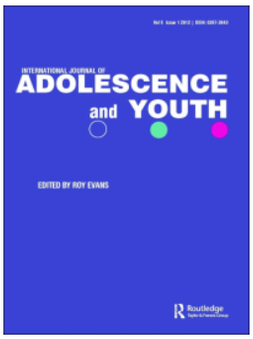

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Gender and educational stage moderate the effects of developmental assets on risk behaviours in youth

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ABSTRACT

Developmental assets describe sources of individuals' experiences and supports that impact their developmental outcomes. Internal assets comprise youth skills, competencies, and self-perception, while external assets include support in youth contexts, empowerment, expectations and boundaries, as well as use of free time. The aim of this study was to investigate the relationships between developmental assets and risk behaviours, and if gender and educational stage have moderating roles in these relationships. The types of risk behaviours ranged from expressions of aggression to consumption of addictive substances. Upper secondary school and university students from Croatia ($N = 728$) reported internal and external developmental assets, and risk behaviours. Our results suggest that developmental assets have similar roles in protecting all students from risk behaviours, apart from expectations and boundaries, which seem to be more protective for boys. Furthermore, the results suggest that developmental assets have a stronger effect on upper secondary school students' risk behaviours.

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Positive Youth Development (PYD); gender; developmental assets; risk behaviour; youth; upper secondary school students

Introduction

Young people encounter many challenges in transition from childhood to adulthood such as: adjustment to a new physical sense of self and to new intellectual abilities, development of personal sense of identity and stable peer relationships, development of social competencies, preparing for a job or career, gaining emotional and economic independence from their parents, and accepting their sexuality (Berk, 2018). Although developmental changes and tasks have not changed significantly since they were identified, growing up in modern society for today's adolescents is very different from that of adolescents 50 years ago (Crosnoe & Johnson, 2011).

Erikson stated that finding identity is the main focus of adolescence, and adolescents confront with the psychological conflict called *identity vs. role confusion* (Erikson, 1968). Marcia fulfilled Erikson's theory with the explanation that finding identity requires exploration of different roles, values and perspectives, and eventually commitment to those that were chosen by an individual (Marcia, 1994). The next stage of psychosocial development according to Erikson's theory is connected to psychological conflict *intimacy vs. isolation*, which directs a young adult to create intimate long-lasting relationships (Erikson, 1968). That task is easier for those who successfully solved the previous task. However, Erikson had in mind, and some later authors also agreed (Arnett, 2000; Levinson, 1978) that finding identity in industrial countries is prolonged due to prolonged education and change of social norms on finding a permanent job and starting a family. At the same time, there are many more opportunities available to adolescents, and much more information they are exposed

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to. Navigating through them with limited experience can contribute to feelings of insecurity in young people (Collishaw et al., 2010; Romeo, 2014). Such extension of the youth status consequently limits the opportunities for expressing the existing innovative and creative potential of youth and at the same time becomes a perfect ground for the emergence and persistence of various internalizing problems (Collishaw et al., 2010; Mojtabai & Olfson, 2020). In such circumstances, youth can be seen as a social resource and as a social problem simultaneously (Ilisin & Spajic Vrkas, 2015).

Social factors are very important for creating young people's healthy development (Berk, 2018). For example, society can provide opportunities for young people to explore and develop their competencies and interests (e.g. through high-quality educational programs) and make their life choices (e.g. employment, volunteering and acceptance of diversity). For adolescents, it is more probable to have a purposeful life if they have a chance to explore and at the same time have support for living the values that they have chosen. Young people in Croatia are growing up in a transitional society, which means that they are going through their transformation to adulthood, while the whole society is experiencing significant changes. Croatia is an independent country for barely three decades, and the financial, social, and political consequences of its war for independence are still present. Furthermore, Croatia (like many other countries) was affected by the economic crisis that had adverse effects on young people and their families who were largely impoverished (Ilisin & Spajic Vrkas, 2015). In such circumstances when the focus is on repairing the economy, young people experience lack of social support as an important resource for healthy development and there is greater probability for risk behaviour.

Adolescents are generally more prone to risk behaviours than adults and that propensity is also determined by neurobiological factors (Casey et al., 2008). They are more likely than adults to drive recklessly, to drive while intoxicated, to use varied illicit substances, to have unprotected sex and to engage in antisocial behaviour (Gardner & Steinberg, 2005). Beside adolescents' greater inclination towards risk behaviour as individuals, they are more susceptible to peer influence, which results in a larger effect of peer presence on risk behaviours among adolescents than among adults (Gardner & Steinberg, 2005).

Considering the greater susceptibility of adolescents to risk behaviours, it is necessary to act preventively with regard to such behaviour. Theories of Positive Youth Development (often referred to as PYD) are focused on understanding, educating and involving young people in productive activities with their families, friends, communities and the civil society. This approach sees a young person as a naturally competent and prone to prosocial involvement (Benson et al., 2006), and encourages an optimistic view of youth. All young people can develop, resolve developmental conflicts, and find their sense of identity when their individual forces are aligned with the strengths and opportunities offered by their environment (Lerner et al., 2009). This approach is different from the traditional approach in developmental psychology that was more focused on negative or undesirable behaviour (absence of drug abuse, criminal behaviour, risky sexual behaviour, etc.) than on youth strengths and resources. These risk behaviours can be seen as an outcome of the presence of youth strengths and resources, i.e. developmental assets.

Benson (1990, 2007) suggested a framework with internal and external developmental assets that promote positive youth development. Developmental assets are defined as positive relationships, skills, opportunities and values that represent protective factors against risk behaviours, but they are also resources that empower resilience and strengths that encourage thriving (Scales et al., 2006). They can be grouped into internal and external developmental assets, with four categories of developmental assets in each group. *Internal assets* comprise youth skills, competencies and self-perception that gradually develop as they learn to self-regulate, while *external assets* include support in youth contexts, youth empowerment, expectations and boundaries, as well as use of free time (Benson, 2007; Search Institute, 2016). The internal asset categories are as follows: commitment to learning (e.g. achievement motivation and school engagement), positive values (e.g. integrity and responsibility), social competencies (e.g. planning and decision-making) and positive identity (e.g. self-esteem and sense of purpose). The external asset categories include support (e.g. family support

and caring school climate), empowerment (e.g. community's value and perception of youth as resources), boundaries and expectations (e.g. family boundaries and significant others' expectations of young people), and constructive use of time (e.g. engaging in creative activities and youth programs) (Benson, 2007; Search Institute, 2016). Together, the eight categories of developmental assets are indicators of strengths in five contexts: personal, social, school, family and community (Benson, 2007). These developmental assets are a set of 'building-blocks' that, when present, enhance important developmental outcomes, such as resolving psychological conflicts and development of a personal sense of identity. More specifically, they reduce health-compromising behaviours and increase school success and other indicators of positive outcomes (Adams et al., 2019; Bleck & DeBate, 2016; Leffert et al., 1998; Murphey et al., 2004). Studies have shown negative effects of both internal and external developmental assets on some specific risk behaviours, such as adolescent gambling (Danioni et al., 2020), smoking (Atkins et al., 2002; Lenzi et al., 2015), drinking alcohol (Lenzi et al., 2015; Oman et al., 2019), sexual behaviour (Greene et al., 2018), as well as self-harm (Klemera et al., 2017). They have also shown positive effects on thriving in adolescents (Scales et al., 2011; Smith & Barker, 2008) and emerging adults (Pashak et al., 2018). Furthermore, these assets affect risk behaviours in a cumulative manner (Murphey et al., 2004). More assets that are available to youth have a greater protective role against risk behaviours and in promoting good adjustment (Bleck & DeBate, 2016; Lenzi et al., 2015). Various community contexts such as organized youth programs, religious communities, and volunteer community services (developmental context assets) facilitate particular support, empowerment, and boundary-setting processes (developmental process assets) that are related to reduced risk behaviours (Scales et al., 2006). Given the damaging consequences risk behaviours can have on the individual, their family and community, it is important to focus on resources, both personal and environmental, which can help prevent those risks.

Previous research showed that girls experience somewhat higher levels and higher number of most developmental assets (Manrique-Millones et al., 2021; Murphey et al., 2004; Wiium et al., 2019), although those differences are rather small. Gender differences in risk behaviours are well established, with boys manifesting more risk behaviours compared to girls (Bina et al., 2006; Chou et al., 2006). It seems that boys and girls use resources in their surroundings differently. Furthermore, it is possible that specific developmental assets have different roles in girls' and boys' risk behaviour.

