

## SELF-CONSCIOUSNESS AND INTERNALIZING PROBLEMS IN ADOLESCENCE: MODERATING EFFECT OF FAMILY VARIABLES

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*Abstract:* The aim of this study was to examine the association between self-consciousness and internalizing problems in adolescents, and to analyze moderating effects of family dimension. Research sample included 294 adolescents aged 14 – 21 years. Respondents completed the UCLA Loneliness Scale (Russel, 1996), the Scale of Social Anxiety and Stage-fright (Kondáš, 1978), The Self-Consciousness Scale (Fennigstein et al., 1975), The Family Adaptability and Cohesion Evaluation Scale (Olson, 2010) and Family Communication Scale (Olson & Barnes, 2010). Direct association between self-consciousness and internalizing symptoms was not found. However, results confirmed the moderating effect of family dimensions. Family cohesion moderates the relationship between private self-consciousness and loneliness; and public self-consciousness and social anxiety in boys. Family communication and adaptability moderates the relationship between public self-consciousness and social anxiety in girls. Findings indicate that family relations may serve either a risk or protective role in association with adolescent maladjustment, dependent on the family dimension and gender.

*Key words:* internalizing problems, self-consciousness, family relations, moderation

The aim of the present research was to investigate the moderating role of family variables in the relationship between self-consciousness and internalizing problems in adolescent boys and girls, and thereby to broaden knowledge about cognitive/social factors interaction in explaining the development and progression of adolescent maladjustment.

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### Self-Consciousness and Maladjustment

Self-consciousness has been defined as a consistent tendency of persons to direct attention at self-relevant information (Fennigstein, Scheier, & Buss, 1975; Ingram, 1990). People can be attentive to their inner states, such as emotions, thoughts, personality traits, goals, preferences, perceptions and so forth, or to their behavior – to what one is doing and what one is like (Morin, 2011). Focusing inward and evaluating emotions or perception without reference to others is the private dimension of self-con-

sciousness and focusing outward and evaluating one's behavior, appearance and actions while taking into account the social context is the public dimension of self-consciousness (Mor & Winquist, 2002).

Self-consciousness is a cognitive variable that has been extensively discussed as an important contributor to diverse psychopathological states and maladjustment. Over the past two decades researchers demonstrated positive relations between heightened self-consciousness and anxiety, depression and lower self-esteem (Nystedt & Ljungberg, 2002) and loneliness (Schmitt & Kurdek, 1985) in adult population. Results suggest that the tendency to focus on public aspects of the self is associated with neuroticism (Scandell, 1998), social anxiety (Mor & Winquist, 2002) and rejection sensitivity (Fenigstein, 1979), while private self-consciousness is related to problems such as social withdrawal, generalized anxiety and depression (Mor & Winquist, 2002). These research findings of different correlates for private and public self-consciousness and results of extensive meta-analysis (Mor & Winquist, 2002) have supported the distinction between these two subtypes of self-consciousness.

#### **Self-Consciousness and Maladjustment in Adolescence**

Less empirical attention has been devoted to the association between the self-consciousness dimensions and maladjustment in adolescents. Pludeman (2009) demonstrated positive relationship between self-consciousness and the degree of adolescent alcohol use. Lewinsohn et al. (1998, 1997, 1994) in three subsequent studies tested psychosocial variables hypothesized to be

associated with depression and anxiety in adolescents. The results suggested that formerly depressed and anxious adolescents, in contrast to never depressed and anxious adolescents, showed higher level of self-consciousness. The relationship between private and public self-consciousness and internalizing problems was determined in the study of Bowker and Rubin (2009). Significant associations between both types of self-consciousness and withdrawn behavior, anxiety, depression and rejection sensitivity were revealed. However, most of the significant correlations between the public self and internalizing problems disappeared after controlling for private self-consciousness. Also, different patterns of relationships in adolescent boys and girls were revealed. Public self-consciousness was associated with rejection sensitivity in boys, and with anxiety/depression in girls. Private self-consciousness was related to all internalizing problems in girls, but not in boys.

Together, past research findings have demonstrated the importance of self-consciousness as cognitive vulnerability for various maladjustment outcomes, which is not limited to adult population, but appears also in adolescence. In addition, the relationship between self-consciousness and internalizing problems seems to be stronger for adolescent girls compared to boys (Mor & Winquist, 2002). This is because girls are more self-focused, both on private and public aspects of the self (Rankin, Lane, Gibbons, & Gerrard, 2004). They focus on relational aspects of the self (Marčić & Grum, 2011), tend to apply emotion-focused strategies (Ficková, 2009) and engage in more maladaptive self-consciousness – rumination and co-rumination and cognitive biases (Rose, 2002). There is also a well-established sex differ-

ence in the prevalence of internalizing problems, in favor of girls (Martel, 2013; Ruiselová & Prokopčáková, 1997), which is hypothesized to be a result of negative emotionality, empathy and cognitive vulnerabilities in female adolescents (Ruiselová & Urbánek, 2008).

