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The relations of shyness and assertiveness traits with the dimensions of the five-factor model in adolescence

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Five-factor model (Costa & McCrae, 1992) represents comprehensive framework for organizing individual differences into five broad dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness. Lower-level personality traits are expected to be correlated with these dimensions. The purpose of this study was to explore the relations among shyness, assertiveness and dimensions of the five-factor model. A sample of 336 high-school students (124 male and 212 female adolescents) completed the self-report version of the NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992), as well as the Shyness and Assertiveness questionnaire (USA-97; Zarevski & Vukosav, 1999). Results revealed a complex pattern of relations between the five-factor personality model and shyness and assertiveness. The predictive power of the NEO-FFI dimensions was higher in the female sample than in the male sample for both shyness ($R^2_{females}$=0.37 : R^2_{males}=0.12) and assertiveness ($R^2_{females}$=0.36 : R^2_{males}=0.16).

Shyness and assertiveness are lower-level personality traits. However, these traits are of great importance for our understanding of human behaviour in social interactions. Shyness and assertiveness have sometimes been understood as two poles of the same trait (Zarevski & Mamula, 1998, p.p. 38), however, majority of the research use the instruments measuring these two traits separately (e.g. Zarevski, Kuterovac & Ml basis (e.g. Buss & Plomin, 1975; Daniels & Plomin, 1985; Plomin & Daniels, 1986). On the other hand, assertiveness was usually conceptualised as learned behavioural trait, which can be changed by the therapy. Assertiveness training was introduced in counselling and psychotherapy by A. Salter and popularised by J. Wolpe and A. Lazarus (Fischer, 1998).

Shyness is an early developing and relatively stable personality trait. It can be predicted from the observed temperament traits at very young age. Children who react with negative emotions to strong and unexpected stimuli tend to be shyer as adults (Kagan, Reznick & Snidman, 1988). Several studies demonstrate stability of shyness or related traits, such as behavioral inhibition. Kerr, Lambert, Stattin and Klackenberglarsson (1994) found that behavioral inhibition of adolescents could be predicted from mother's and psychologist's ratings of the same trait at 18- and 24-month. Gest (1997) in a longitudinal study found that individual differences in behavioural inhibition were consistent from childhood to early adulthood. Correlation between the two measurement points was .57.

Shyness is also related to psychological adjustment, as well as with many important life outcomes. Shyness predicts happiness (Neto, 2001), optimism, social support and loneliness (Jackson, Soderlind & Weiss, 2000). Extreme shyness is also related to health problems. Schmidt and Fox (1995) used self-ratings of shyness to select groups of high-shy and low-shy women. Shy group had more emotional problems, including depression, anxiety, and fearfulness, but also had more health problems, including problems with allergies and gastrointestinal functions. Long-term follow-up of shy children also indicates the importance of shyness trait. Results of the Berkeley Guidance Study (Caspi, Elder & Bem, 1988) indicate that children high in shyness at age eight and ten tend to be less sociable, get married later and start their professional carrier later in life. Gest (1997) found that behaviourally inhibited children have less positive and less active social life, with greater emotional distress and negative emotionality.

Last but not least, shyness trait predicts behaviour in many specific situations, usually important in making a first impression about an individual. For example, shy people have less firm hand shake (Chaplin et al., 2000), they avoid eye contact in conversation (Larsen & Shackelford,

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1996), talk less in a new and unknown situation. Pauhlus and Morgan (1997) found that, because shy people talk less, others tend to judge them as less intelligent than non-shy people. Although this underestimation of intelligence is shown to be only temporary, it certainly influences behaviour toward shy people. Thus, research findings have shown that extreme shyness can have a negative effect on adjustment and achievement of the individual.