Previous research has found that more developmental assets lead to fewer risk behaviours, but we also wanted to find out what developmental assets are more important in predicting risk behaviours in specific groups of students, grouped by gender and educational stage they are in.

Most of the developmental assets theoretical framework deals with early or middle adolescence (age 10 to 18). However, research is now expanding to young adults (Benson et al., 2011). In this article, we kept the a priori division of participants into two groups according to the educational stage they are in (upper secondary school vs. university) instead of differentiating them by age because students in upper secondary school and university differ in multiple ways, other than age, which makes this a meaningful cut-off. University students are a selected group of youth whose previous academic performance as well as socioeconomic status and family circumstances gives them the opportunity to study at university. Also, most university students have more freedom and autonomy than secondary school students. Some of them leave home and start living in a new environment, far from their families, which can be stressful. Some of them stay home with their parents, but usually they are not supervised as much as secondary school students, and some of them have student jobs, so they are not financially dependent on their parents to the same extent as during secondary school. Arnett (2000) states that most identity exploration (love, work, and worldviews) takes place in period of 18 to 25, also the occurrence of risk behaviour is the highest in that period (e.g. unprotected sex, substance use and risky driving behaviour). Although we did not find research that compares the level of developmental assets in secondary school and university students, given the before mentioned differences, it is probable that particular developmental assets will not be equally important in both educational stages. Therefore, the purpose of our study was to

examine whether the effects of developmental assets on risk behaviours were moderated by educational stage and gender.

Additionally, we wanted to assess levels of internal and external developmental assets, and overall risk behaviours, as well as their relations, in a sample of youth in Croatia. To our knowledge, there are no studies examining developmental assets and their relation to risk behaviours in Croatian youth. Therefore, the research questions we tried to answer were the following:

(1) What are the levels of internal and external developmental assets, and overall risk behaviours in a sample of youth in Croatia?
(2) Can developmental assets predict risk behaviours in Croatian adolescents?
(3) Is the relation between developmental assets and risk behaviours moderated by gender and educational stage?

Materials and methods

Participants and procedure

The study was conducted within the Cross-National Project on Positive Youth Development that studies the extent to which developmental assets are available to youth and emerging adults in 40 countries across Europe, Africa, the Middle East, Asia, Australia, and North and South America, and how these developmental assets affect their development (see The Cross-National Project on Positive Youth Development, n.d.; Wiium & Dimitrova, 2019). In the Croatian education system, primary school lasts for 8 years, and children start it at the age of six or seven. After primary school, students enrol in upper secondary schools that last for 3 years (for vocational schools) or 4 years (grammar schools, medical schools, or technical schools). After upper secondary school, some students continue into higher education at university or polytechnic. Higher education is most often divided into undergraduate studies (3 years) and graduate studies (2 years).

This cross-sectional study included a sample of 728 students (424 upper secondary school students and 304 undergraduate university students). There were 279 male and 449 female students aged 15 to 27 years ($M = 18.41$, $SD = 2.29$). Five public upper secondary schools and four public faculties from Eastern Croatia were involved in the study. Schools were selected in such a way that the sample includes upper secondary schools of different profiles lasting three (vocational school) and 4 years (e.g. medical school and grammar school). Also, the faculties were selected to include students of different profiles at the undergraduate level (e.g. engineering, humanities and social sciences). Only schools and faculties whose headmasters and deans agreed to participate were included in the study. Class teachers also needed to allow data collection during their classes. Signed informed consent was obtained from participants before the start of the study. Participants were informed about the purpose of the study, potential advantages and disadvantages and what will happen with the information they have provided. The participants were made aware that their participation was anonymous and voluntary and that they could terminate their involvement in the study at any time without consequences.

Data collection procedure

The questionnaires were administered on paper during regular classes either by undergraduate students trained in data collection for this study or by one of the co-authors of this study who explained the purpose of the study before distributing the questionnaires. The setting during data collection was equivalent to the class setting during regular assessments. Class teachers did not participate in data collection but were in the vicinity in case the members of the project team needed assistance, e.g. find an appropriate activity for students who were finished earlier than others. Most participants took approximately 40 min to complete the questionnaire. The students were provided

with enough distance that allowed them to answer the questions honestly. The questionnaires were administered in such a way that it was not possible to reveal participant identity from the answers to the questionnaire. Students were made aware that they can refer to their school psychologists, as well as the local mental health and social services in case they had felt distressed during or at any time after their participation in the study. Each questionnaire set contained questions about socio-demographic variables followed by scales measuring developmental assets and risk behaviours.

Measures

The information about the study, and all items included in the questionnaire were originally written in English and translated to Croatian. The translation process followed the guidelines set by Beaton et al. (2000). First, two native Croatian speakers independently translated the original scales to Croatian. An independent observer then helped the translators in reaching a consensus about the first translated version of the questionnaire. Two additional translators who were not aware of the original English version translated the Croatian version back to English. Finally, all the translators and observers then discussed the translations and agreed on the pre-final version in Croatian. This version of the questionnaire in Croatian was then tested on a convenient pilot sample of 30 university students who provided oral feedback on their comprehension and interpretation of the items. Feedback received during the pilot administration of the questionnaire was used by the translators to reach agreement about the final version of the scales in Croatian.

Socio-demographic variables

Participants were asked about their age, gender, and educational stage, i.e. whether they attended upper secondary school or university.

Developmental assets

The questionnaire consists of 58 items adapted and expanded upon from Benson's (2007) 40 assets (Search Institute, 2016). The items measure eight different developmental assets, four external: support (example of an item: *I have a family that gives me love and support*), empowerment (e.g. *I feel valued and appreciated by others*), expectations and boundaries (e.g. *I have a family that provides me with clear rules*), and constructive use of time (e.g. *I am involved in creative things, such as music, theatre or other arts)*, and four internal: commitment to learning (e.g. *I am eager to do well in school/at the university and other activities*), positive values (e.g. *I think it is important to help other people*), social competencies (e.g. *I build friendships with other people*), and positive identity (e.g. *I feel good about myself*) across different contexts, namely, personal, social, community, school and home. Participants are asked to indicate to what extent they experience each asset on a four-point scale ranging from 1 (not at all or rarely) to 4 (extremely or almost always). Before calculating the total score for each asset, items were recoded as follows: responses 1 (not at all or rarely) and 2 (somewhat or sometimes) were coded as 0 (asset not present), while responses 3 (very or often) and 4 (extremely or almost always) were coded as 1 (asset present), in accordance with previous studies that used the scale (Adams et al., 2019; Wiium et al., 2019). After recoding the items to indicate whether an asset is present or not, the items for each asset are added, so that a higher score indicates a more present asset. In that way, the additive and cumulative nature of developmental assets is taken into account (Benson, 2007). The validity of the internal and external assets questionnaire has been verified in previous studies (see Adams et al., 2019; Scales, 2011, 2014; Search Institute, 2016; Wiium et al., 2019). Factor structure of the scale has been assessed in this study by using confirmatory factor analysis where the eight asset categories were treated as observed variables that load on one of the two latent factors, namely internal and external developmental assets that correlated significantly. The model showed an acceptable fit to the data ($\chi 2[17, N = 728] = 92.38$, $p < .001$; RMSEA =.078; CFI =.954; TLI =.925) after errors for positive value asset and constructive use of time asset, as well as errors for empowerment asset and boundaries and expectations asset were allowed to correlate based on

Table 1. Descriptive statistics for developmental assets and risk behaviours.

	M	*SD*	Obtained range	Possible range	α
Internal assets					
Commitment to learning	4.85	1.48	0–7	0–7	.58
Positive values	8.46	1.88	1–11	0–11	.61
Social competencies	6.35	1.56	1–8	0–8	.56
Positive identity	4.53	1.60	0–6	0–6	.71
External assets					
Support	5.65	1.32	0–7	0–7	.58
Empowerment	5.23	1.06	0–6	0–6	.52
Expectations and boundaries	6.85	1.76	1–9	0–9	.61
Constructive use of time	1.82	1.09	0–4	0–4	.37
Risk behaviours	5.16	3.31	0–19	0–24	.74

the modification indices. Test–retest reliability over a two-week interval in previous studies was .87 with an average of .79 for the eight developmental assets (Search institute, 2016). Cronbach's alphas for all assets measured in this study are given in Table 1.