### **Family Relationships as Moderator Factors**

Developmental psychopathology framework and recent findings from longitudinal studies emphasize the integrative model of risk and protective endogenous (e.g., genetics, personality) and exogenous factors (e.g., social relations, culture) in explaining the development and progression of adolescent internalizing problems (Epkins & Heckler, 2011; Henderson, Dakof, Schwartz, & Liddle, 2006). Such model posits that risk and protective factors combine and interact in prediction of adolescent adjustment problems. However, little research has empirically tested for the presence of buffering or exacerbating effects on the self-consciousness – maladjustment relationship among adolescent boys and girls.

Commonly studied protective factors are interpersonal factors – supportive parents, family, peers and/or teachers relationships. In the present study we tested one such potential buffer – family functioning, specifically family cohesion, adaptability and communication. Research supports continued importance of family relations throughout adolescence (Bokhorst, Sumter, & Westenberg, 2009; Uhláriková, 2010; Zaťková, Drienovská, & Palkovičová, 2015) and provides evidence of their direct relation to maladjustment outcomes (Esbaugh, 2010; Jurišová & Fulmeková, 2015). Studies

investigating protective capacity of family functioning, however, bring inconsistent results. In addition, most of them focus on the moderating effect of family dimension on the relationship between environmental factors (e.g., victimization, discrimination, daily hassles, low social support) and adjustment problems (Desjardins & Leadbeater, 2011; LeBlanc, Self-Brown, Shepard, & Kelley, 2011), but less research addresses the association between endogenous factors (e.g., self-concept, cognitive variables) and internalizing problems in adolescents. That is why we find it necessary to investigate whether quality family relations protect against the development of internalizing problems associated with heightened self-consciousness.

### **The Present Research**

Considering the growing consensus among researchers on the need to study complex relational patterns of risk and protective endogenous and exogenous factors, the current study addresses this gap by testing the moderating effect of family relations on the association between internalizing problems and self-consciousness in adolescents. Theoretical framework of developmental psychopathology of internalizing problems allows us to assume that interpersonal relationships may serve as moderators of the relationship between individual cognitive factors and adjustment problems (Bartels, Van de Aa, Van Beijsterveldt, Middeldorp, & Boomsma, 2011; Gajdošová, 1998). These theoretical assumptions have been supported by Marakovitz, Wagmiller, Mian, Briggs-Gowan and Carter (2011), who found a moderation effect of family expressivity on inhibited temperament associated with the

onset of internalizing problems in children. Family expressivity served as a protective factor. Also, Bowker and Rubin (2009) confirmed the moderating effect of supportive friendship on the self-consciousness – internalizing problems relationship. However, positive friendship quality appeared to enhance internalizing problems associated with self-consciousness.

We hypothesize that family relations – cohesion, adaptability and communication – buffer the internalizing problems, in our study conceptualized as loneliness and social anxiety, associated with self-consciousness. Taking into account the distinction between subtypes of self-consciousness and their relation to different maladjustment outcomes (Mor & Winquist, 2002), we examined the moderating effect separately in the association between private self-consciousness and loneliness and between public self-consciousness and social anxiety.

Researchers have declared that there are different patterns of predictors, protective and risk factors in internalizing problems of clinical, subclinical and nonclinical sample (Bogels, Van Oosten, Muris, & Smulders, 2001; Epkins & Heckler, 2011; Mor & Winquist, 2002). To gain insight into the relations between cognitive/social factors interaction and internalizing problems in adolescents from a nonclinical sample we excluded participants with heightened levels of loneliness and social anxiety.

Given the demonstrated gender differences in the self-consciousness – internalizing problems relationship (Bowker & Rubin, 2009; Mor & Winquist, 2002) and the moderating effect of family functioning (Helsen, Vollebergh, & Meeus, 2000), we conducted a moderator analysis separately in boys and girls. We hypothesized that family function-

ing serves as a stronger buffer for girls than for boys.

## Methods

### *Participants and Procedure*

The survey was conducted in November and December 2013 at high schools and secondary schools in the Slovak cities Topoľčany and Bratislava and at Universities in Nitra. The research sample included 418 adolescents aged 14 – 21 years ( $M = 17.47$ ,  $SD = 1.67$ , girls – 272, boys – 146). From the entire sample we excluded participants with extreme levels of loneliness (1 SD above the mean) and social anxiety (according to the norms – Kondáš, 1973). The final sample consisted of 294 adolescents, 187 girls and 107 boys (age range 14 – 21 years,  $M = 17.35$ ,  $SD = 1.62$ ).