Assertiveness is a less researched trait than shyness. Although the evidence supporting a generalized trait of assertiveness is mixed (Fischer, 1998), several inventories (e.g. Wolpe-Lazarus Assertion Inventory; Wolpe & Lazarus, 1966) are developed to measure individual differences in assertiveness. Assertiveness is defined as standing up for your right without violating the right of any other person (Petz, 1992). Assertive people are aware of their personal rights, they know the difference between aggressive, assertive and passive behaviour, and have verbal and nonverbal skills, such as saying "no" to unreasonable requests, asking favours or making requests, expressing feelings, etc. There is evidence that assertiveness is positively related with life satisfaction, especially for men (Herringer, 1998). Men are more assertive than women, and this finding is cross-culturally consistent (Costa, Terracciano & McCrae, 2001).

Five-factor model (Costa & McCrae, 1992) represents comprehensive framework for organizing individual differences into five broad domains: Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness. It has been shown that five-factor model covers the individual differences concepts developed under the very different theoretical perspectives. For example, measures of manipulation tactics from evolutionary psychology (Buss, 1992), measures of temperament (McCrae, 1989), motivational concepts (Costa & McCrae, 1988), as well as psychopathology concepts (Wiggins & Pincus, as cited in McCrae & Costa, 1990) converge with the measures of the five-factor model. The shy and assertive behaviours, in terms of McCrae and Costa's Five-factor theory (McCrae & Costa, 1996; 1999) could be conceptualised as characteristic adaptations to the social environment. McCrae and Costa postulate that "...individuals react to their environments by evolving patterns of thoughts, feelings, and behaviours that are consistent with their personality..." (McCrae & Costa, 1999, p. 145). Thus, shyness and assertiveness traits are expected to correlate with dimensions of the five-factor model.

The *aim* of this study was to explore the relations among shyness, assertiveness and the dimensions of the five-factor model. Only a few studies exploring these relationships have been done so far. Shyness has been found to correlate with all dimensions of the Big Five model in Italian adolescents (Gerbino, Cannistraro & Steca, 2000), but that study did not explore the relationships between assertiveness and the dimensions of the five-factor model. Specific hypotheses about relations between five-factor model and shyness and assertiveness could be drawn for some of the domains of the five-factor model. Since shy behaviour is characterized by an emotional reaction, shyness is expected to correlate primarily with Neuroticism domain. On the other hand, Assertiveness is included in the Extraversion domain as one of the facets (Costa & McCrae, 1992). Therefore, assertiveness is expected to correlate primarily with Extraversion. Although hypotheses about the relationships between other domains of the five-factor model and shyness and assertiveness cannot be directly drawn from the five-factor model, these correlations could also emerge.

METHOD

Participants and procedure

Sample consisted of 336 high school students from three Croatian towns: Zagreb, Đakovo and Križevci. There were 124 male (37%) and 212 female (63%) participants. The age of the participants varied from 16 to 18 years. Participants anonymously completed Shyness and Assertiveness questionnaire, USA-97 (Zarevski & Vukosav, 1999), and NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992), in their school settings. First they had to complete the self-report form of the USA-97, by choosing their most typical reactions and behaviors in described situations. Then they had to complete the self-report version of the NEO-FFI.

Measures

Two instruments were used in this research. The first one is USA-97, a 50-item questionnaire that measures shyness and assertiveness. In every item different social situation with four possible reactions is described. Participants have to choose the reaction or the behavior that they would exhibit in a described social situation. The total score is derived as a simple linear combination of the results obtained for every item of the shyness and assertiveness scale. The USA-97 has a male (USA-M) and a female version (USA-F). In the female version first thirty items belong to the shyness scale while the next twenty belong to the assertiveness scale. In the male version first thirty-three items belong to the shyness scale while the other seventeen belong to the assertiveness scale. Higher score obtained on the shyness scale indicates higher level of shyness, while

Table 1

Reliability (Cronbach's alpha coefficients) of the measures

	Male adolescents	Female adolescents
Shyness	0.82	0.81
Assertiveness	0.70	0.73
Neuroticism	0.71	0.78
Extraversion	0.62	0.74
Openness	0.57	0.56
Agreeableness	0.60	0.59
Conscientiousness	0.79	0.78

higher score obtained on the assertiveness scale indicates lower level of assertiveness.

