scale and higher on the dimensions of agreeableness and conscientiousness.

Therefore, the authors presumed that agreeableness, conscientiousness and emotional stability would be statistically significantly correlated with aggressiveness in a way that persons who would score lower on the variables agreeableness, conscientiousness and emotional stability would display higher aggressiveness. No hypotheses were set for the relationships between extraversion and intellect on the one hand, and aggressiveness on the other.

Methods

Instruments

QUESTIONNAIRE A – 87 AND IPIP 100:

Questionnaire A – 87 (Žužul, 1987) consists of 15 items of different situations with five possible responses. The possible responses or reactions are the five most frequent forms of aggressive responses: a) verbal manifest aggression (VM); b) physical manifest aggression (PHM); c) indirect aggression (IND); d) verbal latent aggression (VL), and e) physical latent aggression (PHL).

The subject’s answers were given on a five point scale: 1 - they never behave in that way, 2 - they behave seldom in that way, 3 - they behave in that way from time to time, 4 - they behave frequently in that way, and 5 - they behave very often in that way.

The alpha coefficients of reliability for every aggressiveness scale were as follows:
rtt(VM) = .91, rtt(PHM) = .92, rtt(IND) = .92, rtt(VL) = .89, and rtt(PHL) = .92 (for the prisoners);
and
rtt(VM) = .83, rtt(PHM) = .89, rtt(IND) = .86, rtt(VL) = .88, and rtt(PHL) = .90 (for the athletes).

Test A – 87 is an extremely homogeneous instrument in the measures of individual forms of aggressiveness and the total result due to the results on particular scales have been formed on the basis of only 15 items. In order to verify the contents validity of the questionnaire, the author conducted a validation study (Žužul, 1989) in which correlations among all the scales of aggressiveness were determined. The cross-scale correlations were considerably high – they covered ranges from .505 (between VL and PHM aggression) to .97 (between PHL and PHM aggression).

The second applied questionnaire - IPIP 100 (www.ipip.org/2005) measures the five personality factors: extraversion (EXT), agreeableness (AGR), conscientiousness (CON), emotional stability (EMST) and intellect (INT). The questionnaire consists of 100 items (20 items for each factor) describing typical forms of behaviour or the mentioned feature. The subjects answered on a five point scale: 1 - the statement is absolutely incorrect, 2 - the statement is mostly incorrect, 3 - the statement is neither correct nor incorrect, 4 - the statement is mostly correct, 5 - the statement is absolutely correct.

In this study the computed alpha reliability coefficients for every factor were as follows:
rtt(EXT) = .80, rtt(AGR) = .78, rtt(CON) = .87, rtt(EMST) = .83, and rtt(INT) = .76 (for the prisoners); and
rtt(EXT) = .90, rtt(AGR) = .78, rtt(CON) = .88, rtt(EMST) = .90, and rtt(INT) = .84 (for the athletes).

Subjects

The sample of subjects was a convenience one. The first sample consisted of male suspect and convicted offenders of the criminal code (N=106), the persons serving their penalties in the Zagreb County Prison and the halfway prison Vukomerec, or the detainees who were in custody in the Zagreb County Prison. Their age ranged from 19 to 66 years (Mean=36.85 yrs, SD=11.33). The investigated prisoners committed 10 categories of crime offences (CO). These were CO against life and body: murder and grievous bodily harm - 7 prisoners; CO against freedom, human and civil rights: kidnapping - 1 prisoner; CO against values protected by international law: illicit people trafficking and drug trafficking - 25 prisoners; CO against sexual freedom and moral: rape - 2 prisoners; CO against matrimony, family and the young: violation of children’s alimony duties, home/
family violence - 8 prisoners; CO against property: theft, burglary, fraud, extortion, blackmailing - 43 prisoners; CO against general security of people and property and traffic security: traffic accidents - 8 prisoners; CO against financial transactions and business security: counterfeit banknotes, evasions of tax payment and other financial obligations - 5 prisoners; CO against public order: assault against a person on duty, obstruction of a public officer - 2 prisoners; CO against official duty: embezzlement, abuse of office and power - 5 prisoners (Marijan, 2004).

The second sample (N=109) consisted of male freshmen and sophomores at the Faculty of Kinesiology, University of Zagreb, Croatia, aged between 18 and 19 years, future physical education teachers and professional coaches (of a particular competitive sport, recreational sport, physical recreation, physical conditioning, physical fitness training, and kinesitherapy programme leaders in adapted physical activity and in sport for the disabled). They were all involved in extramural additional sports training practice sessions (most of them at the national quality level): 76 students played ball games (football, basketball, team handball, water polo, field hockey, tennis, and table tennis), 15 did combat sports (karate, taekwondo, wrestling, boxing, nambudo, budokai and fencing), two did aesthetic sports (diving and dances), and 16 were involved in track-and-field, swimming, rowing, kayaking, road bicycling, triathlon, equestrian sport (show jumping), and various activities for recreational purposes (jogging, lifting weights).