### *Measures*

*Family Adaptability and Cohesion Scale, 4. revision* (Olson, 2010, Slovak version Šeboková, Popelková, & Šukolová, 2013) – the scale consists of 42 items scored on a 5-point Likert scale. The scale measures two dimensions of family functioning – cohesion and adaptability on the balanced levels (Balanced Cohesion, Balanced Adaptability) and on the unbalanced levels (Disengaged, Enmeshed, Chaotic, Rigid), based on the Olson's circumplex model. Each dimension is measured using 7 items. To measure the level of balance versus unbalance in a system, a ratio score was obtained by assessing the Balanced/Average Unbalanced score for each dimension. The Slovak version of FACES IV displayed adequate levels of validity and reliability in the sample of adolescents

(Šeboková et al., 2013). In this sample, the internal consistency ranged  $\alpha = .66 - .83$ .

*Family Communication Scale* (Olson, Barnes, 2010, Slovak version Šeboková et al., 2013) – the scale consists of 10 items scored on a 5-point Likert scale and measures unidimensional factor Family Communication. The Slovak translation of the scale has high validity and reliability (Šeboková et al., 2013). Internal consistency of the scale in this sample is  $\alpha = .89$ .

*Loneliness scale UCLA, 3. revision* (Russell, 1996, Slovak version Hupková, 2002) – this unidimensional scale consists of 20 items scored on a 4-point Likert scale. The scale measures subjective perception of loneliness (one's dissatisfaction with actual quality of social relationships), not the objective state. The scale has adequate level of internal consistency (ranged  $.89 - .94$ ) and construct and discriminant validity (Russell, 1996). The scale is frequently used in Slovak context and displays good psychometric properties (Tomšík, 2014). In this sample, the internal consistency was  $\alpha = 0.89$ .

*KSAT* (Kondáš, 1973) – the scale is supposed to measure 3 dimensions of anxiety – social anxiety, phobia and stage fright. The scale was standardized for Slovak population in 1973. In this study we used only the scale measuring social anxiety (10 items). The internal consistence of the scale was  $\alpha = .77$ , which is in accordance with reliability reported by Kondáš (1973).

*Self-consciousness Scale* (Fennigstein et al., 1975; Slovak version Schrageová, Šeboková, 2013) – the SCS assesses private and public self-consciousness and social anxiety. In the present study only private and public self-consciousness were of interest. In the sample of adolescents, a 2-factor solution of SCS was confirmed (unlike the 4-

factor structure in the sample of adults) and the SCS displayed adequate level of internal consistency (Rankin et al., 2004). In the present study two items from the subscale of private self were excluded because of inadequate level of internal consistency, low factor loadings and problematic comprehensibility of these items for adolescents (“*I am often subject of my own fantasies*”; “*I sometimes have the feeling that I am off somewhere watching myself*”). The final version consists of 13 items – private (6 items) and public self-consciousness (7 items). Participants indicate how similar they are to the item using a 4-point Likert scale. In this study, the levels of Cronbach's alpha were  $.71, .75$  respectively. The correlation between subscales for the entire sample was  $r = .53$ , similar to the results from studies utilizing the scale on adolescents (Bowker & Rubin, 2009).

### Data Analysis

The data were analyzed using SPSS (version 21). In the first step of the analysis, the bivariate Pearson's correlation analyses for all the tested variables for girls and boys separately were performed. Considering age heterogeneity of the sample, all the tested variables were correlated with age as well. To test the moderation hypothesis of dimensions of family functioning (cohesion, adaptability, communication) in the relationship between self-consciousness (private, public) and internalizing problems (loneliness, social anxiety), we conducted a series of hierarchical regression analyses in girls and boys separately. According to recommendations by Aikin and West (1991), self-consciousness and family dimensions were mean-centered to reduce multicollinearity.

The other type of self-consciousness (due to moderate correlation between subscales) was entered in the first block of the regression to control its potential effect. Independent variable (self-consciousness) and moderator (family dimensions) were entered in the second block, followed by hypothesized interactions at block 3 to test the moderating effect. Interaction terms for cohesion, adaptability and communication were analyzed separately (in summary 6 moderator models were tested). To interpret a significant interaction we followed the instructions by Aikin and West (1991). We examined the moderating variable at the mean and at  $\pm 1$ SD of the mean. Interactions were plotted in Microsoft Excel.