The second instrument used was NEO-FFI (Costa & McCrae, 1992). The NEO-FFI is a short version of the NEO-PI-R (NEO-Personality Inventory; Costa & McCrae, 1992). NEO-PI-R is a 240-item questionnaire. It measures six traits or facets for each of the five-broad domains: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. This instr 0.96, 0.97, and 0.97 for Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness factors, respectively. The NEO-FFI instrument, which was actually used, was derived from the NEO-PI-R, both in original American, as well as in the Croatian version. The NEO-FFI uses two items from each of the 30 NEO-PI-R facets. Thus, it has 60 items and measures five domains of personality (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness). Internal consistencies for the NEO-FFI have been found in previous research to range from 0.62 to 0.84 (Marshall, Wortman, Vickers, Kusulas & Hervig, 1994; Mooradian & Nezlek, 1996).

Cronbach's alpha coefficients for the measures used in this research are presented in Table 1. As can be seen, Cronbach's alpha coefficients for the USA-97 range from 0.70 to 0.82 and are lower for the assertiveness scale than for the shyness scale. Cronbach's alpha coefficients for the NEO-FFI range from 0.56 to 0.79.

RESULTS

The purpose of this study was to explore the relations among shyness, assertiveness and the dimensions of the five-factor model. Therefore, the intercorrelations of the USA-97 measures (Shyness and Assertiveness) and the NEO-FFI measures (Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness) were calculated and they are presented in Table 2. Also, the correlation between shyness and assertiveness scale was calculated and found to be high in both samples ($r_{males}(124)=0.628$, $p<.01$; $r_{females}(212)=0.714$, $p<.01$).

As can be seen from Table 2, the pattern of intercorrelations between shyness and assertiveness and five personality dimensions is different for different genders. In the male sample, shyness is significantly correlated with neuroticism ($r = 0.245$, $p<0.01$) and extraversion ($r = -0.292$, $p<0.01$), while assertiveness is significantly correlated only with extraversion ($r = -0.323$, $p<0.01$). In the female sample, shyness is significantly correlated with neuroticism ($r = 0.415$, $p<0.01$), extraversion ($r = -0.511$, $p<0.01$) and conscientiousness ($r = -0.226$, $p<0.01$), and assertiveness with neuroticism ($r = 0.458$, $p<0.01$) and extraversion ($r = -0.520$, $p<0.01$). Also, all these significant correlations are higher in the female sample than in the male sample.

The next step in our data analysis was calculating the regressions of the Shyness and Assertiveness measures on

Table 2

Intercorrelations of the USA-97 measures (Shyness and Assertiveness) and the NEO-FFI measures (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness)

NEO-FFI dimensions	Male adolescents		Female adolescents	
	Shyness	Assertiveness	Shyness	Assertiveness
Neuroticism	0.25*	0.19	0.42*	0.46*
Extraversion	-0.29*	-0.32*	-0.51*	-0.52*
Openness	-0.02	-0.03	-0.13	-0.10
Agreeableness	0.00	-0.20	-0.09	-0.02
Conscientiousness	-0.19	-0.05	-0.23*	-0.13

* $p<0.01$

Note: Higher score on the shyness scale indicates higher level of shyness, while higher score on the assertiveness scale indicates lower level of assertiveness.

