

The Relationship between Self-Esteem, Self-Efficacy, Family and Life Satisfaction, Loneliness and Academic Achievement during Adolescence

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Abstract

This study aimed to explore the relationship between self-esteem, self-efficacy, family and life satisfaction, loneliness and academic achievement during adolescence. A total of 180 male and 301 female adolescents aged 10 to 17 (M=12.45 years, SD=2.66), from two primary and two secondary schools from the city of Split, participated in the study. To achieve the research goal, we administered the general data questionnaire, Self-Efficacy Questionnaire for Children and Adolescents (Vulić Prtorić & Sorić, 2006), Family Satisfaction Scale (Vulić Prtorić, 2004), the short-form UCLA Loneliness Scale (Russell, 1996), and the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The results indicated that female adolescents performed better in Croatian than male adolescents, who in turn assessed themselves as being more emotionally efficient than female adolescents. Regarding age, preadolescents were more satisfied, performed better academically, and exhibited higher levels of academic self-efficacy and self-esteem than older adolescents. The results of the regression analysis showed that higher academic self-efficacy and lower emotional self-efficacy were the strongest predictors of academic achievement. Research findings suggest that higher self-esteem and self-efficacy beliefs in all domains could have a protective role in well-being of adolescents and, finally, they point to the importance of developing high self-efficacy beliefs, especially academic ones, for academic achievement.

Key words: *academic achievement; adolescence; self-concept; satisfaction, loneliness.*

Introduction

School achievement of adolescents is influenced by numerous individual and environmental factors. A significant number of researches indicate family factors such as the family's socio-economic status, the quality of relationships with parents, their educational status, and relations with teachers and peers as important determinants of adolescent academic achievement. Research into academic achievement lists various factors as its individual predictors: gender, intelligence, personality, motivation, and the characteristics of adolescents that are largely part of genetic heritage, such as child temperament, regulating and controlling emotions, and adaptation to problems (Macuka & Burić, 2015). The scientific interest of this paper is to study the relationship between academic achievement and the aspects of self-concept (self-esteem and self-efficacy), satisfaction and loneliness of (pre)adolescents.

Self-concept is a person's self-perception formed through experience with and interpretations of one's environment (Marsh & Martin, 2011). It is multifaceted and hierarchically organised, with perceptions of behaviour in specific situations at the base of the hierarchy, inferences about the self in wider academic, social and physical domains at the middle, and a global self-concept at the top (Shavelson et al., 1976). It is the way through which the individuals perceive their strengths, weaknesses, abilities and values and, as "the totality of self-understanding" (Lacković-Grgin, 1994, p.18), it helps to explain the present and past behaviours and predict future ones (Lebedina-Manzoni & Lotar, 2011). There is ample evidence of the role of self-concept and individual success in different fields, especially education (Gujare & Tiwari, 2016; Huang, 2011; Marsh & Martin, 2011), which is also taken into consideration in this paper. The self-concept construct is associated with different kinds of academic outcomes so as with academic achievement where it is assumed to play the key role (Ogle et al., 2016). The correlation between self-concept and academic achievement has been confirmed in PISA surveys in 26 countries, with similar results obtained by Matic et al. (2015) on a sample of students in Croatia. There is also a reciprocal effect model that maintains that academic self-concept and academic achievement are mutually reinforced, and the interaction results in the improvement of both (Marsh & Martin, 2011). Self-concept is quite often viewed upon and studied, together with self-esteem and self-efficacy, as a set of interrelated and continually developing self-beliefs (Loos, 2003; Nunez Rodriguez & Loos-Sant' Ana, 2015). As regards to the topic of our research, both of these aspects are woven into students' feelings and academic achievement in the education system (Black & Allen, 2018).

As a part of self-concept or a global construct at the apex of the self-concept hierarchy (Shavelson et al., 1976), self-esteem represents a positive or negative attitude of an individual towards him/herself (Rosenberg, 1965). Studies have confirmed that low self-esteem is an important predictor or correlate of a range of negative outcomes such as low academic achievement, anxiety, substance abuse, depressive disorders and generally worse health (Kendler et al., 1998). On the other hand, positive self-esteem is considered an important protective factor of well-being and mental health, and one of the key factors of academic performance (Humphrey et al., 2004).