All the subjects provided their informed consent and were assured confidentiality.

Data processing methods

From the data (five personality factors and six aggressiveness measures) obtained on the samples of prisoners and athletes, the basic descriptive parameters were calculated. The goodness of fit of the data was tested by the Kolmogorov–Smirnov test. The relations between the five personality factors and six aggressiveness measures were established by the Pearson’s correlation coefficient. Associations between the five personality factors and the total measure of aggressiveness were determined by a multiple regression analysis for each sample separately.

The data were processed with the statistical package SPSS 11.5 for Windows at the Department of Psychology, Faculty of Arts, University of Zagreb, Croatia.

Results

The results of descriptive analyses of the samples of prisoners and athletes are presented in Tables 1 and 2.

Table 1. Parameters of descriptive statistics, Kolmogorov-Smirnov test (K-S) (prisoners)

<table>
<thead>
<tr>
<th></th>
<th>Extra-</th>
<th>Agree-</th>
<th>Consci-</th>
<th>Emotional</th>
<th>Intellect</th>
<th>VM aggressiveness</th>
<th>PHM aggressiveness</th>
<th>IN aggressiveness</th>
<th>VL aggressiveness</th>
<th>PHL aggressiveness</th>
<th>Total aggressiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>M</td>
<td>68.30</td>
<td>73.65</td>
<td>76.28</td>
<td>67.02</td>
<td>69.88</td>
<td>34.05</td>
<td>23.56</td>
<td>26.08</td>
<td>33.23</td>
<td>25.44</td>
<td>142.26</td>
</tr>
<tr>
<td>SD</td>
<td>10.36</td>
<td>9.47</td>
<td>11.98</td>
<td>11.68</td>
<td>9.65</td>
<td>12.08</td>
<td>9.71</td>
<td>10.83</td>
<td>11.03</td>
<td>11.48</td>
<td>49.26</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>.28</td>
<td>.13</td>
<td>-.13</td>
<td>.10</td>
<td>.05</td>
<td>.66</td>
<td>2.35</td>
<td>1.79</td>
<td>.29</td>
<td>1.39</td>
<td>1.28</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.22</td>
<td>-.15</td>
<td>-.23</td>
<td>-.23</td>
<td>.13</td>
<td>1.01</td>
<td>8.28</td>
<td>4.48</td>
<td>-.56</td>
<td>2.07</td>
<td>2.94</td>
</tr>
<tr>
<td>Maximum absolute</td>
<td>.09</td>
<td>.08</td>
<td>.07</td>
<td>.08</td>
<td>.08</td>
<td>.06</td>
<td>.19</td>
<td>.15</td>
<td>.07</td>
<td>.20</td>
<td>.09</td>
</tr>
<tr>
<td>Maximum positive</td>
<td>.09</td>
<td>.08</td>
<td>.07</td>
<td>.08</td>
<td>.08</td>
<td>.05</td>
<td>.15</td>
<td>.14</td>
<td>.07</td>
<td>.20</td>
<td>.08</td>
</tr>
<tr>
<td>Maximum negative</td>
<td>-.07</td>
<td>-.05</td>
<td>-.06</td>
<td>-.07</td>
<td>-.08</td>
<td>-.06</td>
<td>-.19</td>
<td>-.15</td>
<td>-.05</td>
<td>-.18</td>
<td>-.09</td>
</tr>
<tr>
<td>K-S test</td>
<td>.90</td>
<td>.81</td>
<td>.76</td>
<td>.84</td>
<td>.83</td>
<td>.59</td>
<td>1.95</td>
<td>1.57</td>
<td>.67</td>
<td>2.09</td>
<td>.89</td>
</tr>
<tr>
<td>Significance</td>
<td>.40</td>
<td>.53</td>
<td>.61</td>
<td>.48</td>
<td>.50</td>
<td>.88</td>
<td>.00**</td>
<td>.02</td>
<td>.77</td>
<td>.00**</td>
<td>.41</td>
</tr>
</tbody>
</table>

Legend: VM verbal manifest, PHM physical manifest, IND indirect, VL verbal latent, PHL physical latent
Table 2. Parameters of descriptive statistics, Kolmogorov-Smirnov test (K–S) (athletes)