Table 3

Regressions of the Shyness on the NEO-FFI dimensions for male adolescents

NEO-FFI dimensions	Beta	Standard Error of Beta	Partial correlation	*t*	*p*
Neuroticism	0.13	0.11	0.11	1.18	0.24
Extraversion	**-0.23**	**0.11**	**-0.20**	**-2.09**	**0.04**
Openness	0.05	0.09	0.04	0.56	0.58
Agreeableness	0.09	0.10	0.08	0.90	0.37
Conscientiousness	-0.13	0.10	-0.11	-1.30	0.20

R=0.35; R^2=0.12; F=2.88; p=0.02
Note: Higher score on the shyness scale indicates higher level of shyness, while higher score on the assertiveness scale indicates lower level of assertiveness.

Table 4

Regressions of the Shyness on the NEO-FFI dimensions for female adolescents

NEO-FFI dimensions	Beta	Standard Error of Beta	Partial correlation	*t*	*p*
Neuroticism	**0.24**	**0.07**	**0.20**	**3.43**	**0.00**
Extraversion	**-0.41**	**0.06**	**-0.37**	**-6.83**	**0.00**
Openness	-0.11	0.06	-0.11	-1.83	0.07
Agreeableness	**0.20**	**0.06**	**0.20**	**3.33**	**0.00**
Conscientiousness	-0.11	0.06	-0.10	-1.83	0.07

R=0.61; R^2=0.37; F=22.80; p<.01
Note: Higher score on the shyness scale indicates higher level of shyness, while higher score on the assertiveness scale indicates lower level of assertiveness.

Table 5

Regressions of the assertiveness on the NEO-FFI dimensions for male adolescents

NEO-FFI dimensions	Beta	Standard Error of Beta	Partial correlation	*t*	*p*
Neuroticism	0.10	0.10	0.09	1.00	0.32
Extraversion	**-0.28**	**0.10**	**-0.24**	**-2.80**	**0.00**
Openness	0.06	0.09	0.06	0.67	0.50
Agreeableness	**0.25**	**0.10**	**0.23**	**2.50**	**0.01**
Conscientiousness	-0.06	0.10	-0.05	-0.60	0.55

R=0.40; R^2=0.16; F=4.40; p<0.01
Note: Higher score on the shyness scale indicates higher level of shyness, while higher score on the assertiveness scale indicates lower level of assertiveness.

the NEO-FFI dimensions for both male and female adolescents. The results are shown in Table 3 to Table 6. As can be seen from these tables, the predictive power of the NEO-FFI for shyness and assertiveness is different for different genders.

The significant predictor of shyness in the male sample is only Extraversion, while in the female sample Neuroticism, Extraversion and Agreeableness are all significant predictors of shyness.

Table 6

Regressions of the assertiveness on the NEO-FFI dimensions for female adolescents

NEO-FFI dimensions	Beta	Standard Error of Beta	Partial correlation	*t*	*p*
Neuroticism	**0.33**	**0.07**	**0.28**	**4.71**	**0.00**
Extraversion	**-0.40**	**0.06**	**-0.36**	**-6.67**	**0.00**
Openness	-0.08	0.06	-0.08	-1.33	0.18
Agreeableness	**0.13**	**0.06**	**0.13**	**2.17**	**0.03**
Conscientiousness	0.04	0.06	0.04	-0.67	0.50

R=0.60; R^2=0.36; F=23.01; p.01

Note: Higher score on the shyness scale indicates higher level of shyness, while higher score on the assertiveness scale indicates lower level of assertiveness.

As for assertiveness, in the male sample significant predictors are Extraversion and Agreeableness, while in the female sample significant predictors are Neuroticism, Extraversion and Agreeableness. The predictive power of the NEO-FFI dimensions is higher in the female sample than in the male sample for both shyness ($R^2_{females}$= 0.37 : R^2_{males}= 0.12) and assertiveness ($R^2_{females}$= 0.36 : R^2_{males}= 0.16).