Risk behaviours

The scale was designed for the purpose of the Cross-National Project on Positive Youth Development. It consists of 24 items that cover a broad range of risk behaviours (experimenting with substances, unsafe behaviour or self-harm, threatening or harming others, stealing or damaging property, skipping school, etc.). The items are inspired by similar instruments used in other studies, namely the Search Institute's Attitudes and Behaviours Survey (Search Institute, 2016), Health Behaviour in School-aged Children (HBSC; Inchley et al., 2018), and Canadian Addiction Survey (CAS; Adlaf et al., 2005). The participants are asked to answer whether they have engaged in each risk behaviour one or more times in the last month, in the last year, or in a lifetime, depending on the item, by indicating *yes* or *no* (e.g. for alcohol consumption and cigarettes – once or twice in the last month, for driving while intoxicated and property damage – once or twice in the last year). Principal component analysis with oblimin rotation and Keiser normalization using the current dataset indicated the existence of six components that explained 52% of the variance. The items that cluster on the same component indicate that component 1 including six items can be described as criminal behaviour and planned violence towards oneself or others, component 2 including five items can be described as experimenting with alcohol, cigarettes, sex, and skipping school, component 3 including four items can be described as using illicit drugs and stronger substances, component 4 including four items can be described as physical harm, component 5 including two items can be described as symptoms of mood and eating disorders, and component 6 including three items can be described as taking risks and gambling. Some of these behaviours are very rare (like suicide attempts) and therefore are difficult to analyse. The scale is meant to be used as a list of indicators of risk behaviours with higher scores indicating higher risk, following the rationale from similar studies (Gestsdottir & Lerner, 2007; Jelicic et al., 2007), and it is used as such in this study. Composite score is calculated by adding all the items, so that a higher score indicates more overall risk behaviour. Cronbach's alpha of the risk behaviours scale measured in this study is given in Table 1.

Results

Screening for outliers and analysis of the normality of the distributions did not indicate the presence of outliers that urged treatment. The graphs of *z*-scores of predicted values and errors (*zpred* vs. *zresid*) also did not show deviations from assumption of linearity and homoscedasticity. When performing the regression analyses, multicollinearity was assessed using variance inflation factor (VIF) values, tolerance statistics, eigenvalues, condition indexes, and variance proportions. All VIF values were near 1, with the highest value of VIF being 1.09 and the lowest value of tolerance being 1.01, indicating no suspicion that multicollinearity might be present. Equivalent results have been

obtained when analysing both standardized and unstandardized variables, and we further report the results obtained using the unstandardized variables.

Descriptive statistics for developmental assets and risk behaviours are presented in Table 1.

As can be seen from Table 1, participants exhibited relatively high levels of most developmental assets, except constructive use of time. However, the observed ranges of the results suggest that there were subjects who had very low values of most developmental assets. The same was true for risk behaviours. On average, the participants reported not engaging in risk behaviours; however, there were participants who engaged in a high number of risk behaviours.

In order to examine correlations between variables, we used Pearson's correlation coefficients. In order to examine whether educational stage, gender and developmental assets predict risk behaviours, we performed hierarchical regression analysis (HRA). The results of correlation analysis are presented in Table 2, while the results of HRA are presented in Table 3.

Table 2 shows that educational stage was positively correlated with risk behaviours, which means more risk behaviours in university students. Gender was negatively correlated with risk behaviours, meaning more risk behaviours in boys. Gender was also significantly correlated with all developmental assets except constructive use of time, with highest correlation being with commitment to learning. Girls exhibited more of all developmental assets except positive identity, which was higher in boys. Educational stage was positively correlated with commitment to learning, and negatively with positive values. All developmental assets were negatively correlated with risk behaviours with the highest correlations between risk behaviours and positive values, social competencies, and expectations and boundaries.

HRA for risk behaviours as an outcome included gender and educational stage in the first step, joined by all the developmental assets in the second step. The results of this HRA showed that three

Table 2. Correlations between variables.

	1	2	3	4	5	6	7	8	9	10
1. Gender	-									
2. Educational stage	.09*									
3. Commitment to learning	.24**	.18**	-							
4. Positive values	.13**	−.10**	.46**	-						
5. Social competencies	.14**	.02	.47**	.56**	-					
6. Positive identity	−.16**	−.05	.24**	.30**	.31**	-				
7. Support	.09*	−.01	.35**	.29**	.34**	.36**	-			
8. Empowerment	.09*	.06	.42**	.34**	.36**	.36**	.51**	-		
9. Expectations and boundaries	.13**	−.06	.42**	.40**	.42**	.33**	.58**	.42**	-	
10. Constructive use of time	−.05	−.18**	.27**	.40**	.29**	.27**	.29**	.28**	.28**	-
11. Risk behaviours	−.23**	.11**	−.28**	−.30**	−.33**	−.13**	−.17**	−.20**	−.30**	−.18**

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

Table 3. Results of hierarchical regression analysis for risk behaviours as an outcome.

	β	R^2	ΔR^2	F
1.				
Gender	−.24***	**.07***		**24.92***
Educational stage	.13**			
2.				
Gender	−.18***			
Educational stage	.13**	**.20***	.13***	**16.48***
Commitment to learning	−.09*			
Positive values	−.06			
Social competencies	−.17***			
Positive identity	−.02			
Support	.08			
Empowerment	−.03			
Expectations and boundaries	−.15**			
Constructive use of time	−.03			

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

Table 4. Results of moderation analyses for gender as the moderator of the effect of each of the developmental assets on risk behaviours.

	Coefficient	*t*	*p*	Confidence interval (95%)	
Commitment to learning	-,5323	-6,1509	,0000	4,9117	5,3888
Gender	-1,1920	-4,5346	,0000	-1,7081	-,6759
Interaction	,1574	,8363	,4033	-,2122	,5271
Positive values	-,4867	-7,2770	,0000	-,6181	-,3554
Gender	-1,4171	-5,3107	,0000	-1,9410	-,8931
Interaction	-,0225	-,1583	,8742	-,3012	,2562
Social competencies	-,6475	-7,9788	,0000	-,8069	-,4882
Gender	-1,2848	-5,0322	,0000	-1,7861	-,7835
Interaction	,0301	,1751	,8611	-,3072	,3674
Positive identity	-,3592	-4,6939	,0000	-,5094	-,2089
Gender	-1,6932	-6,3782	,0000	-2,2144	-1,1720
Interaction	-,0507	-,2994	7648	-,3835	, 2820
Support	-,3784	-3,9794	,0001	-,5651	-,1917
Gender	-1,3955	-5,1785	,0000	-1,9246	-,8664
Interaction	,1897	,9398	,3477	-,2067	,5861
Empowerment	-,5603	-4,6822	,0000	-,7952	-,3253
Gender	-1,4987	-5,7094	,0000	-2,0141	-,9833
Interaction	,1531	,5990	,5494	-,3487	,6549
Expectations and boundaries	-,5014	-7,0600	,0000	-,6409	-,3620
Gender	-1,3488	-5,2286	,0000	-1,8553	-,8423
Interaction	,3072	1,9909	,0469	,0042	,6102
Constructive use of time	-,5778	-4,9715	,0000	-,8061	-,3496
Gender	-1,5762	-5,9480	,0000	-2,0965	-1,0559
Interaction	-,1641	-,6397	,5226	-,6679	,3396

developmental assets, namely commitment to learning, social competencies, and expectations and boundaries, were significant negative predictors of risk behaviours. Gender and educational stage were also significant predictors in the way that male gender and higher educational stage were associated with more risk behaviours.

In order to examine whether gender and educational stage moderated the effects of developmental assets on risk behaviours, Hayes's (2009) PROCESS, model 1 was used. Hayes's PROCESS enables mean centring of continuous variables and graphing the interactions. Furthermore, it is a suitable method when variables are observed, and it calculates conditional effects of the predictor on the dependent variable as a function of the moderator. We tested the effects of interactions between individual developmental assets and gender and educational stage separately on risk behaviours. The results are presented in Tables 4 (interactions between developmental assets and gender) and 5 (interactions between developmental assets and educational stage).

The results of Hayes's PROCESS showed that only the effect of the interaction between gender and expectations and boundaries on risk behaviours was significant, with confidence interval not containing zero. The interaction effect is graphed in Figure 1.

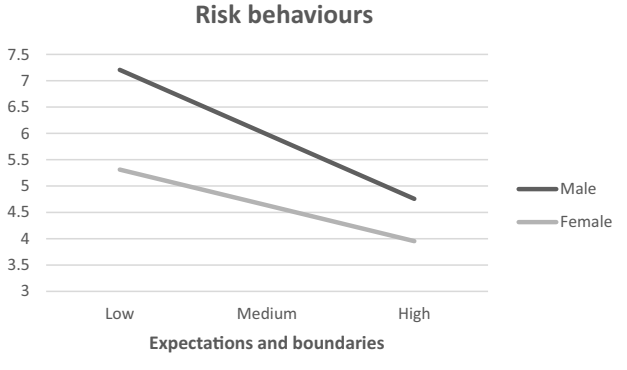

Figure 1. The effect of the interaction between expectations and boundaries and gender on risk behaviours.