<table>
<thead>
<tr>
<th></th>
<th>Extraversion</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Emotional stability</th>
<th>Intellect</th>
<th>VM aggressiveness</th>
<th>PHM aggressiveness</th>
<th>IN aggressiveness</th>
<th>VL aggressiveness</th>
<th>PHL aggressiveness</th>
<th>Total aggressiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>71.40</td>
<td>72.95</td>
<td>70.45</td>
<td>69.86</td>
<td>69.24</td>
<td>38.46</td>
<td>24.55</td>
<td>27.45</td>
<td>38.42</td>
<td>31.25</td>
<td>160.05</td>
</tr>
<tr>
<td>SD</td>
<td>10.31</td>
<td>7.04</td>
<td>10.34</td>
<td>10.78</td>
<td>8.65</td>
<td>9.87</td>
<td>9.02</td>
<td>8.93</td>
<td>10.84</td>
<td>12.25</td>
<td>42.21</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>.13</td>
<td>.13</td>
<td>-.10</td>
<td>.09</td>
<td>.12</td>
<td>.48</td>
<td>2.23</td>
<td>1.33</td>
<td>.24</td>
<td>.73</td>
<td>.87</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.46</td>
<td>.19</td>
<td>-.24</td>
<td>-.27</td>
<td>.29</td>
<td>.46</td>
<td>7.23</td>
<td>2.80</td>
<td>.07</td>
<td>.16</td>
<td>1.51</td>
</tr>
<tr>
<td>Maximum absolute differences</td>
<td>.06</td>
<td>.07</td>
<td>.05</td>
<td>.07</td>
<td>.07</td>
<td>.08</td>
<td>.19</td>
<td>1.26</td>
<td>.06</td>
<td>.10</td>
<td>.10</td>
</tr>
<tr>
<td>Maximum positive difference</td>
<td>.06</td>
<td>.07</td>
<td>.04</td>
<td>.07</td>
<td>.07</td>
<td>.08</td>
<td>.19</td>
<td>1.26</td>
<td>.06</td>
<td>.10</td>
<td>.10</td>
</tr>
<tr>
<td>Maximum negative difference</td>
<td>-.05</td>
<td>-.06</td>
<td>-.05</td>
<td>-.05</td>
<td>-.04</td>
<td>-.06</td>
<td>-.15</td>
<td>-.08</td>
<td>-.04</td>
<td>-.09</td>
<td>-.06</td>
</tr>
<tr>
<td>K-S test</td>
<td>.65</td>
<td>.67</td>
<td>.54</td>
<td>.74</td>
<td>.71</td>
<td>.80</td>
<td>1.93</td>
<td>1.31</td>
<td>.59</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Significance</td>
<td>.79</td>
<td>.75</td>
<td>.93</td>
<td>.64</td>
<td>.70</td>
<td>.54</td>
<td>.00**</td>
<td>.06</td>
<td>.87</td>
<td>.27</td>
<td>.28</td>
</tr>
</tbody>
</table>

Legend: VM verbal manifest, PHM physical manifest, IND indirect, VL verbal latent, PHL physical latent

In the sample of prisoners (Table 1) all the five personality factors are distributed in the shape of a platykurtic curve (peakedness < 3 in all the factors), whereas there is no significant departure from the normal Gaussian curve in any personality factor (skewness ~ 0).

Out of the five measures of aggressiveness and total aggressiveness, the highest degree of skewness (positive asymmetry) was displayed by physical manifest (skewness = 2.35) and indirect (skewness = 1.79) aggressiveness. These two variables displayed also the highest level of leptokurtosis (PHM kurtosis = 8.28, IN kurtosis = 4.48).

The normality of the curve was tested by the Kolgomorov-Smirnov test (K–S test). Significant deviation is obvious (Table 1) of physical manifest (K-S test=1.95; p<.01), indirect (K-S test=1.57; p<.05), and physical latent aggression (K-S test=2.09; p<.01) from the normal distribution, in the direction of a positive asymmetry (skewness = 2.35, 1.79, and 1.39, respectively) and the platykurtic (kurtosis = 8.28, 4.48 and 2.07, respectively) curve.

In the sample of athletes (Table 2) distribution of all the five personality factors followed platykurtic curve (kurtosis < 3). The same was with all the measures of aggressiveness, except for the variable physical manifest aggression (kurtosis = 7.23). In all the measures of aggressiveness the positive asymmetric curve pattern was obvious, and the tendency was most pronounced in physical manifest (skewness = 2.23) and indirect (skewness = 1.33) aggression. By means of the K–S test a significant deviation from normal distribution was obtained in the variable physical manifest aggression (p<.01). Distribution of indirect aggression came close to the significance level.

