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One Candy or Two at the Age of Six: Does it Matter for Later School Life and Why?

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Abstract

This study explored the role of early delay of gratification (DoG) and its positive outcomes in the child's later school life. More specifically, it investigated whether DoG measured in six-year-old preschool children predicts their subsequent emotional intelligence, quality of school life and life satisfaction in higher grades of elementary school. Also, the mediating role of emotional intelligence in the relationship between delay of gratification at preschool age and subsequent quality of school life and life satisfaction was also examined.

The sample comprised 141 students (48.2 % girls). Delay of gratification (DoG) was measured among six-year-old children; other measurement for one part of the sample was done at the seventh, and for the other part at the eighth grade. DoG was measured by the DoG task: children may eat one tempting treat immediately or they may earn a larger serving by waiting for an unspecified amount of time, doing assessment tasks. Other measurements included the Emotional Intelligence Scale (Wong & Low, 2002), the Quality of School Life Questionnaire (Leonard, 2002; Raboteg Šarić et al., 2009) and the Students' Life Satisfaction Scale (Huebner, 1991). It was found that students who succeeded in delaying gratification at preschool age had subsequently higher life satisfaction, higher sense of school achievement, and higher emotional intelligence (the use of emotions to facilitate performance and regulation of emotions in the self). Mediation analyses found that the overall emotional intelligence mediates the relationship between DoG and life satisfaction. Also, the component of emotional intelligence called the Use of emotions to facilitate performance was deemed a significant mediator between DoG and a sense of scholarly achievement.

It can be concluded that the strengthening of regulatory mechanisms in preschool age may be beneficial for both life satisfaction and the sense of academic achievement in higher grades of elementary school.

Key words: *delay of gratification; emotional intelligence; life satisfaction; quality of school life.*

Introduction

Self-regulation may be defined narrowly as „the capacity to override one's thoughts, emotions, impulses, and automatic or habitual behaviours" (Gailliot et al., 2008, p. 472). Accordingly, self-regulation is a multidimensional construct which includes both behavioural and emotional regulation. This study focuses on the aspect of self-regulation for the purpose of achieving long-term goals while forgoing a less preferred reward, i.e. delay of gratification. Delay of gratification (DoG) involves attention control strategies, such as purposeful self-distraction, strategies of cognitive reframing, and appropriate activation of the emotional system (Mischel & Ayduk, 2004).

According to the classic paradigm developed by Mischel (Mischel, Ebbesen & Zeiss, 1972), to operationalize the delay of gratification in preschool age, children are faced with a dilemma: to eat one candy now or to take two candies after they wait for some unspecified period of time. Studies have consistently found that delay of gratification has an outstanding adaptive function and enables people to engage in goal-directed behaviours that lead to long-term outcomes (Duckworth et al., 2013). Thus, it was establihed that delay of gratification is a powerful predictor of later positive outcomes in life, in academic, social and health areas. Long-term studies have shown that delay of gratification in childhood predicts better social and academic competences in adolescence and young adulthood, as well as children's competence to cope with stress, behave in a more controlled and reflective way and have better attention without distractions (Ayduk et al., 2000; Mischel, Shoda & Peake, 1988; Paulus et al., 2015; Shoda et al., 1990). Some research suggests that the development of the attention control strategies children use to distract themselves from a candy and the suppression of desire to eat a candy immediately form the basis for impulse control later in life (Casey et al., 2011; Metcalfe & Mischel, 1999). Recently, studies of different factors related to DoG have begun to emerge such as generalized trust (Ma et al., 2018), time perspective (Kim et al., 2020) or socioeconomic status and race (Duran & Grissmer, 2020).

Besides positive outcomes, the delay of gratification was also found to be a powerful predictor of diverse negative outcomes. For example, children who had difficulty with delay of gratification in adulthood have more problems in interpersonal relationships, are prone to drug abuse (Ayduk et al., 2000) or are overweight (Schlam et al., 2013).