As shown in Figure 1, when expectations and boundaries are low, boys exhibit more risk behaviours than girls, but with high expectations and boundaries the difference between boys and girls is not significant. The effect of expectations and boundaries was significant in both boys and girls, but it was larger in boys.

As shown in Table 5, most interactions between educational stage and developmental assets had significant effects on risk behaviours with confidence intervals not containing zero, except social competencies and positive identity. The main effect of educational stage was mostly not significant except in the first analysis with commitment to learning as the other predictor, which most likely means that the effect of educational stage in HRA is due to its association with developmental assets. Significant interaction effects are graphed in Figures 2–7.

The interaction effect between commitment to learning and educational stage suggests that students who are not committed to learning exhibit more risk behaviours in both groups, although more so in upper secondary school students. While the effect of commitment to learning on risk behaviours is significant in both groups, university students who are highly committed to learning exhibit significantly more risk behaviours than upper secondary students. The interaction between positive values and educational stage was similar, with positive values having significant effects in both upper secondary school and university students, but more so in upper secondary school students.

The interactions between external developmental assets and educational stage are partly similar. The effects of support, empowerment, and constructive use of time were significant only in upper secondary school students, while they had no significant effects in university students. The effect of expectations and boundaries was significant in both groups, but more so in upper secondary school students.

Discussion

Most of the traditional literature in developmental psychology discusses youth development in the context of the absence of negative or undesirable behaviour (absence of drug abuse, criminal behaviour, risky sexual behaviour, etc.). In the last decade, the perspective has changed, and

Table 5. Results of moderation analyses for educational stage as the moderator of the effect of each of the developmental assets on risk behaviours.

	Coefficient	*t*	*p*	Confidence interval (95%)	
Commitment to learning	-,6563	-7,3551	,0000	-,8315	-,4811
Educational stage	,5638	2,3355	,0198	,0898	1,0379
Interaction	,6354	3,5752	,0004	,2865	,9844
Positive values	-,5141	-7,6126	,0000	-,6467	-,3815
Educational stage	,1518	,6302	,5287	-,3211	,6247
Interaction	,2866	2,1350	,0331	,0230	,5502
Social competencies	-,7008	-8,5684	,0000	-,8614	-,5402
Educational stage	,3513	1,4843	,1382	-,1134	,8160
Interaction	,1583	,9703	,3322	-,1621	,4788
Positive identity	-,2736	-3,5943	,0000	-,4231	-,1242
Educational stage	,1084	,4405	,6597	-,3746	, 5913
Interaction	-,0061	-,0396	, 9684	-,3095	, 2973
Support	-,4080	-4,2743	,0000	-,5954	-,2206
Educational stage	,1809	,7200	,4718	-,3124	,6742
Interaction	,4126	2,1703	,0303	,0393	,7859
Empowerment	-,6245	-5,0434	,0000	-,8676	-,3813
Educational stage	,2661	1,0851	,2782	-,2154	,7477
Interaction	,5266	2,1463	,0322	,0449	1,0084
Expectations and boundaries	-,5636	-7,6793	,0000	-,7077	-,4195
Educational stage	,3221	1,3396	,1808	-,1500	,7943
Interaction	,3153	2,2289	,0261	,0376	,5931
Constructive use of time	-,5442	-4,7027	,0000	-,7714	-,3170
Educational stage	-,0453	-,1833	,8546	-,5310	,4403
Interaction	,6098	2,6448	,0084	,1571	1,0625

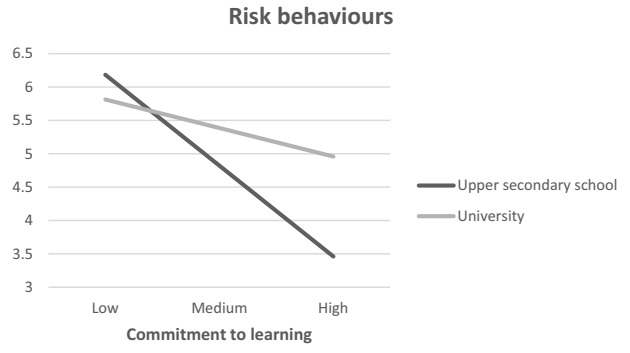

Figure 2. The effect of the interaction between commitment to learning and educational stage on risk behaviours.

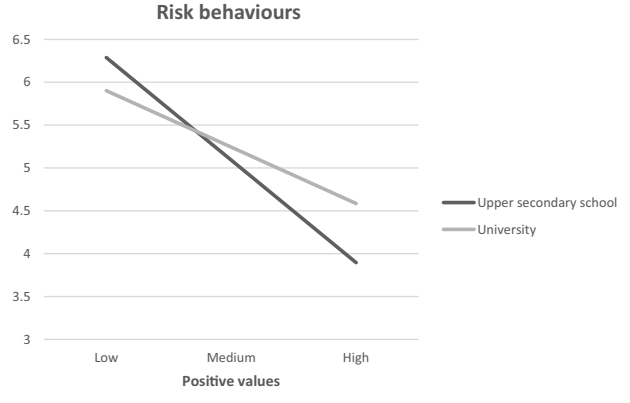

Figure 3. The effect of the interaction between positive values and educational stage on risk behaviours.

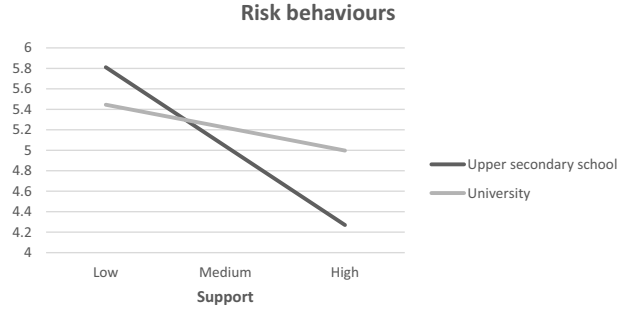

Figure 4. The effect of the interaction between support and educational stage on risk behaviours.

newer research is focused on positive youth development, which encompasses empowering young people and placing emphasis on their resources and strengths, i.e. their developmental assets (Benson et al., 2006; Lerner et al., 2009). In this study, we wanted to see how resources and strengths that youth have, i.e. their developmental assets, can explain traditional indicators of youth development that is focused on problems youth deal with, i.e. their risk behaviours. The aim of our study was to examine the level of internal and external developmental assets in a sample of Croatian youth, as

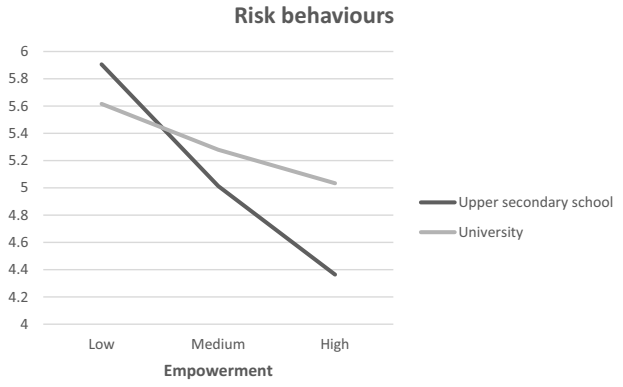

Figure 5. The effect of the interaction between empowerment and educational stage on risk behaviours.

well as the relations between gender, educational stage, developmental assets, and risk behaviours. Furthermore, we examined the moderating roles of gender and educational stage in the relations between developmental assets and risk behaviours.

Mean values for developmental assets were relatively high, showing that Croatian adolescents, in general, report having and appreciating values such as helping others, truthfulness, healthy lifestyle, equality, contribution to community, etc. Their values are in line with traditional family and religious values (mostly Catholic) that are dominant in their country. Although traditional values do not support equality in all aspects, issues regarding equality are usually not questioned.

Participants in this study also reported having good social competencies, positive feelings about their own identity and commitment to learning. Living in Croatia is characterized by living close to family or extended family and retaining connections with family members. Those living conditions could be related to satisfactory social networks that enable children and youth to develop their social competencies. Furthermore, familiarity with the environment contributes to feeling free to move and explore, which is, together with other previously mentioned factors, important for development of positive identity. Regarding commitment to learning, it is evident that school success is very important in most Croatian families, and sometimes it is a source of additional pressure. Therefore, it is not surprising that learning is important to Croatian adolescents. This asset is reported in a similar amount by adolescents (secondary school students) from some other European countries (Wiium et al., 2019).