In the sample of prisoners (Table 3) statistically significant negative relations were found between emotional stability and all the five measures of aggressiveness, as well as between emotional stability and total aggression. In the indirect (r=-.41), physical manifest (r=-.34), physical latent (r=-.29) and total aggression (r=-.32) the relations were established with 1% of risk.

Also, statistically significant negative relations were found between conscientiousness and total aggression (r=-.32, p<.01), conscientiousness and physical manifest (r=-.32, p<.01), conscientiousness and indirect aggression (r=-.37, p<.01), conscientiousness and physical latent (r=-.36, p<.01) and conscientiousness and verbal manifest aggression (r=-.22, p<.05).

The factor agreeableness is significantly related negatively to physical latent aggression (r=-.30, p<.01), indirect (r=-.29, p<.01), physical manifest (r=-.26, p<.01) and total aggression (r=-.24, p<.05).

Table 3. Correlation matrix of individual measures of aggressiveness and the five personality factors (prisoners)

<table>
<thead>
<tr>
<th></th>
<th>Extraversion</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Emotional stability</th>
<th>Intellect</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=106</td>
<td>0.014</td>
<td>-0.239**</td>
<td>-0.319**</td>
<td>-0.323**</td>
<td>-0.017</td>
</tr>
<tr>
<td>Total aggressiveness</td>
<td>0.098</td>
<td>-0.180</td>
<td>-0.218*</td>
<td>-0.218*</td>
<td>0.022</td>
</tr>
<tr>
<td>Verbal manifest aggressiveness</td>
<td>0.001</td>
<td>-0.257**</td>
<td>-0.317**</td>
<td>-0.336**</td>
<td>0.011</td>
</tr>
<tr>
<td>Physical manifest aggressiveness</td>
<td>-0.070</td>
<td>-0.285**</td>
<td>-0.369**</td>
<td>-0.407**</td>
<td>-0.085</td>
</tr>
<tr>
<td>Indirect aggressiveness</td>
<td>-0.007</td>
<td>-0.052</td>
<td>-0.172</td>
<td>-0.204*</td>
<td>-0.030</td>
</tr>
<tr>
<td>Verbal latent aggressiveness</td>
<td>0.022</td>
<td>-0.301**</td>
<td>-0.355**</td>
<td>-0.288**</td>
<td>0.001</td>
</tr>
</tbody>
</table>
In the sample of athletes (Table 4) statistically significant negative relations were obtained between emotional stability and all the measures of aggressiveness, the same as in the sample of prisoners.

Further, there were significant negative correlations between agreeableness and total aggressiveness \((r=-.25, p<.01)\), agreeableness and physical latent aggressiveness \((r=-.37, p<.01)\), and agreeableness and physical manifest aggressiveness \((r=-.31, p<.01)\).

As opposed to the findings in the sample of prisoners, in the sample of athletes statistically significant negative relations were obtained between extraversion and four measures of aggressiveness (extraversion and VL aggression \(-r=-.33, p<.01\); extraversion and PHL aggression \(-r=-.27, p<.01\); extraversion and IN aggression \(-r=-.20, p<.05\) and extraversion and total aggression \(-r=-.24, p<.05\).

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>.26</td>
<td>2.25</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.23</td>
<td>-1.87</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.29</td>
<td>-2.36</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>-.38</td>
<td>-3.62</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Intellect</td>
<td>.30</td>
<td>2.46</td>
<td>&lt;.05</td>
</tr>
</tbody>
</table>

When compared to the sample of prisoners, a somewhat lower coefficient of multiple correlation was obtained \((R=.43, p<.01)\) in the sample of athletes (Table 6), but the influence of the group of predictors on the criterion was statistically significant with the error lower than 1%. The group of predictors explained 18% of the variance of the criterion. Individually, only the variable emotional stability established statistically significant correlation with the criterion variable with the measurement error of 5% \((\beta=-.32, p<.05)\).

Out of the other factors, only the factor agreeableness came close to the significance level of 5% \((p=.068)\).

Connectedness of the group of predictor variables, consisting of the five personality factors (extraversion, agreeableness, conscientiousness, emotional stability and intellect), with the criterion aggressiveness was established by multiple regression analysis (Table 5).

The coefficient of multiple correlation in the sample of prisoners was \(.52 (p<.01)\), consequently, the coefficient of determination was \(.27\). It is obvious that the predictor variables managed to explain statistically significantly \((F=7.23, p<.01)\) 27% of the variance of the criterion variable.

Individually, all the variables, except for the variable agreeableness, were statistically significantly related to the criterion \((p<.05)\). The biggest individual correlation with the criterion aggression was obtained for the variable emotional stability \((\beta=-.38, p<.01)\), then, in descending order, followed intellect \((\beta=.30, p<.05)\), conscientiousness \((\beta=-.29, p<.05)\) and extraversion \((\beta=.26, p<.05)\).