DISCUSSION

Dimensional models of personality structure organize the lower-level personality traits into the smaller number of domains or dimensions. Five-factor model (Costa & McCrae, 1992) is a hierarchical model, which predicts organization of the individual differences into five broad orthogonal domains. However, some theoretically important traits could be related to more than one of these dimensions. That is certainly the case for the shyness and assertiveness constructs. In general, shyness and assertiveness were substantially correlated with dimensions of Neuroticism and/or Extraversion (Table 2). These results are in line with the previous findings about the position of the shyness within the Five-factor personality model (Hagekull & Bohlin, 1998), or Eysenck's Three-factor theory (Kentle, 1995). However, the results of our study revealed complex pattern of relations between the five-factor personality model and shyness and assertiveness. The predictive power of the NEO-FFI scales was better for both shyness and assertiveness for female adolescents than for male adolescents. The structure of relations between five factors and shyness or/and assertiveness also differs in two genders. It seems that neuroticism is much more important predictor of shyness and assertiveness for female adolescents than for male adolescents.

The predictive power of the NEO-FFI scales depends on the reliability of these scales, as well as on the reliability of the shyness and assertiveness measures. Internal consistency of the NEO-FFI scales was moderate (Table 1). However, it should be taken into account that each of the five factors is measured by only 12 items, and that each factor of the five-factor model covers six constructs at the facet level (Costa & McCrae, 1992). Thus, obtained reliability coefficients are within the expected range since they are calculated from relatively small number of items that measure five broad personality domains. The prediction of shyness and assertiveness would certainly be better if the longer NEO-PI-R was used.

Neither shyness nor assertiveness is included in the Neuroticism domain of the five-factor model (Costa & McCrae, 1992) at the facet level. However, since shy behaviour represents an emotional reaction, it is reasonable to expect the correlation with the dimension of emotional stability. Some recent studies indicate that biological basis of shyness and neuroticism could be similar. For example, serotonin transporter gene (5-HTTLPR) has been reported to be associated both with NEO-PI-R (Costa & McCrae, 1992) Neuroticism facets of anxiety and depression, as well as with the shyness subscale of the Cloninger Tridimensional Personality Questionnaire (Osher, Hamer & Benjamin, 2000).

Extraversion was a significant predictor of shyness and assertiveness both in the male and female subsamples. The relation between assertiveness and extraversion was expected, because assertiveness represents one of the facets of the NEO-PI-R Extraversion domain (Costa & McCrae, 1992). Thus, five-factor model includes assertiveness as one of the constitutional units of the Extraversion construct. However, shyness is not a part of the Extraversion construct. Several studies indicate that shyness should not be included in the construct of Extraversion at the facet level. For example, factor analyses of the sociability and shyness scales suggest that these constructs do not repre-

sent the opposite poles of one dimension, but rather two differentiated and correlated constructs (Czeschlick & Nurk, 1995; Neto, 1996). Schmidt (1999) has shown that shyness and sociability are distinguishable even on the cortical level. Shyness was related with greater right frontal brain electrical activity, while sociability was associated with greater left frontal brain activity. Since on the behavioural level shyness is expressed as low sociability because of the fear of negative evaluation, the obtained relation between shyness and extraversion, rather low in the male sample and moderate in the female sample, hasn't been surprising.

Agreeableness did not correlate significantly with shyness nor with assertiveness both in female and in male sample. However, it was a significant predictor for both shyness and assertiveness in the regression analysis. It could be that this finding is nothing more than a spurious effect.

The results of the present study were partially unexpected. It was expected that shyness and assertiveness would be predicted primarily by the extraversion and neuroticism dimensions of the five-factor model, and that neuroticism would be more related to shyness, while extraversion would be more related to assertiveness. Also, no gender differences were expected. However, the results were different for female and male adolescents. In the female sample, the relations of neuroticism and extraversion with shyness and assertiveness are replicated both through the correlational and regression analyses. Unexpectedly, extraversion had higher correlations with both shyness and assertiveness. In the male sample, neuroticism showed weaker relations with shyness and assertiveness than extraversion. The only relations that emerge both in the correlational and regression analyses were those between extraversion and shyness and assertiveness.

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