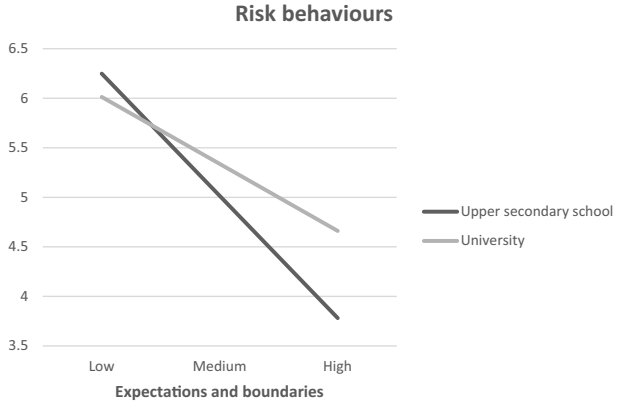

Figure 6. The effect of the interaction between expectations and boundaries and educational stage on risk behaviours.

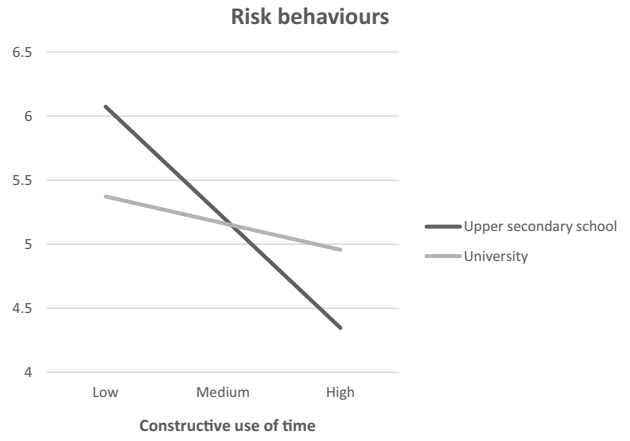

Figure 7. The effect of the interaction between constructive use of time and educational stage on risk behaviours.

With respect to external developmental assets, adolescents also felt relatively empowered, appreciated, valued, and safe in their surroundings. They also reported having good support from adults in their life, including school staff and neighbours, and having meaningful and reasonable guidance and boundaries. However, Croatian adolescents reported having more support than did Italian, Norwegian, and Turkish adolescents in a previous study, and they reported empowerment, as well as having boundaries and expectations, more than Italian and Turkish adolescents, but in a similar amount as Norwegian adolescents (Wiium et al., 2019). It seems that, despite negative aspects of cultural surroundings that are mentioned in the introduction, adults in Croatia are focused on their youth and offer them support. These negative economic and political factors seem to affect other developmental resources, such as constructive use of free time, more than they affect support from significant others. The lowest average score in relation to other developmental assets, both internal and external, was for constructive use of time. Adolescents from the mentioned European countries also reported having this asset in lesser amount than other assets (Wiium et al., 2019). However, the reliability of this subscale was very low (α=.37), which puts constraints on the interpretation of the constructive use of time subscale. The subscale has often shown low reliability across diverse samples (Scales, 2011; Wiium et al., 2019), which is attributed to a wide variety of behaviours that constitute the subscale. Despite this, constructive use of time has a sound theoretical base that has justified its inclusion in further examination in this, as well as in previous studies (Scales, 2011; see also Leffert et al., 1998).

The mean value for risk behaviours shows that the frequency of risk behaviours is relatively low. However, the observed range of results suggests that there are participants who scored rather high on risk behaviours. Furthermore, given the fact that the risk behaviour scale covers a wide range of behaviours, some more serious-like drug use, drunk driving or attempting suicide and some less so like skipping school or having sex, even participants with medium high scores could be at significant risk of developing an unhealthy lifestyle.

Results of the correlation and hierarchical regression analyses have shown that male gender predicted risk behaviours, which is in line with other studies. For example, boys show significantly higher levels of conduct problems and delinquency than girls (Zheng & Cleveland, 2013), even among affluent youth (Lund et al., 2017; Luthar & Goldstein, 2008). Educational stage was also a significant predictor in HRA, suggesting that older adolescents engage in more risk behaviours. Older adolescents have more freedom and autonomy and less supervision from adults, especially once they enrol in university, which gives them more opportunity to engage in risk behaviours. In addition, drinking and experimenting with substances among youth becomes more frequent with

age, especially in higher education (Knight et al., 2002; Kypri et al., 2005). While university students are still trying to find their roles and value systems and are juggling between intimacy and isolation, they are surrounded with new information and options they get in higher education. At the same time, they might realize that their options are limited by political and economic factors and crises, intertwined with societal demands. So, instead of resolving psychological conflicts and developing personal sense of identity at that age, the process of forming own identity is prolonged. Consequently, university students can develop more internalizing problems and engage in more risk behaviours than they did at the previous educational stage.

According to the results of the HRA, higher levels of commitment to learning, social competencies, and expectations and boundaries predicted fewer risk behaviours in all students taken together. The results are consistent with other studies demonstrating protective effects of different developmental assets. Commitment to learning in adolescence has shown positive relations with academic success, goal-oriented behaviour, and achievement motivation, all of which have shown positive effects on adjustment in adolescents (Elias et al., 2010; Tynan et al., 2015). Young people, who are committed to learning, are likely to have better self-regulation, both behavioural and cognitive, that is further reflected in higher academic achievement (Gestsdottir et al., 2014; Sahranavard et al., 2018), and fewer risk behaviours.

Social competencies, such as resisting negative peer pressure, peaceful conflict resolution, valuing restraint, and having positive peer role models have also demonstrated protective effects against risk behaviours (Leffert et al., 1998). In our study, social competencies had the largest contribution to reducing the number of risk behaviours in all students taken together, which is in line with studies showing that social competencies have protective effects because they enable a person to have quality relationships, social support, as well as enjoyable experiences (Bornstein et al., 2010; Burt et al., 2008). Better social competencies can indicate a successful resolution of the intimacy vs. isolation conflict, leading to the formation of stable relationships and a stable identity that discourages engaging in risk behaviours.

Rules and boundaries have been related to psychological adjustment and negatively related to problem behaviours in previous studies (Kobak et al., 2017; Orozco Klass & Kohut, 2016) and that is in line with our results. Having clear and fair rules and boundaries set by adults, who communicate clear expectations of behaviour in accordance with those rules has previously shown negative relations with problem behaviours (Orozco Klass & Kohut, 2016). Apart from protecting against risk behaviours, appropriate supervision also facilitates internalization of rules, which enables adolescents regulate their behaviour as they grow older (Kobak et al., 2017).

de Carvalho and Schumacker (2012) showed that the main predictors and protective factors against the development of juvenile delinquency were as follows: expectations and boundaries, commitment to learning and school success, which is in line with the results of our study.

Other developmental assets have not shown to be significant predictors of risk behaviour when all students were taken together, although the correlation coefficients between the developmental assets and the criterion variable were significant.

The results of our correlational analysis were in line with previous studies. Regarding positive values, previous studies have shown that personal and social values motivate behaviour in general (Bardi & Schwartz, 2003) and are negatively related to gambling in adolescence (Danioni et al., 2020), as well as to antisocial behaviour (Romero et al., 2001). Studies have also shown that support and empowerment have protective positive effects on youth development (Austrian et al., 2020; Camara et al., 2014; Lee et al., 2007; Scales et al., 2011). Constructive use of time in this study was negatively but weakly related to risk behaviours, which is consistent with studies showing positive effects of structured, family and community-oriented activities (Auhuber et al., 2019). However, the correlations were low, and the scale had low reliability, so these results should be interpreted with caution.

Further examination of our data has shown that the effects of developmental assets on risk behaviours were moderated by gender and educational stage. Expectations and boundaries had significant effects in both boys and girls, but their effect was larger in boys. This suggests that boys

benefit more from external supervision, age-appropriate rules and boundaries, which promote the development of regulatory abilities in adolescents (Kobak et al., 2017). On the other hand, while expectations and boundaries are important for girls also, it is possible that there are other factors that are important for reducing the risk of engaging in risk behaviour in girls, such as emotional support or quality of relationships (Ara, 2016; Docherty et al., 2016; Salavera et al., 2019; Suthar, 2015).