Even the variable agreeableness came close to the significance level of 5% \((p=.064)\).
Discussion

The Kolmogorov-Smirnov test was computed for each of the personality factors and aggressiveness. It was determined that the results obtained on the measures of physical manifest (p<.01), physical latent (p<.01) and indirect aggression (p<.05) significantly deviated from the normal distribution with the error lower than 5% in the sample of prisoners.

We can state that physical manifest aggression follows a positive asymmetric (skewness = 2.35) and the platykurtic (kurtosis = 8.28) curve. It means that the results grouped around the lower values. That happened probably due to the wish of the prisoners to present themselves in the best possible light, and the expressed tendency was greatest exactly in physical manifest aggression (p<.01). It is a publicly known fact that this kind of aggressiveness is most susceptible to social criticism. A similar tendency, but smaller in volume, could be observed in the variables physical latent and indirect aggression (which can be regarded also as the manifest, yet directed to the substituted goal and not to the exact source of actual frustration).

Table 2 reveals the same tendency in the sample of athletes, but only in the curve of physical manifest aggression (p<.01), the kind of aggressiveness being socially least acceptable.

In the sample of prisoners all the measures of aggressiveness, as well as the total aggressiveness were statistically significantly related to emotional stability. That association was particularly expressed with physical manifest (r=-.34, p<.01), physical latent (r=-.29, p<.01) and indirect aggression (r=-.41, p<.01), as well as total aggression (r=-.32, p<.01). Emotional stability includes also issues of emotions control and regulation (Martin, Choi et al., 1999).

Martin et al. (1999) also obtained a negative correlation between agreeableness and anger. Therefore, it can be said that persons low on agreeableness are more susceptible to feel provoked anger, which they predominantly manifest physically not verbally. In accord with that, we have also found a correlation with physical manifest aggression (r=-.26, p<.01) and indirect aggression (r=-.29, p<.01), and no correlation with verbal manifest aggression (in the sample of prisoners).

Besides, there is a certain parallelism between FFM of personality and Eysenck’s theory of personality. According to Goldberg and Rosolack (1994), the scale psychoticism (EPQ scale) has the biggest negative correlation with the factor agreeableness (r=-.43) from the FFM markers. It is well known that within psychoticism a trait of aggressiveness can be found, consequently, the trait aggressiveness is here also indirectly negatively correlated with agreeableness.

Further, studies with molesters/bullies and victims in schools demonstrated that the tormentors had a lower emotional stability and lower agreeableness (Tani et al., 2003). Intimidators tend to resolve interpersonal issues by aggressive behaviour, and they prefer to behave aggressively in general. This is in line with our finding of a negative correlation between aggressiveness and agreeableness (r=-.24, p<.05) and between aggressiveness and emotional stability (r=-.32, p<.01).

As expected, a statistically significant negative correlation was obtained between conscientiousness and aggressiveness (r=-.32, p<.01).

In their research Tani et al. (2003) defined persons positioned high on the dimension of conscientiousness like goal-oriented, wilful and responsible (they respect order, rules and duties), whereas persons low on that dimension are less prone to moral principle leadership and they are more hedonistically oriented. Consequently, persons low on the factor conscientiousness may manifest aggressive types of behaviour because they are not aware of the moral unacceptability of such actions. It is probably the result of a poorly performed process of socialization. Costa and McCrae (1992) say that the dimension conscientiousness also includes self-control, strong will and high determination.

Therefore, a low negative relationship found in our study between conscientiousness and aggression may be explained by low conscientiousness representing a kind of inability to control impulses, which is expressed as aggression due to frustration.

In the already mentioned study, Tani et al. (2003) demonstrated that low agreeableness and low conscientiousness in children were highly positively connected with bullying reports and fighting initiations. And that is undoubtedly highly aggressive behaviour. Also, in the research of Asendorph.
et al. (2003) correlations were found between low agreeableness and low conscientiousness and aggression.

The further study that confirms the findings of our study was conducted with a population of prisoners (Knežević et al., 1989). It dealt with the relationship between aggressiveness and accompanying sociopathy. The finding was that doing nothing led to enhanced aggressiveness on almost all the aggressiveness scales when compared to the average population. More sensitive research on the relationship of employment status and aggressiveness indicated that among persons of various working status the least aggressive persons were those having permanent full-time employment, then came those who were employed on a temporary basis, and the most aggressive were unemployed persons and day labourers (Knežević et al., 1989).

Since in this sample agreeableness and conscientiousness were associated with aggressiveness, it is a question of primary psychopathological aggression in the prisoners, as opposed to the sample of athletes.