However, although there are a number of long-term studies focused on the impact of delay of gratification on different outcomes, there is a lack of long-term studies researching the predictive power of delay of gratification regarding positive indicators of well-being. Therefore, the first aim of this study was to investigate the predictive

power of the delay of gratification regarading a variety of positive outcomes such as academic achievement, quality of school life and life satisfaction.

Students spend a significant amount of time in school, whether they want it or not. Therefore, the quality of their lives during this time is important both in its own right and also because it is related to various positive outcomes such as academic achievement, motivation and behavior (Mok & Flynn, 1997; Raboteg Šarić et al., 2009). Students' life satisfaction is also related to numerous positive outcomes such as higher self-esteem, satisfaction with family and peer relationships, and greater satisfaction with school achievement (Gilman, 2001). Given the importance of the quality of school life and life satisfaction of students, it would be worthwile to investigate the relationship of these constructs with the ability to delay gratification at early age.

The second aim of the study was to investigate the relationship between the delay of gratification and emotional intelligence. Emotional intelligence is a concept with increasing popularity that has also been applied in the field of education (Humphrey et al., 2007; Waterhouse, 2006). Emotional intelligence refers to processing of emotional information (Salovey & Mayer, 1990), but authors have different opinions about whether it is an ability (Salovey & Mayer, 1990) or a personality trait (Perez et al., 2005). Emotional intelligence conceptualized as personality trait is assessed by questionnaires, and it usually comprises of several components among which the most frequent are the perception of one's own emotions, perception of the emotions of others, use of emotions for psychological prosperity, and the ability to control and regulate negative emotional states (Schutte et al., 1998; Wong & Law, 2002).

There are several conceptual reasons for the assumed relationship between emotional intelligence and the ability to delay gratification. Understanding one's own emotions and their control and regulation may be important for preferring and being persistent in pursuing long-term goals and consequences instead of choosing immediate reward. In addition, use of appropriate emotions facilitates focusing attention on long-term goals and therefore seems to be involved in the ability to delay gratification. Also, based on the fact that delay of gratification in childhood has positive outcomes in the same way as emotional intelligence, i.e. predicts better coping with stress, better social and academic competences, better impulse control and reflection (Ayduk et al., 2000; Mischel et al., 1988; Paulus et al., 2015; Shoda et al., 1990; Casey et al., 2011; Brackett et al., 2011), it seems that there is a relationship between DoG and emotional intelligence.

In fact, it may be that emotional control involved in delay of gratification may be a precursor of subsequent development of more advanced components of emotional intelligence. Thus it seems reasonable to assume there is a relationship between the ability to delay gratification and emotional intelligence. However, studies investigating the association between the ability to delay gratification and emotional intelligence are rare (Stolarski et al., 2011). Moreover, the nature of this relationship has not been investigated yet. Based on the fact that the ability to delay gratification includes both cognitive and emotional control, i.e. the ability to inhibit impulses, it may be assumed

that early delay of gratification (in preschool age) enables the development of emotional intelligence in subsequent years, especially the components referring to self-regulation and the use of emotions. However, there are no studies in the literature investigating the association between the delay of gratification in preschool age and emotional intelligence in subsequent school age. Therefore this study focused on researching the mentioned association.

Furthermore, there is a lack of studies investigating potential mediators in the relationship between early delay of gratification and subsequent academic outcomes as well as other psychological outcomes, and emotional intelligence seems to be a candidate for such a mediator since it is found to be associated with various positive outcomes.

There is a substantial body of research linking emotional inteligence and academic achievement. For example, a recent meta-analysis of more than 160 studies, including more than 42,000 students from 27 countries, revealed that students with higher emotional intelligence tended to get higher grades and better achievement test scores than those with lower emotional intelligence (MacCann et al., 2020). For being succsefull in school, students need the ability to use and regulate emotions in order to think, concentrate, perform effectively under stress, and enhance their intrinsic motivation.