As central part of the Social Cognitive Theory (Bandura, 1997), self-efficacy is related to an individual's beliefs about his/her own ability to perform specific tasks in specific learning areas and as such, is more future-oriented (Bong & Skaalvik, 2003). It refers to the level of confidence that individuals have in themselves to achieve a desired outcome (Nunez Rodriguez & Loos-Sant' Ana, 2015). A large body of evidence suggests that high self-efficacy has a positive effect on self-regulation and academic achievement, learning, and academic achievement motivation (Bandura, 1993; Koludrović et al., 2014; Putwain et al., 2013; Pajares, 1996, Schunk, 1995, acc. to Meral et al., 2012). In addition to academic self-efficacy, which has proven to be important for academic achievement in the aforementioned studies, the other two important aspects of self-efficacy – namely emotional and social ones - are included in this study. Emotional self-efficacy refers to the ability to regulate negative emotions, and the social one to assertiveness and the ability to maintain relationships with peers (Vulić Prtorić & Sorić, 2006). These aspects of self-efficacy are important in adolescence both because of the heightened emotional reactivity and more frequent negative emotions and relationships with peers, which are extremely important in adolescence. Earlier studies found that emotional self-efficacy was positively correlated with academic performance, probably because emotional self-efficacy is effective in coping with academic stress (Arslan, 2017). Social self-efficacy, on the other hand, helps to achieve better social relationships in the classroom environment, both with peers and teachers, and can therefore contribute to better academic achievement.

The subjective well-being encompasses an individual's different assessments of his own life, events, body, mind, and circumstances in which he/she lives (Diener, 2006). Crede et al. (2015) report that research on the relationship between subjective well-being and academic achievement has had relatively contradictory results, so this relationship is worth studying further. A number of studies that demonstrate a positive relationship between adolescents' academic achievement and subjective well-being has increased (Suldo et al., 2008). Seligson et al. (2003) also highlight the strong correlation between adolescents' life satisfaction and satisfaction with family, school, friends and the environment. A recent meta-analysis of 47 studies showed an average correlation between the subjective well-being of adolescents and their academic achievement, suggesting a significant but relatively low correlation between these constructs (Bucker et al., 2018).

As an unpleasant emotional state caused by an inadequate number of close relationships or inadequate quality of existing relationships, loneliness is usually most prevalent during adolescence. The literature points to 70 % of adolescents experiencing episodes of loneliness (Heinrich & Gullone, 2006; Qualter et al., 2013) or 50 % of adolescents experiencing frequent loneliness (Brennan, 1982). Since the process of deidealization and separation from parents begins in early adolescence, whereby adolescents show a strong need for autonomy and individualization, they often feel lonely and become increasingly focused on peers, friends or romantic partners. They often fail to meet their needs to establish close social relationships, which can increase feelings of loneliness. Loneliness was shown to be related to worse adolescent psychological

and somatic health cross-culturally (Sickley et al., 2016). In the context of this study, it was therefore assumed that higher sense of loneliness would be related to poorer academic achievement.

Research aim, questions and hypotheses

Scholars generally agree that positive self-belief contributes to academic inclusion, goal setting, persistence and motivation, academic performance and achievement (Black & Allen, 2018). While previous research largely points to the importance of self-concept for academic achievement, research on the relationship between academic achievement and subjective well-being points to marginally significant or low correlations. Unlike academic self-concept, socio-emotional features within self-concept were rarely examined in the context of academic achievement. Therefore, within the theoretical framework outlined above, this study aims to examine the relationship between self-esteem, academic, social, and emotional self-efficacy, life and family satisfaction, loneliness and academic achievement during preadolescence and adolescence. Life satisfaction and family satisfaction were taken as indicators of subjective well-being. To reach the research aim, the following research questions were set:

- 1 Are there significant age and gender differences in academic achievement, life and family satisfaction, loneliness, self-esteem and self-efficacy during adolescence?
- 2 Which features of self-concept, satisfaction and loneliness are related to academic achievement?
- 3 Does self-esteem, features of self-efficacy, satisfaction and loneliness significantly predict individual differences in academic achievement during adolescence?