Regarding moderation by educational stage, our results suggest that developmental assets are more protective for upper secondary school students than for university students. Namely, the effects of commitment to learning, positive values, and expectations and boundaries were significant in both groups, but their effects were larger in upper secondary school students, while the effects of support, empowerment, and constructive use of time were significant only in upper secondary school students.

Older adolescents, especially university students, are expected to be more independent in their decision-making, as well as self-sufficient in taking care of themselves and their responsibilities (Arnett, 2000; Dyson & Renk, 2006), which might account for expectations and boundaries having a weaker effect in university students, while still having an effect.

Regarding commitment to learning, the finding that it had a weaker effect on risk behaviours in university students is probably due to the fact that university education is more demanding and is associated with more pressures and stress than upper secondary school education (Mofatteh, 2021). Even though commitment to learning is beneficial in terms of adjustment (Elias et al., 2010; Tynan et al., 2015), it might carry certain risks like increasing expectations about performance and invested effort, which makes it a source of pressure and, therefore, less protective.

Positive values, while important in all ages (Danioni et al., 2020; Romero et al., 2001), might be less protective for risk behaviours in university students because some risk behaviours (e.g. drinking alcohol and having sex) are normative in the period of studying at the university (e.g. Marić & Šumonja, 2012). A large proportion of the student population engage in those behaviours regardless of what value orientation they have (Kalina, 2020). Furthermore, perception of university students' life as time of experimentation and enjoyment (de Agrela Gonçalves Jardim et al., 2017) might lead to less psychological discomfort in university students when they do not behave in line with their values.

In this study, support and empowerment had significant effects only on upper secondary school students. External sources of support and empowerment are important for building self-confidence and self-regulation so that youth can later regulate their own behaviour and be confident enough for independent functioning required at university (Garner, 2020; Smokowski et al., 2014; Stewart & Suldo, 2011). It is likely that university students rely mostly on their own skills, rather than on outside sources of support. It is also possible that university students require other sources of support, such as from faculty members, in order to thrive. Finally, constructive use of time also had significant effects only in upper secondary school students, which is probably due to the fact that, while they are still in upper secondary school, adolescents adhere to schedules made by external factors (e.g. schools, parents and extracurricular activities) and have less freedom in scheduling their own time (Auhuber et al., 2019). At university, however, there is significantly more freedom, and students are expected to manage their own time. Apart from that, university schedules can change more frequently than upper secondary school schedules, which can make participation in other activities and time management challenging (Babayi Nadinloyi et al., 2013).

Therefore, our results suggest that developmental assets have similar roles in protecting boys and girls from engaging in risk behaviours, with the exception of expectations and boundaries, which seem to protect boys more than girls. Furthermore, our results also suggest that developmental assets have a stronger effect on upper secondary school students than university students. Among the internal developmental assets only commitment to learning and positive values have been shown to be predictive of risk behaviours in both upper secondary school and university students, although their effect was stronger in upper secondary school students. The only external developmental asset that has been shown to be predictive of risk behaviour in university students is expectations and boundaries, and it still had a weaker effect in university than in upper secondary school students. Higher levels of other external developmental assets, namely support, empowerment, and constructive use of time,

have been related to lower frequency of risk behaviours only in upper secondary school students. These results highlight the importance social support and youth social environment can have on their behaviour, particularly in upper secondary school.

Implications and limitation

Our results have some important implications. To the best of our knowledge, this is the first study examining developmental assets in young people in Croatia, as well as the relation of developmental assets to risk behaviours. Significant relations of all developmental assets to risk behaviours suggest that they should be in the focus of intervention and prevention efforts. Given the fact that risk behaviours are diverse, but interconnected, comprehensive interventions focusing on factors that promote positive youth development in general might be more useful than a large number of interventions aimed at preventing specific risk behaviours (Smith & Barker, 2008). Our results also suggest that these interventions should be implemented at least as early as upper secondary school years, if not sooner, because their effects are weaker in emerging adulthood. Examining developmental assets can also help in identifying youth who are at risk of engaging in various risk behaviours, enabling schools and communities sufficient time to provide additional support in order not just to prevent future problems, but also promote healthy development.

Finally, our study is not without limitations. Cross-sectional design of the study limits the possibility of drawing causal conclusions, as well as conclusions whether developmental assets temporally precede risk behaviours in adolescence. Use of a longitudinal design would allow following development and possibly changes in developmental assets over time, as well as recording the onset of risk behaviours, but it could not ensure anonymity, and that could affect participants' honesty. Self-report measures, in general, and especially risk behaviours, are susceptible to socially desirable answers. Our sample consisted of youth from a convenient sample of schools and universities in Eastern Croatia, and the same relations should be replicated not only on a representative sample of Croatian youth but also in other countries to see if these effects can be generalized. Furthermore, a larger sample would allow multilevel path analysis and testing for differences between students from schools of different types (e.g. vocational vs. academic). Future studies should also try to expand the sample of university students with participants of the same age who chose a different path than going to the university because they might report different levels of developmental assets and risk behaviours than university students. Longitudinal designs, as well as using stratified random or cluster sampling participants from the population of youth in the country, would require abundant research resources that are not available to the researchers. In addition, if potential participants got the opportunity to participate in the study depended heavily on the willingness of headteachers, deans, and class teachers to allocate one school hour for this study. That could depend on their interest in research in psychology, in positive youth development and mental health, and the time that each school, faculty, and course had available at the period of data collection. Attitudes and resources available to adults might reflect in students' perception of developmental assets, e.g. support. Future studies that include more participants should try to extend the period of data collection till the headteachers, deans, and teachers who are initially reluctant to participate in the study find a more appropriate time for data collection. Finally, measurement instruments used in this study were developed in the North American context. Even though their validity and reliability has been confirmed in other contexts, future studies would benefit from using qualitative methodology, which could reveal relations and processes that the quantitative methodology used in our study might have missed. The implications of these results for youth healthy development and developing interventions that target the right developmental aspect point to the importance of future studies on the relations between developmental assets and risk behaviours and their moderators.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Ethics statement

The study was approved by ethics committees in Croatia and Norway: Ethics Committee of the Faculty of Humanities and Social Sciences in Osijek (class: 602–04/18–01/29, number: 2158-83-02-18-2) and NSD – Norwegian Centre for Research Data (approval number is 51708/3/IJJ).

References

Adams, B. G., Wiium, N., & Abubakar, A. (2019). Developmental assets and academic performance of adolescents in Ghana, Kenya, and South Africa. *Child Youth Care Forum*, *48*(2), 207–222. https://doi.org/10.1007/s10566-018-9480-z

Adlaf, E. M., Begin, P., & Sawka, E. (Eds.) (2005). *Canadian Addiction Survey (CAS)*: *A national survey of Canadians' use of alcohol and other drugs: Prevalence of use and related harms: Detailed report*. Canadian Centre on Substance Abuse.

Ara, E. (2016). Internalizing and externalizing problems in adolescents analyzing the gender difference. *International Journal of Research in Social Sciences*, *6*(1), 328–337.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Atkins, L. A., Oman, R. F., Vesely, S. K., Aspy, C. B., & McLeroy, K. (2002). Adolescent tobacco use: The protective effects of developmental assets. *American Journal of Health Promotion*, *16*(4), 198–205. https://doi.org/10.4278/0890-1171-16.4.198

Auhuber, L., Vogel, M., Grafe, N., Kiess, W., & Poulain, T. (2019). Leisure activities of healthy children and adolescents. *International Journal of Environmental Research and Public Health*, *16*(12), 2078–2091. https://doi.org/10.3390/ijerph16122078

Austrian, K., Soler-Hampejsek, E., Behrman, J. R., Digitale, J., Jackson Hachonda, N., Bweupe, M., & Hewett, P. C. (2020). The impact of the Adolescent Girls Empowerment Program (AGEP) on short and long term social, economic, education and fertility outcomes: A cluster randomized controlled trial in Zambia. *BMC Public Health*, *20*(1), 349–364. https://doi.org/10.1186/s12889-020-08468-0

Babayi Nadinloyi, K., Hajloo, N., Sobhi Garamaleki, N., & Sadeghi, H. (2013). The study efficacy of time management training on increase academic time management of students. *Procedia - Social and Behavioural Sciences*, *84*, 134–138. https://doi.org/10.1016/j.sbspro.2013.06.523

Bardi, A., & Schwartz, S. H. (2003). Values and behaviour: Strength and structure of relations. *Personality & Social Psychology Bulletin*, *29*(10), 1207–1220. https://doi.org/10.1177/0146167203254602

Beaton, D. E., Bombardier, C., Guillemin, F., & Bosi-Ferraz, M. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, *25*(24), 3186–3191. https://doi.org/10.1097/00007632-200012150-00014

Benson, P. L. (1990). *The troubled journey: A portrait of 6th-12th grade youth*. Search Institute.