In addition to academic achievement, emotional intelligence is also linked to other aspects of school life. Students who have difficulty in regulating their emotional reactions are likely to experience difficulties in adapting to school and social environments (Caspi, 2000; Eisenberg et al., 2000) including sound relationship with peers and teachers. Finally, emotional intelligence was found to be related to psychological well-being and health (Bar-On, 2012; Martins et al., 2010; Davis & Humphrey, 2012).

Based on the aforementioned studies, it may be assumed that emotional intelligence or some of its components may serve as mediators in the relationship between early delay of gratification and later academic achievement, quality of school life and life satisfaction. Therefore, the third aim of this study was to investigate the mediating role of emotional intelligence in the above-mentioned relationship.

Aims and hypotheses

The general aim of this research was to explore whether delay of gratification measured in preschool age predicts various academic outcomes and psychological wellbeing at the end of elementary school and to explore the mediating role of emotional intelligence in this relationship. The outcomes included not only school achievement but also quality of school life and life satisfaction. Based on the aforementioned assumptions, the following hypotheses were set:

Hypothesis 1: Delay of gratification measured at preschool age will be positively associated with academic achievement defined as GPA (H 1.1), the quality of school life (H 1.2) and life satisfaction (H 1.3) at the end of elementary school;

Hypothesis 2: Delay of gratification measured at preschool age will be positively associated with the specific components of emotional intelligence, i.e. use of emotions and regulation of one's own emotions assessed at the end of elementary school;

Hypothesis 3: Emotional intelligence will be a partial mediator in the relationship between the ability to delay gratification at preschool age and academic achievement (H 3.1), quality of school life (H 3.2) and life satisfaction (H 3.3) at the end of elementary school.

Partial mediation was expected, not full, since some other factors (such as social intelligence and emotional stability), in addition to emotional intelligence, could mediate the relationship between DoG at early age and the aforementioned outcomes later in life.

Methods

Participants and procedure

The sample comprised of 141 pupils, with nearly equal number of boys (51.8 %) and girls. There were 58 seventh-graders (29 boys and 29 girls) and 83 eight-graders (39 boys and 44 girls), all from a public elementary school situated in a middle-sized city in the North-West Croatia. The majority of children were from middle class families thus indicating the average socio-economic status of the majority of children.

The assessment of delay of gratification was done at the age of 6, as part of the regular assessment of school readiness at one-on-one testing sessions. Assessment of quality of school life, life satisfaction and emotional intelligence was done for 58 participants in 7th grade and for 83 participants in 8th grade, respectively, during regular school hours (nonacademic period). Informed consent was obtained from the parents for all children.

Instruments

Delay of gratification

We used the modified delay of gratification paradigm (Mischel et al., 1972), with the dichotomous measure of delay of gratification (Silverman, 2003). Prior to the school readiness assessment procedure, each child was offered a choice to either take one candy before the assessment procedure, i.e. tasks including counting, drawing, or answering some questions, or to wait and take two candies after the completion of a task. If the child decides to take two candies after the assessment procedure, the result is coded as 1 (delay of gratification) and if the child takes a candy before the assessment procedure, the result is coded as 0 (no delay of gratification). The time of delay equals the assessment procedure of school readiness, which is about 15 minutes.

Quality of school life

The 35-item Croatian version (Raboteg Šarić et al., 2009) of the Quality of School Life Questionnaire (QSLQ) (Ainley & Bourke, 1992) was used for assessing the quality of school life. Like the original scale (Ainley & Bourke, 1992), the Croatian version