We hypothesised that there would be a significant decline in academic achievement, satisfaction, self-esteem and self-efficacy from preadolescent subsample onwards, as well as an increase in loneliness in older groups. Furthermore, based on the results of previous studies, we hypothesised poorer academic achievement in boys compared to girls, as well as lower self-esteem, self-efficacy and satisfaction in girls compared to boys. Considering the interrelations between achievement, self-esteem, self-efficacy, satisfaction and loneliness, significant relations were expected between higher results in all facets of self-concept, satisfaction and achievement, while loneliness was expected to be negatively related to satisfaction, self-esteem, self-efficacy, and academic achievement.

Methodology

Sample and research procedure

The sample consisted of preadolescents and adolescents ($N_f = 301$, $N_m = 180$) aged 10-17 ($M = 12.45$; $SD = 2.66$) from two primary and two secondary schools from the city of Split. In the sample, there were 108 pupils from the fourth and fifth grades and 122 pupils from the seventh and eighth grades of primary school, and 253 students from the second and third grades of secondary schools, one grammar school and one four-year vocational school. A four-year vocational school was selected because students must have relatively high academic achievement scores from primary school to enrol, similarly to grammar schools. The respective high school curricula in the sample are only slightly different.

After obtaining the respective principals' consent to conduct our study at schools, meetings were organized at which the study objectives were outlined. Parents who allowed their child to participate in the study signed an informed consent form. Data was collected at schools during the homeroom classes. The students were guaranteed confidentiality and were informed that they were not required to participate in the research despite their parents' consent. It took the research participants 25 minutes on average to complete the questionnaire, and a total of 483 questionnaires were collected (gender was not specified on two questionnaires). The collected data were analysed with the statistical program STATISTICA 13. Since the coefficients of skewness and kurtosis were between -2 and +2 for most measures, parametric models were used in the data analysis (Gravetter & Wallnau, 2014).

Instruments

The general data questionnaire was used to collect data on age, gender and academic achievement. Academic achievement was operationalized as GPA at the end of the previous school year, and the grades in Croatian and Mathematics on a scale from 1 to 5.

Life satisfaction was measured on a single ten-point item where participants had to circle a number that best describes how satisfied they are with their lives (1 - completely unsatisfied, 10 - totally satisfied).

The Self-Efficacy Questionnaire for Children and Adolescents (Vulić Prtorić & Sorić, 2006) examines children's self-efficacy in the academic (for example *I easily concentrate on learning even when there are other interesting things around me*), emotional (for example *I can easily control my feelings*) and social (for example *It's not hard for me to chat with strangers*) domains. It consists of 24 items, and the participants' task was to evaluate how much each item relates to them on a scale from 1 (not at all true) to 5 (completely true). The confirmatory factor analysis showed a satisfactory fit to the three-factor model (RMSEA = .06; Chi-square/df=2.85; GFI = .89), and three total scores (social, academic, and emotional self-efficacy) were obtained, with higher scores indicating higher self-efficacy (Table 1).

The Family Satisfaction Scale (Vulić Prtorić, 2004) is a part of the Family Interaction Quality Scale. Only the Overall Family Satisfaction subscale, which consists of 11 items, was used in this study (for example *No one in my family understands me*). The participants evaluated how much each item relates to them on a scale from 1 (not at all true) to 5 (completely true). The confirmatory factor analysis did not show a satisfactory fit to the one-factor model (RMSEA = .11; Chi-square/df = 5.89; GFI = .88), but given the high reliability (Cronbach alpha = .90), the overall result was obtained following the author's guidelines, with a higher score indicating greater family satisfaction (Table 1).

The short form of the Loneliness Scale (UCLA Loneliness Scale) (Allen & Oshagan, 1995; Lacković-Grgin et al., 2002) consists of 7 items (for example *No one knows me well*), and the participants' task was to evaluate how much each item relates to them on a scale from 1 (does not apply to me at all) to 5 (completely applies to me). The confirmatory factor analysis showed excellent data fit to the one-factor model (RMSEA = .04; Chi-square/df = 1.97; GFI = .98), and a single result was obtained with the higher value indicating greater feelings of loneliness (Table 1).