Benson, P. L. (2007). Developmental assets: An overview of theory, research, and practice. In R. Silbereisen & R. M. Lerner (Eds.), *Approaches to positive youth development* (pp. 33–59). SAGE Publications.

Benson, P. L., Scales, P. C., Hamilton, S. F., & Sesma, A. (2006). *Positive youth development: Theory, research, and applications*. John Wiley and Sons.

Benson, P. L., Scales, P. C., & Syvertsen, A. K. (2011). The contribution of the developmental assets framework to positive youth development theory and practice. In R. M. Lerner, J. V. Lerner, & J. B. Benson (Eds.), *Advances in child development and behavior* (Vol. 41, pp. 197–230). Academic Press.

Berk, L. E. (2018). *Development through the life span* (7th ed.). Pearson Education.

Bina, M., Graziano, F., & Bonino, S. (2006). Risky driving and lifestyles in adolescence. *Accident; Analysis and Prevention*, *38* (3), 472–481. https://doi.org/10.1016/j.aap.2005.11.003

Bleck, J., & DeBate, R. (2016). Long-term association between developmental assets and health behaviours: An exploratory study. *Health Education & Behavior*, *43*(5), 543–551. https://doi.org/10.1177/1090198115606915

Bornstein, M. H., Hahn, C. S., & Haynes, O. M. (2010). Social competence, externalizing, and internalizing behavioural adjustment from early childhood through early adolescence: Developmental cascades. *Development and Psychopathology*, *22*(4), 717–735. https://doi.org/10.1017/S0954579410000416

Burt, K. B., Obradovic, J., Long, J. D., & Masten, A. S. (2008). The interplay of social competence and psychopathology over 20 years: Testing transactional and cascade models. *Child Development*, *79*(2), 359–374. https://doi.org/10.1111/j.1467-8624.2007.01130.x

Camara, C., Bacigalupe, G., & Padilla, P. (2014). The role of social support in adolescents: Are you helping me or stressing me out? *International Journal of Adolescence and Youth*, *22*(2), 123–136. https://doi.org/10.1080/02673843.2013.875480

Casey, B. J., Gets, S., & Galvan, A. (2008). The adolescent brain. *Developmental Review*, *28*(1), 62–77. https://doi.org/10.1016/j.dr.2007.08.003

Chou, S. P., Dawson, D. A., Stinson, F. S., Huang, B., Pickering, R. P., Zhou, Y., & Grant, B. F. (2006). The prevalence of drinking and driving in the United States, 2001-2002: Results from the national epidemiological survey on alcohol and related conditions. *Drug and Alcohol Dependence*, *83*(2), 137–146. https://doi.org/10.1016/j.drugalcdep.2005.11.001

Collishaw, S., Maughan, B., Natarajan, L., & Pickles, A. (2010). Trends in adolescent emotional problems in England: A comparison of two national cohorts twenty years apart. *Journal of Child Psychology and Psychiatry*, *51*(8), 885–894. https://doi.org/10.1111/j.1469-7610.2010.02252.x

Crosnoe, R., & Johnson, M. K. (2011). Research on adolescence in the twenty-first century. *Annual Review of Sociology*, *37* (1), 439–460. https://doi.org/10.1146/annurev-soc-081309-150008

The Cross-National Project on Positive Youth Development. (n.d.). *The cross-national project on positive youth development*. https://www.uib.no/en/rg/sipa/pydcrossnational

Danioni, F., Ranieri, S., & Villani, D. (2020). The role of personal values in gambling: A preliminary study with Italian adolescents. *Journal of Genetic Psychology*, *181*(6), 413–426. https://doi.org/10.1080/00221325.2020.1790491

de Agrela Gonçalves Jardim, M. H., da Silva Junior, G. B., & Alves, M. L. S. D. (2017). Values in students of higher education. *Creative Education*, *8*(10), 1682–1693. https://doi.org/10.4236/ce.2017.810114

de Carvalho, J., & Schumacker, R. E. (2012). Developmental assets model of high-risk behaviours, thriving behaviours and juvenile delinquency. *American International Journal of Contemporary Research*, *2*(9), 1–12.

Docherty, M., Boxer, P., Veysey, B. M., & Ostermann, M. (2016). Gender differences in prevalence of internalizing and externalizing symptoms in a justice-referred sample of youth. *Journal of Juvenile Justice*, *5*(2), 104–120.

Dyson, R., & Renk, K. (2006). Freshmen adaptation to university life: Depressive symptoms, stress, and coping. *Journal of Clinical Psychology*, *62*(10), 1231–1244. https://doi.org/10.1002/jclp.20295

Elias, H., Noordin, N., & Mahyuddin, R. H. (2010). Achievement motivation and self-efficacy in relation to adjustment among university students. *Journal of Social Sciences*, *6*(3), 333–339. https://doi.org/10.3844/jssp.2010.333.339

Erikson, E. H. (1968). *Identity: Youth and crisis*. Norton.
Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology*, *41*(4), 625–635. https://doi.org/10.1037/0012-1649.41.4.625
Garner, S. J. (2020). *Peace. Love. Youth. (in) Yoga: Development of a mental health program among adolescents living in the inner city* [Doctoral dissertation, University of Alabama]. ProQuest One Academic. https://www.proquest.com/dissertations-theses/peace-love-youth-yoga-development-mental-health/docview/2420226109/se-2?accountid=8579
Gestsdottir, S., & Lerner, R. M. (2007). Intentional self-regulation and positive youth development in early adolescence: Findings from the 4-h study of positive youth development. *Developmental Psychology*, *43*(2), 508–521. https://doi.org/10.1037/0012-1649.43.2.508
Gestsdottir, S., Suchodoletz, A., Wanless, S., Hubert, B., Guimard, P., Birgisdóttir, F., Gunzenhauser, C., & Mcclelland, M. (2014). Early behavioural self-regulation, academic achievement, and gender: Longitudinal findings from France, Germany, and Iceland. *Applied Developmental Science*, *18*(2), 90–109. https://doi.org/10.1080/10888691.2014.894870
Greene, K. M., Eitle, D., & Eitle, T. M. (2018). Developmental assets and risky sexual behaviours among American Indian youth. *The Journal of Early Adolescence*, *38*(1), 50–73. https://doi.org/10.1177/0272431615596427
Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*(4), 408–420. https://doi.org/10.1080/03637750903310360
Ilisin, V., & Spajic Vrkas, V. (2015). *Needs, problems and potentials of young people In Croatia*. Ministry of Social Policy and Youth of the Republic of Croatia.
Inchley, J., Currie, D., Cosma, A., & Samdal, O. (Eds.). (2018). *Health Behaviour in School-aged Children (HBSC) Study Protocol: Background, methodology and mandatory items for the 2017/18 survey*. CAHRU.
Jelicic, H., Bobek, D. L., Phelps, E., Lerner, R. M., & Lerner, J. V. (2007). Using positive youth development to predict contribution and risk behaviours in early adolescence: Findings from the first two waves of the 4-H study of positive youth development. *International Journal of Behavioral Development*, *31*(3), 263–273. https://doi.org/10.1177/0165025407076439
Kalina, O. (2020). Value orientations and risky sexual behaviour among first year university students. *Health Problems of Civilization*, *14*(1), 9–17. https://doi.org/10.5114/hpc.2020.90174
Klemera, E., Brooks, F. M., Chester, K. L., Magnusson, J., & Spencer, N. (2017). Self-harm in adolescence: Protective health assets in the family, school and community. *International Journal of Public Health*, *62*(6), 631–638. https://doi.org/10.1007/s00038-016-0900-2
Knight, J. R., Wechsler, H., Kuo, M., Seibring, M., Weitzman, E. R., & Schuckit, M. A. (2002). Alcohol abuse and dependence among U.S. college students. *Journal of Studies on Alcohol*, *63*(3), 263–270. https://doi.org/10.15288/jsa.2002.63.263
Kobak, R., Abbott, C., Zisk, A., & Bounoua, N. (2017). Adapting to the changing needs of adolescents: Parenting practices and challenges to sensitive attunement. *Current Opinion in Psychology*, *15*, 137–142. https://doi.org/10.1016/j.copsyc.2017.02.018
Kypri, K., Cronin, M., & Wright, C. S. (2005). Do university students drink more hazardously than their non-student peers? *Addiction*, *100*(5), 713–714. https://doi.org/10.1111/j.1360-0443.2005.01116.x
Lee, S. J., Detels, R., Rotheram-Borus, M. J., & Duan, N. (2007). The effect of social support on mental and behavioural outcomes among adolescents with parents with HIV/AIDS. *American Journal of Public Health*, *97*(10), 1820–1826. https://doi.org/10.2105/AJPH.2005.084871
Leffert, N., Benson, P. L., Scales, P. C., Sharma, A. R., Drake, D. R., & Blyth, D. A. (1998). Developmental assets: Measurement and prediction of risk behaviours among adolescents. *Applied Developmental Science*, *2*(4), 209–230. https://doi.org/10.1207/s1532480xads0204_4
Lenzi, M., Dougherty, D., Furlong, M. J., Sharkey, J., & Dowdy, E. (2015). The configuration protective model: Factors associated with adolescent behavioural and emotional problems. *Journal of Applied Developmental Psychology*, *38*, 49–59. https://doi.org/10.1016/j.appdev.2015.03.003
Lerner, J. V., Phelps, E., Forman, Y., & Bowers, E. P. (2009). Positive youth development. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Vol. 1. Individual bases of adolescent development* (3rd ed., pp. 524–558). John Wiley & Sons Inc. https://doi.org/10.1002/9780470479193
Levinson, D. J. (1978). *The seasons of a man's life*. Ballantine.
Lund, T. J., Dearing, E., & Zachrisson, H. D. (2017). Is affluence a risk for adolescents in Norway? *Journal of Research on Adolescence*, *27*(3), 628–643. https://doi.org/10.1111/jora.12304
Luthar, S., & Goldstein, A. (2008). Substance use and related behaviours among suburban late adolescents: The importance of perceived parent containment. *Development and Psychopathology*, *20*(2), 591–614. https://doi.org/10.1017/S0954579408000291
Manrique-Millones, D., Wiium, N., Pineda-Marin, C., Fernández-Arata, M., Alfonso-Murcia, D., López-Martínez, J. L., & Millones-Rivalles, R. (2021). Association between substance use behaviours, developmental assets, and mental health: A glance at Latin American young college students. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.639578
Marcia, J. E. (1994). Identity and psychotherapy. In S. L. Archer (Ed.), *Interventions for adolescent identity development* (pp. 29–46). Sage Publications, Inc.