(Raboteg Šarić et al., 2009) yields scores on seven subscales, wherein two are general and five are specific. The two general subscales are as follows: (1) *General satisfaction* scale assessing general positive emotions toward school (six items; sample item: "For me, school is a place where I like to be."); (2) *Negative affect* scale measuring the negative emotions and stress in relation to school (five items; sample item: "For me, school is a place where I feel worried."). The specific scales are: (3) *Opportunity* scale assessing students' belief in the relevance of schooling for life (six items; sample item: "For me, school is a place where I learn content that will be useful."); (4) *Social integration* which assesses the relationship of students with other students and people in school, and the perception of the quality of social life in school (five items; sample item: "For me, school is a place where other students accept me as I am."); (5) *Achievement* scale assesses sstudents' perception of school achievement and success in school (four statements; sample item: "For me, school is a place where I am successful as a student."); (6) *Teacher* scale assesses students' perception of the quality of the relationship with teachers (five statements; sample item: "For me, school is a place where my teacher helps me to do my best."); (7) *Adventure* scale assesses a sense of self-motivation in learning and whether learning is enjoyable on its own (four statements; sample item: "For me, school is a place where learning is fun.").

Each item was rated on a 4-point Likert-type scale (1 – *completely disagree*; 4 – *completely agree*). A higher result indicates higher perceived quality of a certain dimension of school life. The Croatian version was previously found to have good psychometric characteristics (Raboteg Šarić et al., 2009). The Cronbach alpha reliability coefficient of the instrument in this study was high, except for the Negative affect scale which was below 0.70, i.e. 0.65.

Life satisfaction

In assesing the life satisfaction component of the research, we used the *Students' Life Satisfaction Scale* (SLSS, Huebner, 1991). It consists of 7 items and measures general life satisfaction of children and adolescents 8 to 18 years of age. The sample item is: „My life is going well." Students assess each statement on the 6-point scale (1 – *strongly disagree* to 6 – *strongly agree*). Higher result on the scale indicates higher life satisfaction. Cronbach alpha in this study indicates adequate reliability: a = .75.

Emotional intelligence

Emotional intelligence was assessed using the Emotional Intelligence Scale developed by Wong and Law (WLEIS) (Wong & Law, 2002). The scale consists of four subscales, each assessing different component of emotional intelligence and each having four items. These four subscales are: *Self emotional appraisal* (sample item: "I have a good understanding of my own emotions."); *Others' emotional appraisal* (sample item: "I always know my friends' emotions from their behaviour."); *Use of emotion to facilitate performance* (sample item: "I am a self-motivated person."); and *Regulation of emotion in the self* (sample item: "I am quite capable of controlling my own emotions."). Participants

responded by indicating their agreement on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A higher result indicates a more pronounced trait of emotional intelligence. According to the calculated Cronbach alpha coefficient from .69 to .82, the reliability was acceptable to high.

Academic achievement

Academic achievement was assessed using the GPA for the period from 4th to 7th grade for those whose second point of measurement was in the 7th grade and the GPA for the period from 4th to 8th grade for those whose second point of measurement was in the 8th grade. The data were obtained from the school documentation.

Socioeconomic status

Socioeconomic status was used as the control variable. The perceived socioeconomic status of a child's family was assessed by child perception of their family's status in relation to the other families (1 – *my family is much poorer than other families* to 5 – *my family is much richer than other families*).

Data analysis

First, descriptive statistic and correlation analyses were conducted. After that, mediation analyses were performed in order to investigate the mediating role of emotional intelligence in the relationship between delay of gratification as a predictor of scholarly achievement, quality of school life and life satisfaction as a criteria. We used a multiple mediation model with parallel mediators, which allowed the researchers to explore whether the link between the two variables is explained in part by more than one mediator at a time, therein providing effect values for one mediator while controlling all other mediators. The mediation models were tested by using the PROCESS (Hayes, 2013). We computed the direct and indirect path coefficients, as mediated by four components of EI, using standardized values. Significance of the indirect effects were tested using bootstrapping (5000 bootstrap samples) and 95 % confidence intervals were computed for the upper and lower limits of these indirect effects. An indirect effect is significantly different from zero at $p < .05$, when zero is not in the 95 % confidence interval. In multiple mediator models, significance of the total indirect effects is not a necessary precondition for specific indirect effects (Preacher & Hayes, 2008), and therefore it is legitimate to interpret specific indirect effects. Gender and perceived socioeconomic status were used as control variables in all mediation analyses.