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) measures global self-esteem using 10 items (for example *Sometimes I feel completely useless*). The participants' task was to evaluate the degree of agreement with each item on the scale ranging from 1 (strongly disagree) to 5 (strongly agree). The confirmatory factor analysis did not show a satisfactory fit to the one-factor model (RMSEA = .13; Chi-square/df=7.51; GFI =.88), but given the satisfactory reliability (Cronbach alpha=.83) and numerous earlier applications of this scale that confirm its one-dimensionality, an overall score was constructed with the higher value indicating higher self-esteem (Table 1).

Table 1.
Descriptive characteristics of measures used and correlations between variables

Measure	Cronbach α	M	SD	theoretical range	obtained range	skewness	kurtosis
1. age	-	12.45	2.66	-	10-17	-	-
2. gender	-	-	-	-	-	-	-
3. GPA	-	3.95	.97	1-5	1-5	-1.24	1.74
4. Croatian language	-	3.52	1.01	1-5	1-5	-.38	-.36
5. Mathematics	-	3.20	1.16	1-5	1-5	.10	-1.12
6. life satisfaction	-	8.22	1.58	1-10	1-10	-1.27	2.25
7. family satisfaction	.90	47.77	7.64	11-55	11-55	-1.83	3.99
8. loneliness	.81	12.58	5.37	7-35	12-35	1.19	1.03
9. self-esteem	.83	31.54	5.42	10-50	11-42	-.74	.26
10. academic self-efficacy	.84	27.67	6.69	8-40	8-40	-.47	.09
11. emotional self- efficacy	.76	23.18	5.56	7-35	8-35	-.23	-.17
12. social self-efficacy	.71	34.43	5.69	9-45	12-45	-.55	.40

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. age											
2. gender	.26**										
3. GPA	-.04	.10*									
4. Croatian language	-.05	.14**	.75**								
5. Mathematics	-.24**	-.01	.68**	.60**							
6. life satisfaction	-.17**	-.02	.01	-.03	.03						
7. family satisfaction	-.19**	-.02	.07	.01	.10*	.51**					
8. loneliness	-.07	.03	.06	.02	.04	-.24**	-.26**				
9. self-esteem	-.22**	-.12*	.06	.02	.13**	.47**	.41**	-.39**			
10. academic self-efficacy	-.33**	-.01	.29**	.32**	.42**	.24**	.30**	-.12*	.31**		
11. emotional self-efficacy	-.11*	-.16**	-.01	-.05	.04	.33**	.33**	-.18**	.49**	.37**	
12. social self-efficacy	-.08	-.02	.01	.03	.06	.28**	.30**	-.40**	.44**	.35**	.48**

*p<.05; **p<.01

Results

Table 2 shows the results of the two-way analysis of variance that tested the main effects of gender and age and their interaction with achievement, self-esteem, self-efficacy, loneliness and satisfaction.

Table 2.

Age and gender differences in the variables of achievement, satisfaction, loneliness, self-esteem, and self-efficacy

Dependent variables	Independent variables		M	F	df	p	
GPA	gender	M	3.84	2.98	1,475	.085	
		F	4.01				
	group	preadolescents	3.99	.70	2,475	.500	
		early adolescents	3.84				
		middle adolescents	3.96				
	gender x group	M, preadolescents	M, preadolescents	4.00	1.20	2,475	.301
			F, preadolescents	3.96			
		M, early adolescents	M, early adolescents	3.67			
			F, early adolescents	4.02			
		M, middle adolescents	M, middle adolescents	3.86			
			F, middle adolescents	4.10			
	Croatian language	gender	M	3.37	5.74	1,475	.017
F			3.61				
group		preadolescents	3.75	10.93	2,475	.000	
		early adolescents	3.16				
		middle adolescents	3.56				
gender x group		M, preadolescents	M, preadolescents	3.66	.42	2,475	.660
			F, preadolescents	3.84			
		M, early adolescents	M, early adolescents	2.98			
			F, early adolescents	3.35			
		M, middle adolescents	M, middle adolescents	3.48			
			F, middle adolescents	3.64			
Mathematics		gender	M	3.25	.35	1,475	.557
	F		3.32				
	group	preadolescents	3.73	13.77	2,475	.000	
		early adolescents	3.05				
		middle adolescents	3.07				
	gender x group	M, preadolescents	M, preadolescents	3.74	.41	2,475	.665
			F, preadolescents	3.72			
		M, early adolescents	M, early adolescents	2.94			
			F, early adolescents	3.16			
		M, middle adolescents	M, middle adolescents	3.07			
			F, middle adolescents	3.07			