### Results

The results of the correlation analysis between all variables separately on girls and boys are shown in Table 1. Only for boys, but not for girls, loneliness was negatively related to supportive family dimensions (com-

munication, cohesion, adaptability). Social anxiety was not associated with family variables either in boys or in girls. Private self-consciousness, but not public self-consciousness, was related to family variables in boys, but not in girls. No significant correlations were found between two dimensions of self-consciousness and two types of internalizing problems either in boys, or in girls (except of significant positive but small correlation between loneliness and public self in boys). As expected, there were significant inter-correlations between family variables. There were no significant correlations between tested variables and age, except for loneliness. Loneliness increases with age in boys and decreases with age in girls. However, correlation coefficients were small.

#### *Private Self-Consciousness and Loneliness*

To test sex differences in the pattern of association between self-consciousness, family dimensions and internalizing prob-

Table 1 Means, standard deviations and correlation among variables separately for girls ( $n_1 = 187$ ) and boys ( $n_2 = 107$ )

	$M_1$	$SD_1$	$M_2$	$SD_2$	1.	2.	3.	4.	5.	6.	7.	8.
1. LON	37.03	6.08	43.38	8.04	-	.09	-.10	-.08	.02	.04	-.09	-.17*
2. SA	26.17	4.94	22.45	5.62	.16	-	-.08	-.03	-.06	.09	.14	-.07
3. COM	36.83	8.85	35.88	7.42	-.23*	.04	-	.68**	.59**	.01	.16*	-.11
4. COH	1.79	.58	1.52	.54	-.37**	-.16	.63**	-	.66**	.03	.09	.02
5. ADAP	1.69	.52	1.46	.49	-.38**	-.06	.60**	.76**	-	-.08	-.08	.02
6. PRSC	16.64	3.78	14.72	4.45	-.15	.06	.38**	.33**	.29**	-	.52**	.07
7. PUSC	19.55	4.75	16.46	4.62	.22*	.15	.23*	.10	.11	.47**	-	.05
8. AGE	17.38	1.63	17.31	1.62	.23*	-.08	-.16	-.19*	-.16	-.04	-.08	-

Note. Intercorrelations for girls are presented above the diagonal, and intercorrelations for boys are presented below the diagonal.  $M_1$  and  $SD_1$  are means and standard deviations for girls,  $M_2$  and  $SD_2$  are means and standard deviations for boys. LON-loneliness, SA-social anxiety, COM-communication, COH-cohesion ratio score, ADAP-adaptability ratio score, PRSC-private self-consciousness, PUSC-public self-consciousness

\*  $p < .05$ , \*\*  $p < .01$

lems, we conducted moderation analysis independently in the sample of girls and boys.

From the tested family variables, only family cohesion was a significant moderator of the relationship between private self-consciousness and loneliness for boys but not for girls. As it is seen in Table 2, the interaction term accounted for additional 7.2% of boys' loneliness variance (small effect size) (Cohen, 1992). There was also a significant main effect of family cohesion and adaptability, but not private self-consciousness, on loneliness for boys. In girls none of the testing variables were significant predictors or moderators of loneliness.

Figure 1 shows the direction of the interaction effect. Private self-consciousness positively predicted loneliness in boys only at high levels of cohesion ( $B = .70, p < .05$ ), but not at medium ( $B = .12, p > .05$ ) and low levels of cohesion ( $B = -.46, p > .05$ ).

#### *Public Self-Consciousness and Social Anxiety*

Table 3 illustrates that interaction adaptability by public self-consciousness and communication by public self-consciousness significantly predicted social anxiety for girls but not for boys. The interaction terms accounted for additional 2%, resp. 3% of

Table 2 Hierarchical regression analysis testing moderating effect of family variables on the relationship between private self-consciousness and loneliness in boys and girls

Predictor	Family variables											
	Girls, n = 186			Boys, n = 106								
	COH		ADAP		COM		COH		ADAP		COM	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
Step 1		.01		.01		.01		.05*		.05*		.05*
PUSC	-.09		-.09		-.09		-.22*		-.22*		-.22*	
Step 2		.02		.01		.02		.11**		.05*		.03
PUSC	-.15		-.16		-.14		-.22*		-.20		-.18	
FV	-.13		-.03		-.10		-.35***		-.24*		-.17	
PRSC	.16		.13		.12		.07		.02		-.01	
Step 3		.02		.00		.01		.07**		.03		.02
PUSC	-.14		-.16		-.11		-.14		-.16		-.15	
FV	-.14		-.03		-.13		-.31**		-.25**		-.12	
PRSC	.14		.12		.09		.17		.07		.02	
FV x PRSC	.03		.02		.11		.32*		.20		.17	
Total		.04		.02		.04		.23**		.13**		.10

Dependent variable: loneliness

Note. COH – cohesion ratio score, ADAP – adaptability ratio score, COM – communication, PRSC – private self-consciousness, PUSC – public self-consciousness, FV – family variables