The results in our study (Table 4) revealed statistically significant negative correlations between emotional stability and all the measures of aggressiveness. However, as opposed to the sample of prisoners, in the sample of athletes a statistically significant correlation occurred between extraversion and the four measures of aggressiveness (physical latent aggression, verbal latent aggression, indirect and total aggression).

Correlations between emotional stability and aggressiveness are clear and have already been explained in the section on the prisoners.

As far as extraversion is regarded, statistically significant, but negative correlations were obvious between extraversion and verbal latent (r=-.33, p<.01) and physical latent aggression (r=-.27, p<.01). The next by size was the correlation with total aggression (r=-.24, p<.05).

The findings of the experiment by Martin et al. (1999) speak in favour of the previous finding. They found that the so called variable “anger—in” (defined as the tendency to live through anger, not to express it) is positively correlated with introversion. Therefore, it is feasible to draw a parallel between the variable “anger—in” (suppressed anger), starting from its definition, and verbal latent and physical latent aggression. So, the found correlations between introversion and verbal latent, and introversion and physical latent “anger—in” aggression are logical and expected. Further, the variable had the highest correlation with neuroticism, and a somewhat moderate correlation with a lower extraversion (Martin et al., 1999). Such results were obtained in our research also for the variable latent aggression.

Also, a positive correlation was found between extraversion and the expression of emotions (Martin et al., 1999). Consequently, extroverts express their emotions, anger alike, whereas introverts may feel anger (in the form of motivation for aggression), but they do not express it — they suppress it within themselves. They may say they wish to hit someone or to shout at someone, but they would not do that; therefore, this type of aggression is regarded as latent aggression.

In order to analyse the correlation of the group of predictor variables, consisting of the five personality factors (extraversion, conscientiousness, agreeableness, emotional stability and intellect), with the criterion total aggression, multiple regression analysis was performed. The obtained results revealed that the group of predictor variables managed to statistically significantly (F=7.23, p<.01) explain 27 % of the criterion variable variance in the sample of prisoners. From the aspect of individual variables, all of them, except for the variable agreeableness, have a statistically significant influence on the criterion (p<.05). The greatest individual influence on the criterion aggression was obtained for the variable emotional stability (Beta=-.38, p<.01), meaning the greater the emotional stability, the lower the aggressiveness. It can be explained by the phenomenon that emotionally unstable persons (high on neuroticism) are more susceptible to the experience of negative emotions, consequently their tolerance to frustration is lower (Pervin & John, 1997). That means that they react more violently than other persons to situations that are not so very embarrassing, objectively speaking.

Pervin and John (1997) described in their book neuroticism as a dimension which identifies persons inclined to negative emotions, unrealistic ideas, excessive cravings and urges, and maladaptive stress coping strategies. Aggressiveness is also one of these inadequate coping strategies (Hudek-Knežević, Krapić, & Kardum, 2006).

Persons high on the dimension of neuroticism are described as worrying, nervous, easy jumping, venturous, emotional, insecure, unreliable, inadequate, and hypochondriachal (Pervin & John, 1997). Such a profile leads to the conclusion that they are liable to negative emotions, therefore, they are more sensitive to provocations; their frustration tolerance is low, so they frequently respond in an aggressive way to aversive stimuli. The mentioned authors positioned the dimension of neuroticism on the one end of the scale, opposite to the end on which emotional stability is. Neuroticism includes a wide range of negative emotions like: anxiety, sorrow, irritability, nervous tension and others (Pervin & John, 1997).

Martin et al. (1999) state that both latent and manifest aggressiveness are primary associated with neuroticism, after which, in relation to sequence, comes agreeableness. In the already mentioned research by Tani et al. (2000), a moderate
positive correlation was obtained between neuroticism and the expression of negative emotions. Consequently, neuroticism has a primary influence on both the motivation for aggressive behaviour and on its expression. Therefore, the obtained statistically significant strong prediction of aggression based on the predictor neuroticism/emotional (un)stability in our study is quite logical and expected.

The second predictor in the sequence is intellect, or openness to experience (Beta=.30, p<.05) – here we obtained that the greater the intellect, the greater the aggressiveness. Here intellect represents the disposition of a person to seek intellectually challenging areas and situations, to handle facts, to have a developed imagination and to enjoy mental operations. Such a seemingly illogical result may be attributed to the diverse structure of the observed population of prisoners, that is, to a high portion of business crime and other crime offences in which intellect plays a crucial role for its accomplishment (for example, banknotes falsifications, illegal financial transactions, illicit people trafficking, smuggling, and drug dealing). For them, intellect is a kind of a tool, a means to control their aggressiveness in order to accomplish planned criminal deeds. On the contrary, in the longitudinal research of Feschbach and Price (1984), a causal relationship was obtained between cognitive competence and aggressive behaviour, meaning that the development of cognitive competence decreases aggressiveness.