Dependent variables	Independent variables		M	F	df	p
life satisfaction	gender	M	8.27	.35	1,475	.552
		F	8.37			
	group	preadolescents	8.64	.459	2,475	.011
		early adolescents	8.26			
		middle adolescents	8.06			
	gender x group	M, preadolescents	8.52			
		F, preadolescents	8.76	.31	2,475	.732
		M, early adolescents	8.20			
		F, early adolescents	8.31			
		M, middle adolescents	8.09			
family satisfaction	gender	M	4.37	.57	1,475	.449
		F	4.42			
	group	preadolescents	4.54	4.99	2,475	.007
		early adolescents	4.38			
		middle adolescents	4.27			
	gender x group	M, preadolescents	4.46			
		F, preadolescents	4.61	1.14	2,475	.320
		M, early adolescents	4.33			
		F, early adolescents	4.42			
		M, middle adolescents	4.31			
loneliness	gender	M	1.78	.82	1,475	.365
		F	1.85			
	group	preadolescents	1.95	2.70	2,475	.068
		early adolescents	1.73			
		middle adolescents	1.76			
	gender x group	M, preadolescents	1.88			
		F, preadolescents	2.01	.11	2,475	.897
		M, early adolescents	1.72			
		F, early adolescents	1.75			
		M, middle adolescents	1.73			
self-esteem	gender	M	3.24	1.46	1,475	.228
		F	3.17			
	group	preadolescents	3.33	7.03	2,475	.001
		early adolescents	3.20			
		middle adolescents	3.08			
	gender x group	M, preadolescents	3.33			
		F, preadolescents	3.33	.36	2,475	.699
		M, early adolescents	3.25			
		F, early adolescents	3.16			
		M, middle adolescents	3.14			
		F, middle adolescents	3.03			

Dependent variables	Independent variables		M	F	df	p
academic self-efficacy	gender	M	3.50	1.53	1,475	.217
		F	3.60			
	group	preadolescents	3.98	27.97	2,475	.000
		early adolescents	3.42			
		middle adolescents	3.26			
	gender x group	M, preadolescents	4.00			
		F, preadolescents	3.95	1.67	2,475	.190
		M, early adolescents	3.27			
		F, early adolescents	3.58			
		M, middle adolescents	3.24			
emotional self-efficacy	gender	M	3.48	8.62	1,475	.003
		F	3.25			
	group	preadolescents	3.44	.72	2,475	.487
		early adolescents	3.33			
		middle adolescents	3.33			
	gender x group	M, preadolescents	3.57			
		F, preadolescents	3.31	.79	2,475	.457
		M, early adolescents	3.38			
		F, early adolescents	3.28			
		M, middle adolescents	3.50			
social self-efficacy	gender	M	3.85	.11	1,475	.740
		F	3.83			
	group	preadolescents	3.91	1.29	2,475	.740
		early adolescents	3.83			
		middle adolescents	3.78			
	gender x group	M, preadolescents	4.00			
		F, preadolescents	3.82	1.37	2,475	.255
		M, early adolescents	3.78			
		F, early adolescents	3.87			
		M, middle adolescents	3.77			
	F, middle adolescents	3.80				

Table 2 shows a significant main effect of gender on two variables, namely Croatian language achievement and emotional self-efficacy, wherein female adolescents were more successful in Croatian and male adolescents showed higher emotional self-efficacy. A significant main effect of age was found in Croatian and Mathematics achievement, life and family satisfaction, self-esteem and academic self-efficacy. Subsequent analyses found that preadolescents had higher success rates in both subjects compared to the older groups, while no differences were found between early and middle adolescents. Subsequent analysis showed that preadolescents were significantly more satisfied with life and family than middle adolescents. The same relationship between the groups

was found in self-esteem. Preadolescents rated academic self-efficacy higher than the other groups. Table 2 shows no significant interaction between age and gender.