\*\*\*  $p < .001$ , \*\*  $p < .01$

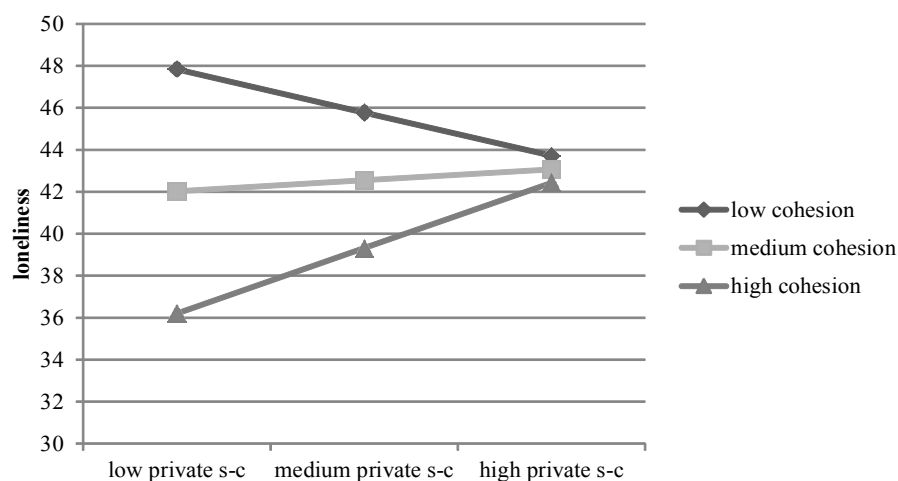


Figure 1 Moderating effect of cohesion on the association between private self-consciousness and loneliness in boys

Table 3 Hierarchical regression analysis testing moderating effect of family variables on the relationship between public self-consciousness and social anxiety in girls and boys

Predictor	Family variables											
	Girls, n = 186						Boys, n = 106					
	COH		ADAP		COM		COH		ADAP		COM	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<u>Step 1</u>		.01		.01		.01		.00		.00		.00
PRSC	.09		.09		.09		.05		.06		.06	
<u>Step 2</u>		.01		.01		.02		.02		.02		.02
PRSC	.02		.02		.01		-.03		-.03		-.03	
FV	-.03		-.04		-.11		.02		.04		.04	
PUSC	.13		.13		.15		.16		.16		.15	
<u>Step 3</u>		.01		<b>.02*</b>		<b>.03*</b>		<b>.04*</b>		.04		.00
PRSC	.02		-.02		.02		.03		.03		-.04	
FV	-.01		-.03		-.07		.10		.05		.03	
PUSC	.12		.13		.10		.18		.18		.14	
FV x PUSC	-.10		<b>-.15*</b>		<b>-.18*</b>		<b>.23*</b>		.20		-.04	
Total $R^2$		.03		.04		<b>.06*</b>		.06		.06		.02

Dependent variable: Social anxiety

Note. COH – cohesion ratio score, ADAP – adaptability ratio score, COM – communication, PRSC – private self-consciousness, PUSC – public self-consciousness, FV – family variables

\*  $p < .05$



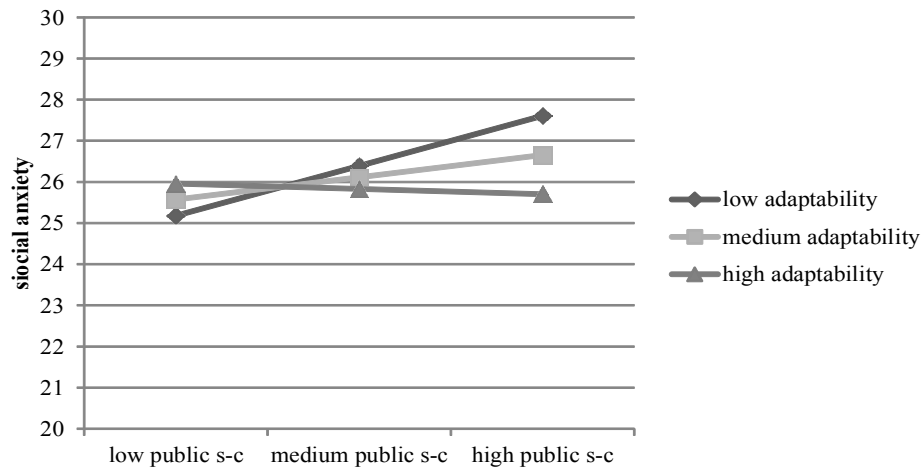


Figure 2 Moderating effect of adaptability on the association between public self-consciousness and social anxiety in girls