Marić, M., & Šumonja, S. (2012). Psychosocial aspect, frequency and intercorrelation of students' health risk behaviours. *Croatian Journal of Education*, *15*(4), 69–92.

Mofatteh, M. (2021). Risk factors associated with stress, anxiety, and depression among university undergraduate students. *AIMS Public Health*, *8*(1), 36–65. https://doi.org/10.3934/publichealth.2021004

Mojtabai, R., & Olfson, M. (2020). National trends in mental health care for US adolescents. *JAMA Psychiatry*, *77*(7), 703–714. https://doi.org/10.1001/jamapsychiatry.2020.0279

Murphey, D., Lamonda, K., Carney, J., & Duncan, P. (2004). Relationships of a brief measure of youth assets to health-promoting and risk behaviours. *Journal of Adolescent Health*, *34*(3), 184–191. https://doi.org/10.1016/S1054-139X(03)00280-5

Oman, R., Vesely, S., Boeckman, L., Tolma, E., & Aspy, C. (2019). Youth assets, neighborhood factors, and alcohol use: A study of health disparities. *Health Behavior and Policy Review*, *6*(5), 416–426. https://doi.org/10.14485/HBPR.6.5.1

Orozco Klass, H., & Kohut, I. (2016). *Adolescent delinquency, substance abuse, gang membership and violent extremism in the US and Europe: A comparative evaluation of risk and protective factors. Regional academy on united nations*. United Nations Office of Drugs and Crime.

Pashak, T. J., Handal, P. J., & Scales, P. C. (2018). Protective factors for the college years: Establishing the appropriateness of the developmental assets model for emerging adults. *Current Psychology*, *37*(1), 45–57. https://doi.org/10.1007/s12144-016-9488-1

Romeo, R. D. (2014). The teenage brain: The stress response and the adolescent brain. *Current Directions in Psychological Science*, *22*(2), 140–145. https://doi.org/10.1177/0963721413475445

Romero, E., Sobral, J., Angeles Luengo, M., & Marzoa, J. A. (2001). Values and antisocial behaviour among Spanish adolescents. *The Journal of Genetic Psychology*, *162*(1), 20–40. https://doi.org/10.1080/00221320109597879

Sahranavard, S., Miri, M. R., & Salehiniya, H. (2018). The relationship between self-regulation and educational performance in students. *Journal of Education and Health Promotion*, *7*, 154. https://doi.org/10.4103/jehp.jehp_93_18

Salavera, C., Usán, P., & Teruel, P. (2019). The relationship of internalizing problems with emotional intelligence and social skills in secondary education students: Gender differences. *Psicologia: Reflexão e Crítica*, *32*(1), 4–15. https://doi.org/10.1186/s41155-018-0115-y

Scales, P. C. (2011). Youth developmental assets in global perspective: Results from international adaptations of the developmental assets profile. *Child Indicators Research*, *4*(4), 619–645. https://doi.org/10.1007/s12187-011-9112-8

Scales, P. C. (2014). Developmental assets and the promotion of well-being in middle childhood. In A. Ben-Arieh, F. Casas, I. Frønes, & J. Korbin (Eds.), *Handbook of child well-being* (pp. 1649–1678). Springer. https://doi.org/10.1007/978-90-481-9063-8_66

Scales, P. C., Benson, P. L., & Mannes, M. (2006). The contribution to adolescent well being made by nonfamily adults: An examination of developmental assets as contexts and processes. *Journal of Community Psychology*, *34*(4), 401–413. https://doi.org/10.1002/jcop.20106

Scales, P. C., Benson, P. L., & Roehlkepartain, E. C. (2011). Adolescent thriving: The role of sparks, relationships, and empowerment. *Journal of Youth and Adolescence*, *40*(3), 263–277. https://doi.org/10.1007/s10964-010-9578-6

Search Institute. (2016). *The attitudes and behaviours survey* [including the *40 developmental assets*]. Retrieved September 15, 2017, from https://www.search-institute.org

Smith, L. H., & Barker, E. (2008). Exploring youth development with diverse children: Correlates of risk, health, and thriving behaviours. *Journal for Specialists in Pediatric Nursing*, *14*(1), 12–21. https://doi.org/10.1111/j.1744-6155.2008.00164.x

Smokowski, P. R., Guo, S., Rose, R., Evans, C. B., Cotter, K. L., & Bacallao, M. (2014). Multilevel risk factors and developmental assets for internalizing symptoms and self-esteem in disadvantaged adolescents: Modeling longitudinal trajectories from the rural adaptation project. *Development and Psychopathology*, *26*(4pt2), 1495–1513. https://doi.org/10.1017/S0954579414001163

Stewart, T., & Suldo, S. (2011). Relationships between social support sources and early adolescents' mental health: The moderating effect of student achievement level. *Psychology in the Schools*, *48*(10), 1016–1033. https://doi.org/10.1002/pits.20607

Suthar, S. A. (2015). Social adjustment of college students in relation to gender. *The International Journal of Indian Psychology*, *2*(3), 67–71. https://doi.org/10.25215/0203.048

Tynan, J. J., Somers, C. L., Gleason, J. H., Markman, B. S., & Yoon, J. (2015). Goal oriented and risk-taking behaviour: The roles of multiple systems for Caucasian and Arab-American adolescents. *School Psychology International*, *36*(1), 54–76. https://doi.org/10.1177/0143034314559870

Wiium, N., & Dimitrova, R. (2019). Positive youth development across cultures: Introduction to the special issue. *Child & Youth Care Forum*, *48*(2), 147–153. https://doi.org/10.1007/s10566-019-09488-7

Wiium, N., Dost-Gözkan, A., & Kosic, M. (2019). Developmental assets among young people in three European contexts: Italy, Norway, and Turkey. *Child Youth Care Forum*, *48*(2), 187–206. https://doi.org/10.1007/s10566-018-9446-1

Zheng, Y., & Cleveland, H. H. (2013). Identifying gender-specific developmental trajectories of nonviolent and violent delinquency from adolescence to young adulthood. *Journal of Adolescence*, *36*(2), 371–381. https://doi.org/10.1016/j.adolescence.2012.12.007