Results of correlation analyses between achievement, self-esteem, self-efficacy, satisfaction and loneliness are shown in Table 1. As expected, the indicators of well-being (life satisfaction, family satisfaction and loneliness), as well as self-esteem and self-efficacy measures, are significantly correlated. A significant correlation was found between all the indicators of well-being, self-esteem and self-efficacy. GPA and achievement in Croatian are correlated to academic self-efficacy, whereas the achievement in Mathematics, in addition to being correlated to the academic self-efficacy, is also correlated to self-esteem. In other cases, there is no correlation between academic achievement, self-esteem, self-efficacy and satisfaction. Age is negatively correlated with Mathematics achievement, life and family satisfaction, self-esteem, and academic and emotional self-efficacy.

Table 3.

The results of the HRA with academic achievement variables as criteria

β -coefficients	GPA	Croatian language	Mathematics
1st step			
age	-.07	-.09	-.25**
gender	.12**	.16**	.06
	<i>R (R²)</i>	.12 (.02)	.16 (.03)
	<i>F (df)</i>	3.72* (2,478)	6.65** (2,478)
			.25 (.06)
			15.35** (2,478)
2nd step			
age	.05	.04	-.10*
gender	.08	.11*	.01
self-esteem	.06	.01	.06
academic self-efficacy	.36**	.41**	.44**
emotional self-efficacy	-.12*	-.17**	-.13*
social self-efficacy	-.08	-.03	-.07
	<i>R (R²)</i>	.34 (.12)	.39 (.15)
	ΔR^2	.10**	.12**
	<i>F (df)</i>	10.37** (6,474)	14.24** (6,474)
			20.96** (6,474)
3rd step			
age	.07	.04	-.09*
gender	.08	.11*	.01
self-esteem	.10	.05	.11*
academic self-efficacy	.36**	.41**	.44**
emotional self-efficacy	-.13*	-.16**	-.13*
social self-efficacy	-.05	-.01	-.04
loneliness	.10*	.03	.08
family satisfaction	.04	-.03	.02
life satisfaction	-.04	-.06	-.08
	<i>R (R²)</i>	.35 (.12)	.40 (.16)
	ΔR^2	.00	.01
	<i>F (df)</i>	7.47** (9,471)	9.85** (9,471)
			14.64** (9,471)

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

To examine the contribution of self-esteem, self-efficacy, satisfaction and loneliness to explaining academic achievement, three hierarchical regressions analyses were conducted (Table 3). Variables of age and gender were introduced in the first step, self-esteem and self-efficacy in the second, and variables of satisfaction and loneliness in the third step. The selected variables explained 12 % of the variance in the overall academic achievement, with academic and emotional self-efficacy as key predictors. Concerning the achievement in Croatian, the selected predictors explained 16 % of the variance of the criteria, with gender, academic and emotional self-efficacy as significant predictors. The analysis of Mathematics achievement showed that the selected predictors explained 22 % of the achievement variance, with academic and emotional self-efficacy, age and self-esteem being significant independent predictors.

Discussion

Age and gender differences in academic achievement, self-esteem, self-efficacy, satisfaction, and loneliness

Female adolescents performed better in Croatian, which is in line with the results of existing studies on mother tongue achievement expressed in school grades (Jokić & Ristić Dedić, 2010; Koludrović & Radnić, 2013). There were no significant differences in satisfaction and loneliness, whereas male adolescents reported higher emotional self-efficacy in comparison to female adolescents. This result can be explained by gender differences in personality traits occurring in adolescence. Research findings show that consistent differences in emotional stability occur as early as in adolescence, with men being significantly more emotionally stable than women (De Bolle et al., 2015; McCrae et al., 2002).

Concerning age differences, it should be noted that the results indicated significant differences between the three groups of students in Croatian and Mathematics achievement, life and family satisfaction, self-esteem, and academic self-efficacy. Preadolescents are more satisfied and more successful than early or middle adolescents, and they have higher self-esteem and higher academic self-efficacy. Lower academic achievements in adolescence in comparison to preadolescence are consistent with the results of previous studies suggesting a decline in academic achievement with age (Koludrović & Kalebić Jakupčević, 2017; Reić Ercegovac et al., 2019). The established age differences in satisfaction and self-esteem can be attributed to many changes that adolescence brings: coping with them can be stressful and overly demanding for adolescents. Consequently, life satisfaction and self-esteem decline. Given the decline in family satisfaction, this is likely due to the inevitable and developmentally normative separation from the family (Rudan, 2004), but also more frequent conflicts with parents (Collins & Laursen 2004; Smetana et al., 2006).