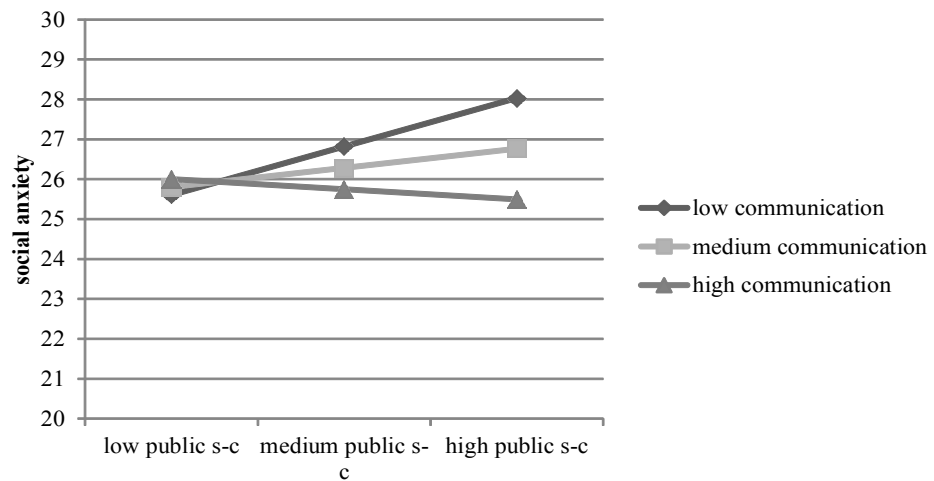


Figure 3 Moderating effect of communication on the association between public self-consciousness and social anxiety in girls

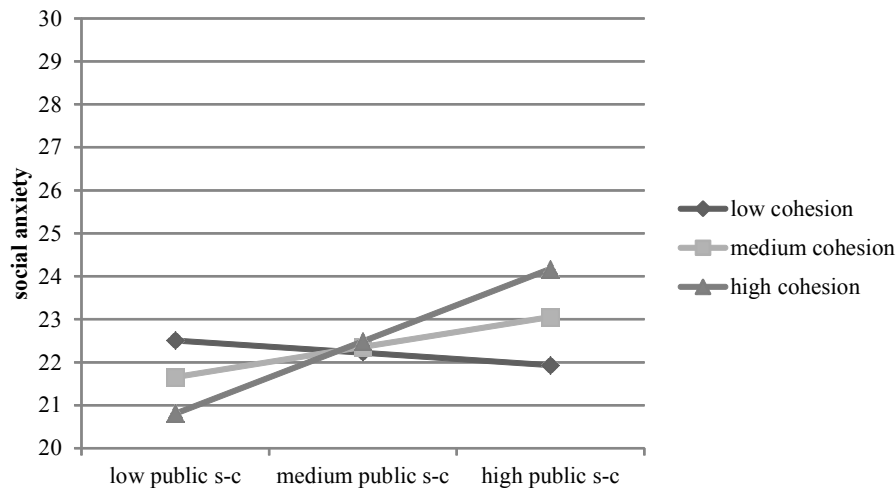


Figure 4 Moderating effect of cohesion on the association between public self-consciousness and social anxiety in boys

social anxiety variance, which can be considered a small effect size. There was also a significant main effect of public self-consciousness, when interaction adaptability X public self-consciousness was added. In boys only cohesion was a significant moderator of the relationship between public self-consciousness and social anxiety. Interaction accounted for additional 4% of social anxiety variance (small effect size). None of the main effects of the tested variables were significant.

Figures 2 and 3 show that there is the same pattern of moderation effect of adaptability (Figure 2) and communication (Figure 3) on the relationship between public self-consciousness and social anxiety in girls. Public self-consciousness significantly predicted social anxiety in girls only at low levels of family adaptability ( $B = .26, p < .05$ ) and com-

munication ( $B = .26, p < .01$ ) but not at medium ( $B = .11, p > .05$ , resp.  $B = .10, p > .05$ ) and high ( $B = -.03, p > .05$ , resp.  $B = -.05, p > .05$ ) levels. Figure 4 shows the direction of the interaction effect of public self-consciousness and cohesion on social anxiety in boys. Public self-consciousness significantly predicted social anxiety in boys at high levels of family cohesion ( $B = .36, p < .05$ ), but not at medium ( $B = .15, p > .05$ ) and low levels ( $B = -.06, p > .05$ ).

## Discussion

The aim of the present study was to investigate the relationship between self-consciousness and internalizing problems in a sample of adolescent girls and boys without heightened levels of loneliness and social anxiety, and to examine the moderating ef-

fects of family dimensions – cohesion, adaptability and communication on this relationship.