In previous research studies it was almost a pattern to obtain a statistically significant relationship between conscientiousness and aggressiveness. However, in our study that was not the case. Yet, the factor agreeableness came close to the significance level of 5% (p=.064).

When compared to the sample of prisoners, in the sample of athletes we obtained a somewhat lower coefficient of multiple correlation (R=.43, p<.01), but the relationship between the group of predictors and the criterion was still statistically significant with the error less than 1%. So, the group of predictors explained 18% of the variance of the criterion. From the aspect of individual predictors, only the variable emotional stability established a statistically significant correlation with the criterion variable with the conclusion error less than 5% (Beta=-.32, p<.05). In the sample of athletes we mostly dealt with the emotionally provoked aggression and not with the aggression conditioned by the total personality traits structure. Namely, the sample of athletes consisted exclusively of students who were, from the aspect of their development, in the phase of late adolescence. Adolescence is a turbulent life period, very often followed by feelings of inadequacy or low self-esteem and by hypersensitivity to actual or imagined underestimation.

Adolescents frequently have issues with the delay of gratification and they usually respond to frustration with anxiety, which can be manifested as pronounced bodily restlessness, anger attacks, quarrelsomeness, aggressive behaviour, or escape (Biti & Borovečki, 1986).

All these are parameters of emotional (in)stability, so that can be a possible explanation for emotional stability being a significant predictor of aggressiveness in the sample of athletes.

Out of the other factors, only the factor agreeableness came close to the level of significance (p=.068).

To sum up - correlations among the five personality factors and aggressiveness were computed for each subsample separately. In the sample of prisoners statistically significant correlations were obtained between agreeableness, conscientiousness, emotional stability and aggressiveness, whereas in the sample of athletes significant correlations were obtained for extraversion, agreeableness, emotional stability and aggressiveness. It is important to underline that the correlation between aggressiveness and intellect in the sample of prisoners was of a positive direction, which can be attributed to a high contribution of business crime, serious fraud and other crimes for the realization of which a higher level of intelligence had been necessary.

Regression analysis, performed for each sample separately, disclosed the following: on the sample of prisoners it was found that extraversion, conscientiousness, emotional stability and intellect were significant predictors of total aggressiveness, whereas on the sample of athletes it was only emotional stability with a marginal significance of the factor agreeableness.

It can be concluded that different structures were obtained of the relationships between the dimensions of the FFM theory of personality and aggressiveness across the samples of these specific subpopulations. Given the great importance of aggression in everyday life, it seems worthwhile to try and counteract hostile dispositional attributions by highlighting also the relevance of social context (Keller, Hurst, & Uskul, 2008) as a critical factor in driving individual behaviour, which was beyond the limits of this paper. However, we must not forget the fact that human characteristics and behaviour are malleable and subject to a certain change. Our findings indicate that psychologists, social workers, teachers, coaches and other professionals should pay special attention to the findings of the study when working with these populations to the specific features in the structure of their personality and behaviour. Due to the prevalence of the emotionally provoked, i.e. reactive aggression in athletes obtained in our study, it would be advisable in practical work to focus on underpinning emotional stability and instrumental aggressiveness.
References


Submitted: January 21, 2008
Accepted: December 2, 2008

Correspondence to:
Viktorija Trninić,
Faculty of Science, Mathematics and Kinesiology,
University of Split,
N. Tesle 12, HR-21000 Split, Croatia;
Phone & fax: + 385 1 384 385 6;
Phone: + 385 98 17 55 285;
E-mail address: victoriabioche@net.hr.
Private also: Majstora Radonje 10, HR-10 000 Zagreb, Croatia

**Acknowledgement**

The paper is a result of the research conducted within the scientific research programme number 034-2607 “Anthropological determinants of competition performance in sports games”, approved and granted by the Ministry of Science, Education and Sports of the Republic of Croatia.
PETEROFAKTORSKA TEORIJA LIČNOSTI I AGRESIVNOST

Sažetak

Uvod

Cilj je ovog istraživanja bio utvrditi vrstu odnosa između crte agresivnosti i emocionalne stabilnosti na uzorcima zatvorenika i sportaša.

Agresivnost se može definirati kao svako ponašanje koje se očituje namjera da se povrijedi druga osoba bilo psihički bilo fizički.