Correlations between self-esteem, self-efficacy, satisfaction, loneliness and academic achievement

As expected, correlations between self-esteem and facets of self-efficacy were all significant, ranging from .31 to .49, thus indicating a common basis of different facets of adolescents' self-perceptions (Shavelson et al., 1976). Self-esteem was positively significantly correlated to both, life and family satisfaction, and negatively to loneliness, which is in line with previous studies showing a strong relationship between self-esteem and well-being across a variety of respondents, including students and adolescents (Kumar Patel et al., 2018; Moksnes & Espnes, 2013). All three aspects of self-efficacy (academic, social and emotional) were positively related to satisfaction and negatively to loneliness. Adolescents who assess themselves as more successful in academic, emotional or social domain are more satisfied with life, which is not surprising given the developmental changes they are facing. Considering family satisfaction, it is possible that adolescents who assess themselves as being more successful in facing negative emotions may react less violently in stressful situations in the family and are less prone to negative moods, which can trigger conflicts with family members and consequently lower their satisfaction with family relationships. As conflicts with parents tend to occur in adolescence more often (Collins & Laursen 2004; Smetana et al., 2006), adolescents who are more effective in coping with negative emotions may be able to better regulate their own mood as well as any negative emotions that usually accompany conflicts with parents. The relationship between academic self-efficacy and higher family satisfaction may be mediated by higher adolescent achievement, which reduces the likelihood of conflict between parents and adolescents, which in turn has a positive effect on family experience. These assumptions need verification in further research.

Contribution of self-esteem, self-efficacy, satisfaction, and loneliness to academic achievement

Researching the contribution of self-esteem, self-efficacy, satisfaction and loneliness to academic achievement showed that, of all the selected predictors, higher academic and lower emotional self-efficacy contributed significantly to the differences in academic achievement. The result related to academic self-efficacy is expected in view of previous research showing that this segment of self-concept is one of the most significant for academic achievement at different levels of education (Bandura, 1993; Koludrović et al., 2014). The contribution of higher academic self-efficacy to higher academic achievement is mediated by various factors, e.g. more effective learning strategies used by more self-efficient students (Schunk & Pajares, 2001). Also, high self-efficacy beliefs help students persevere in learning and they are less likely to give up in difficult moments (Bandura, 1997; Middleton & Midgley, 1997), so such students are expected to achieve higher goals and perform better.

Given the unexpected negative contribution of emotional self-efficacy, it was tested whether these effects were a consequence of the multicollinearity of the predictors, given the significant correlation between different facets of self-efficacy (Table 1). As the calculated predictor values of VIF range from 1.13 to 1.80, and tolerance for all the predictors is greater than 0.55, which is considered acceptable (Hair et al., 2010), it can be concluded that higher emotional self-efficacy may indeed partly explain students' lower achievement, probably due to the emotionally sensitive and demanding period of adolescence. Namely, since emotional self-efficacy indicates the ability to cope with negative emotions, students who do not perceive themselves as successful in regulating negative emotions may focus more on the academic field, school responsibilities and learning, which results in higher academic achievement. It can also be assumed that when they are not capable of dealing with emotional challenges, adolescents intensify their academic endeavours because for them school is a familiar and structured environment in which they have more control than in the field of their own emotionality. Regardless of these assumptions as possible explanations for the obtained results, they should be investigated in future studies, as well as the processes underlying the relationship between emotional self-efficacy and academic achievement.

Neither life and family satisfaction nor loneliness contributed to the explanation of academic achievement, which is inconsistent with previous insights into the relationship between these constructs. Researches generally indicate a significant correlation between academic achievement and well-being (Adelman & Taylor, 2006; Crede et al., 2015), which the authors interpret as a reciprocal relationship (Steinmayr et al., 2016). Namely, academic achievement can have positive effects on the subjective well-being (affecting, for example, the satisfaction of basic psychological needs or positive family reactions), and higher levels of subjective well-being can in turn also contribute to higher academic achievement, e.g. it could positively influence motivation or higher academic aspirations. However, a recent longitudinal study on German students also showed that well-being had no effect on academic achievement, whereas academic achievement significantly contributed only to the cognitive (life satisfaction), but not the affective component of the subjective well-being (Steinmyr et al., 2016). Our study also showed that satisfaction (life and family) had no effect on academic achievement and it found no correlation between life and family satisfaction and academic achievement. An earlier study of the correlates of life satisfaction in adolescence (Penezić, 2006) also showed that school grades are not significant for life satisfaction although it proved the importance of satisfaction with the overall academic achievement in life satisfaction. Given that this aspect of academic achievement was not measured in our study, this effect should be researched in future studies.