#### *Self-Consciousness and Internalizing Problems*

Contrary to several research findings (Nystedt & Ljungberg, 2002; Schmidt & Kurdek, 1985; Vanhalst et al., 2012; Watson & Morris, 1996), we did not find a direct relationship between subtypes of self-consciousness and loneliness and social anxiety in adolescent girls and boys. However, our results are in line with the results of Mor's and Winquist's (2002) meta-analysis, measuring effect sizes of the relation between self-focused attention and negative effect. Larger effect sizes were obtained in studies examining adults than those examining adolescents and among clinical samples compared with subclinical and nonclinical samples. That is why it is more likely to find positive relationship between self-consciousness and internalizing problems in a clinical sample and in adults.

#### *Family Variables as Moderators*

Results showed that family dimensions do moderate the self-consciousness – internalizing problems relationship. Contrary to expectations, family cohesion, but not adaptability and communication, exacerbated both the relationship between heightened private self-consciousness and loneliness and the relationship between heightened public self-consciousness and social anxiety in adolescent boys, but not in girls. On the other side, family adaptability and communication but not family cohesion protected girls, but not boys, against greater feelings of social anxiety

associated with public self-consciousness.

#### *Family Variables as Risk Factors in Boys*

Results suggest that highly self-conscious boys (both privately and publicly), feel lonelier and more anxious in high cohesive families. Our findings contribute to the evidence of a negative aspect of highly supportive relationship – co-rumination, in the context of internalizing problems (Bowker & Rubin, 2009; Desjardins & Leadbeater, 2011; Rose, 2002). Co-rumination has been defined as excessive and repeated discussion and speculation about problems and dwelling on negative feelings in the context of a close interpersonal relationship (Rose, 2002). Co-rumination has been linked to depression symptoms and anxiety in adolescence (Rose, 2002; Waller & Rose, 2013). Highly cohesive and supportive families may offer to self-conscious boys the opportunity to share their ruminative thoughts and elevate their concerns and worries. But why then does family cohesion serve as a risk factor for boys and in relation to loneliness and social anxiety, when research reports higher prevalence of co-rumination in girls and in association with depression and anxiety?

Barstead, Bouchard and Shih (2013) pointed out that co-rumination has been primarily investigated in the context of same-sex friendships and parent-adolescent relationship and when the authors allowed participants to report on the level of co-rumination with their closest confidant (both male and female), gender differences in co-rumination disappeared. Boys who co-ruminated with cross-sex friends tend to co-ruminate more than boys who co-ruminated with same-sex friends. To answer our question, we assume

that in the family system boys have more opportunities to co-ruminate with an opposite sex confidant, e.g. with their mothers or sisters. Our assumption is in line with other research that shows that adolescents tend to co-ruminate and self-disclose personal problems to mothers, more than to fathers (Calmes & Roberts, 2008; Walar & Rose, 2010).

In addition, boys, in contrast to girls, display less intimate, close and quality peer and family relationships (Tanti, Stukas, Halloran, & Foddy, 2008). Loneliness has been defined as a discrepancy between one's actual relationships and perceived quality and adequacy of these relationships resulting in subjective negative feeling. That is why it is not surprising that highly self-conscious boys feel lonelier in the context of a supportive family. Emotional support, empathy and closeness in the family may exacerbate a boy's negative feelings and awareness of deficient intimacy in their other social relationships and increase the discrepancy between real relationships and relationships that boys wish for. Similarly, high self-conscious boys' worries of rejection in social situations may be accentuated in supportive families.

It appears that emotion-focused support in interaction with heightened self-focus acts as a risk factor in boys. For them, instrumental support and more active approach to regulate emotions and solve the problems seems to be more efficient in terms of coping with internalizing problems.

#### *Family Variables as Protective Factors in Girls*

The third and fourth interaction effect was identified in the relationship between public self-consciousness, family adaptability and

communication, and social anxiety in a sample of adolescent girls. The results suggest that public self-consciousness predicts social anxiety only in families with dysfunctional rules, control, tasks and roles or with low quality communication. Girls with heightened public self-consciousness, who live in families with democratic leadership, negotiations including adolescents, change of roles and rules when necessary and opportunity to communicate with family members about their problems and feelings, have lower social anxiety. The buffering effect of family adaptability and communication probably works by facilitating the development of girls' autonomy and self-competence, which decreases their concerns about negative evaluation, criticism and rejection in social situations (Drake & Ginsburg, 2012).

Our findings support the assumption that social anxiety is predicted not only by genetic and personality factors, but in period of adolescence may also be moderated by environmental factors (family relations) (Bartels et al., 2011; Epkins & Heckler, 2011).

Adaptability and communication buffer against feelings of greater social anxiety associated with public self-consciousness only in girls. One possible explanation is that interpersonal factors play a larger role in the self-concept of females (Rankin et al., 2004). Girls in our sample score significantly higher on public self-consciousness than boys, which is demonstrated by greater sensitivity and suggestibility to the opinions of significant others (Buss, 2001). For girls, in terms of reflecting their position in the family and the opportunity to talk about their concerns, the democratic leadership and quality communication in the family may be a stronger buffer than for boys for whom the interpersonal context is not so important.