Petrofaktorski model opisuje ličnost pomoću pet faktora kojih je predstavljaju na njemu najvišem stupnju apstrakcije, što znači da svaka od tih dimenzija uključuje velik broj distinktivnih, specifičnijih karakteristika. Radi se o sljedećim 5 faktora: ekstraverzija, ugodnost, savjesnost, emocionalna stabilnost/ neuroticizam i intelekt/otvorenost za iskustva.

Autori su pretpostavili da su zatvorenici i sportaši dvije subpopulacije s povećanom razinom agresivnosti – zatvorenici, jer su svim ponašanjem prekršili zakone kojima se štite druge osobe i njihova sigurnost u najširem smislu (dakle, jasno su pokazali namjeru da ne pusti druga osobe), i za sportaše i laici kažu, osobito u kontaktnim sportovima, da mogu posjetiti i iskazati dozu agresivnosti kako bi nadvladali protivnik i pobijedili ga.


Metode

Za mjerenje agresivnosti, koristili smo upitnik A-87 (prema Žužul, 1987), dok smo za mjerenje 5 faktora ličnosti primijenili IP1P 100 (www.ipip.org, 2005).

Uzorak zatvorenika činili su osumnjičeni i osumnjičene osobe na uzorku zatvorenika (r=-0.32, p<.1), dok je povezanost između emocionalne stabilnosti i negativna povezanost između emocionalne stabilnosti i savjesnosti (r=-0.38, p<.1) potiče iz same definicije dimenzije emocionalne stabilnosti (prema Pervin i John, 1997).

Rezultati, rasprava i zaključak

Na uzorku sportaša nađena je statistički značajna negativna povezanost između agresivnosti i emocionalne stabilnosti na uzorku zatvorenika (r=-0.32) možemo objasniti činjenicom da emocionalna stabilnost uključuje i probleme reguliranja i kontrole emocije. Najčešće, statistički značajna negativna korelacija između agresivnosti i savjesnosti (r=-0.32) možemo objasniti u okviru istraživanja Tanijeva i suradnika (2003). U svom istraživanju Tanijeva definira osobe nisko poziционirane na dimenziji savjesnosti kao nesvrhovite, manje vođene moralnim principima i orijentirane prema užitku. Možemo pretpostaviti da su osobe niske na savjesnosti agresivne jer nisu svjesne moralne neopravdanosti takvog ponašanja. Zatim, statistički značajna negativna korelacija između agresivnosti i savjesnosti pokazuju da jedino varijabla uključuje veliki broj distinktivnih, specifičnijih karakteristika. Radi se o sljedećim 5 faktora: ekstraverzija, ugodnost, savjesnost, emocionalna stabilnost/neuroticizam i intelekt/otvorenost za iskustva.

Na uzorku sportaša nađena je statistički značajna negativna povezanost između agresivnosti i emocionalne stabilnosti (r=-0.38, p<.1), ugodnosti (r=-0.25, p<.1) i ekstraverzije (r=-0.24, p<.5).

Prve dvije relacije objašnjene su već na uzorku zatvorenika. Na uzorku sportaša iznimno se pojavljuje statistički značajna negativna povezanost između agresivnosti i emocionalne stabilnosti (r=-0.38, p<.1), ugodnosti (r=-0.25, p<.1) i ekstraverzije (r=-0.24, p<.5).

Prve dvije relacije objašnjene su već na uzorku zatvorenika. Na uzorku sportaša iznimno se pojavljuje statistički značajna negativna povezanost između agresivnosti i emocionalne stabilnosti (r=-0.38, p<.1), ugodnosti (r=-0.25, p<.1) i ekstraverzije (r=-0.24, p<.5).

Iznenađujuće je da prediktor intelekt ima statistički značajnu utjecaj na kriterij agresivnost, i to pozitivnog smjera. Pretpostavljamo da je to zato što su emocionalno nestabilne osobe podložnije doživljajima emocionalnih emocija pa češće došu do emocionalne stabilnosti.

Zatim, statistički značajna utjecaj na kriterij agresivnosti, i to pozitivnog smjera. Pretpostavljamo da je to zato što su emocionalno nestabilne osobe podložnije doživljajima emocionalnih emocija pa češće došu do emocionalne stabilnosti.

Konačno, možemo zaključiti da se na uzorku zatvorenika radi o primarno psihopatskoj agresiji koja je uvjetovana ukupnom strukturom ličnosti, dok se kod sportaša radi o emocionalno isprovociranoj, tj. reaktivnoj agresiji.

S obzirom na taj nalaz, preporučili bismo da se u praktičnom radu sa sportašima poradi na povećanju emocionalne stabilnosti i na povećanju instrumentalne agresivnosti koja je usmjerenja prema konstruktivnim ciljevima.