Conclusion

Regarding the research limitations, in addition to the transversal design which does not allow for complete verification of the relationship between self-esteem, self-efficacy,

satisfaction, loneliness and academic achievement during adolescence, it should be noted that only self-assessment measures were used in the study; however, given the researched constructs, the chosen method may be considered appropriate. Measuring life satisfaction with one item, which may also be questionable given its content validity and sensitivity, is imposed as a potential limitation. However, the sufficient scope of the rating scale (1-10) increased the research sensitivity. When it comes to content validity, it should be noted that research has confirmed a high correlation between single-item life satisfaction measures and those obtained by the multiple-item ones (Cheung & Lucas, 2014). Therefore, this way of assessing life satisfaction is often used in research, especially if a large number of instruments are used.

It is also necessary to look at the different results on the relationship between age and academic achievement in Croatian. Namely, the differences between the results obtained by the analysis of variance (suggesting age differences) and regression analysis (which does not indicate a significant role of age) are probably the consequence of a different treatment of the age variable, with three groups of participants being compared in the analysis of variance (artificial division into three categories), while in the regression analysis age was treated as a continuous variable.

Despite these limitations, research findings suggest that higher self-efficacy beliefs in all domains and higher self-esteem could have a protective role in the well-being of adolescents. Furthermore, results show that adolescents' satisfaction does not contribute significantly to their academic achievement. These results are somewhat contradictory to previous findings, suggesting there is a significant correlation between well-being and academic achievement, and imply the need for further research into the relationship between these constructs. Higher academic and lower emotional self-efficacy are significant predictors of academic achievement. The obtained results suggest that developing high self-efficacy beliefs, especially academic ones, is important for academic achievement.

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Odnos između samopoštovanja, samoučinkovitosti, zadovoljstva s obitelji i životom, usamljenosti i akademskoga postignuća tijekom adolescencije

Sažetak

Ovim istraživanjem nastojalo se ispitati odnos između samopoštovanja, samoučinkovitosti, zadovoljstva s obitelji i životom, usamljenosti i akademskoga postignuća tijekom adolescencije. U istraživanju je sudjelovalo ukupno 180 adolescenata i 301 adolescentica u dobi od 10 do 17 godina ($M = 12,45$ godina, $SD = 2,66$), iz dvije osnovne i dvije srednje škole iz Splita. Kako bismo ostvarili cilj istraživanja, koristili smo sljedeće instrumente: Upitnik općih podataka, Upitnik samoučinkovitosti djece i adolescenata (Vulić Prtorić i Sorić, 2006), Skalu obiteljskoga zadovoljstva (Vulić Prtorić, 2004), kratki oblik Skale usamljenosti Sveučilišta u Kaliforniji (UCLA) (Russell, 1996) i Opću skalu samopoštovanja (Rosenberg, 1965). Rezultati pokazuju da su adolescentice bolje u Hrvatskom jeziku od adolescenata, koji su procijenili da su emocionalno učinkovitiji od ženskih adolescenata. S obzirom na dob, predadolescenti bili su zadovoljniji, imali bolju akademsku izvedbu i pokazivali više razine akademske samoučinkovitosti nego stariji adolescenti. Rezultati regresijske analize naglasili su višu akademsku samoučinkovitost i nižu emocionalnu samoučinkovitost kao naj snažnije prediktore akademskoga postignuća. Rezultati istraživanja pokazuju da više samopoštovanje i viša uvjerenja u samoučinkovitost u svim domenama mogu očuvati dobrobit adolescenata. Osim toga, rezultati ukazuju na važnost razvijanja snažnih uvjerenja u samoučinkovitost, posebno akademsku, za akademsko postignuće.

Ključne riječi: *adolescencija; akademsko postignuće; samopoimanje; usamljenost; zadovoljstvo.*