Together, the results of the present study suggest that self-consciousness is not in a direct relationship with adolescent internalizing problems, it predicts adjustment problems only in the interaction with interpersonal variables. In addition, interpersonal, family relations may play either a protective or a risk role in relation to adolescent internalizing problems, depending mostly on gender and dimension of family relationship (emotional support – control – communication). Emotional support from family may be a risk factor for greater feelings of loneliness and social anxiety associated with private and public self-consciousness respectively in boys, whereas democratic leadership and communication buffer heightened social anxiety associated with public self-consciousness in girls.

#### *Main Effects of Family Variables*

This study also found a significant main effect of family cohesion and adaptability, but not communication, on loneliness in boys. In girls none of the main or interaction effects were found. These results are consistent with other findings in which family variables were related to loneliness in boys, but not in girls (Distel et al., 2010). Additionally, adolescent girls mature earlier than boys (Ruiselová & Prokopčáková, 2013) and that is why, in contrast to boys, for girls at this age a romantic partner and peers may be a more important relational system and explain more loneliness variance than family (Green Richardson, Lago, & Schatten-Jones, 2011; Monck, 1991).

None of the main effects of family relationships on social anxiety was significant in either gender. Consistent with these findings, recent meta-analysis showed that family-re-

lated variables are significantly more associated with depression and loneliness than social anxiety. On the other hand, social anxiety is linked to peer-related variables significantly more than to family variables (Drake & Ginsburg, 2012; Epkins & Heckler, 2011). Similarly, in the Slovak context, Ruiselová and Prokopčáková (1997) found that anxiety of adolescent girls and boys, was primarily connected to relations with peers.

#### *Limitations and Future Directions*

The present study has several limitations.

First, the study was cross-sectional; therefore, we cannot determine the direction of effects between the examined variables. Although correlations between personality, family behavior and adolescent behavior are often interpreted as an endogenous and environmental effect on the adolescent development, and some longitudinal studies suggested that interaction between family variables and stressors may lead to poorer adjustment in adolescents (Desjardins & Leadbeater, 2001; Oliva et al., 2009), these connections could also be interpreted in the opposite direction. For example, the correlation may indicate that family adapt their behavior in response to the behavior of the adolescent, or internalizing problems may lead to heightened private or public self-focus of adolescents which is developing during this period. Future research could analyze the interplay between self-consciousness, maladjustment and family context over time to better understand the contribution of the social/cognitive factors interaction in adolescent development.

Second, other interpersonal relations – potential buffers were not examined. Moreover, the sizes of interaction effects reported

in our study were small, which is common in moderation studies. It is likely that other support systems – peers, teachers, school and romantic partner may be important protective factors in the context of adolescent internalizing problems, especially in girls.

Third, we examined only a sample of adolescents without heightened levels of loneliness and/or social anxiety. This truncation of the sample does not provide assurance that in fact we studied a non-clinical sample (adolescents in our sample may have many other concerns). However, the main focus of the study was to eliminate extreme levels of two examined internalizing problems – loneliness and social anxiety. Moreover, the norms we used to exclude participants with heightened social anxiety are outdated (year 1973) and probably do not correspond to the prevalence of social anxiety in current adolescent population. Future research should address the differences in direct and moderating effects in clinical, subclinical and nonclinical samples using actual norms and objective criteria.

Also, the present study examined a wide range of internalizing problems only via two separate concepts – loneliness and social anxiety. To gain a complex insight into cognitive/social factors interaction other internalizing problems should be studied.

Another limitation is utilizing only self-report measures. It could be important for future research to add other sources of information, for example, parents and teachers, to eliminate a shared-method variance. The results suggest that adolescents discriminate between more types of loneliness depending of the context. Adolescents may be satisfied with closeness in family, but also feel lonely in the context of peer and romantic partner relations. In future studies the multi-

dimensional measure of loneliness could be utilized.

Despite the mentioned limitations, the present study increases our understanding of the maladjustment correlates of private and public self-consciousness during middle and late adolescence, and also provides support for the necessity to investigate protective and risk cognitive and relational factors in integrative fashion rather than examining them separately. Our findings suggest that family variables may moderate not only the relationship between environmental stressors and adolescent development but also the association between endogenous/cognitive factors and adolescent maladjustment. The current study also points out the importance of more complex family variables in contrast to dyadic parent-adolescent relationship. Our findings may have an important implication for the intervention and prevention efforts designed to reduce adolescents' adjustment problems.

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