Results

Descriptive analyses

Table 1 presents descriptive statistics as well as the correlations among the study variables. The values of both skewness and kurtosis were bellow 1, which is considered acceptable in order to prove a normal distribution (Tabachnick & Fidell, 2007).

71.6 % of the children were successful in delaying gratification at age 6. All dimensions of the quality of school life were above average, except the negative affect and adventure dimension, which were somewhat below the average. Life satisfaction was somewhat above average, as well as all components of emotional intelligence. GPA was way above average.

In line with hypothesis 1.1., delay of gratification was moderately and positively associated with subsequent academic achievement (r = .42). In line with hypothesis 1.2., delay of gratification was positively related to the Achievement subscale of QSLQ (r = .22), but contrary to this hypothesis, it was not related to other dimensions of the school life's quality. Thus, hypothesis 1.2. was partly confirmed. In line with hypothesis 1.3., results showed that delay of gratification was positively associated with life satisfaction (r = .26).

Results confirmed hypothesis 2 since delay of gratification was positively related to components of emotional intelligence, i.e. the use of emotions to facilitate performance (r = .22) and regulation of emotions (r = .47).

Table 1

Descriptive statistics and intercorellations among study variables (N= 141)

	Variables	2.	3.	4.	5.	6.	7.
QSL	1. Delay of gratification	.14	-.10	.04	.11	.24**	.06
	2. General satisfaction with school	–	-.20**	.45**	.27**	.42**	.36**
	3. Negative affect toward school		–	-.15	-.12	.00	-.24**
	4. Opportunity			–	.20*	.51**	.53**
	5. Social integrity				–	.19*	.25**
	6. Achievement					–	.37**
	7. Teachers						–
	8. Adventure scale						
	9. Life satisfaction						
EI	10. Self-emotional appraisal						
	11. Others' emotional appraisal						
	12. Use of emotion to facilitate performance						
	13. Regulation of emotion in the self						
	14. Academic achievement (GPA)						
	Min - max	1-4	1- 4	1-4	1-4	1-4	1-4
	Cronbach alpha	.80	.65	.91	.72	.87	.81
	M	2.59	2.11	3.24	3.13	3.12	3.12
	SD	.64	.46	.65	.55	.61	.59

	Variables	8.	9.	10.	11.	12.	13.	14.
QSL	1. Delay of gratification	.10	.26**	.05	.15	.22**	.47**	.42**
	2. General satisfaction with school	.63**	.23**	.13	.17	.24**	.14	.16
	3. Negative affect toward school	-.03	-.24**	-.34**	.01	-.16	-.21*	.14
	4. Opportunity	.56**	.17*	.26**	.16	.22*	.04	-.03
	5. Social integrity	.14	.39**	.27**	.18*	.34**	.25**	-.09
	6. Achievement	.55**	.20*	.12	.13	.31**	.16	.43**
	7. Teachers	.42**	.25**	.30**	.06	.21*	.17*	-.02
	8. Adventure scale	–	.19*	.13	.15	.29**	.19*	.07
	9. Life satisfaction		–	.47**	.15	.41**	.43**	.04
EI	10. Self-emotional appraisal			–	.29**	.48**	.38**	-.19*
	11. Others' emotional appraisal				–	.27**	.18**	.02
	12. Use of emotion to facilitate performance					–	.50**	.03
	13. Regulation of emotion in the self						–	.01
	14. Academic achievement (GPA)							–
	Min - max	1-4	1-6	1-7	1-7	1-7	1-7	1-5
	Cronbach alpha	.87	.75	.78	.69	.82	.75	n.a.
	M	2.27	4.50	5.62	5.19	5.03	5.25	4.17
	SD	.75	.80	1.12	1.06	1.30	1.41	0.61

Note. QSL and EI stand for quality of school life and emotional intelligence, respectively. **p < .01 (two-tailed tests). *p < .05 (two-tailed tests). n. a.= not applicabl

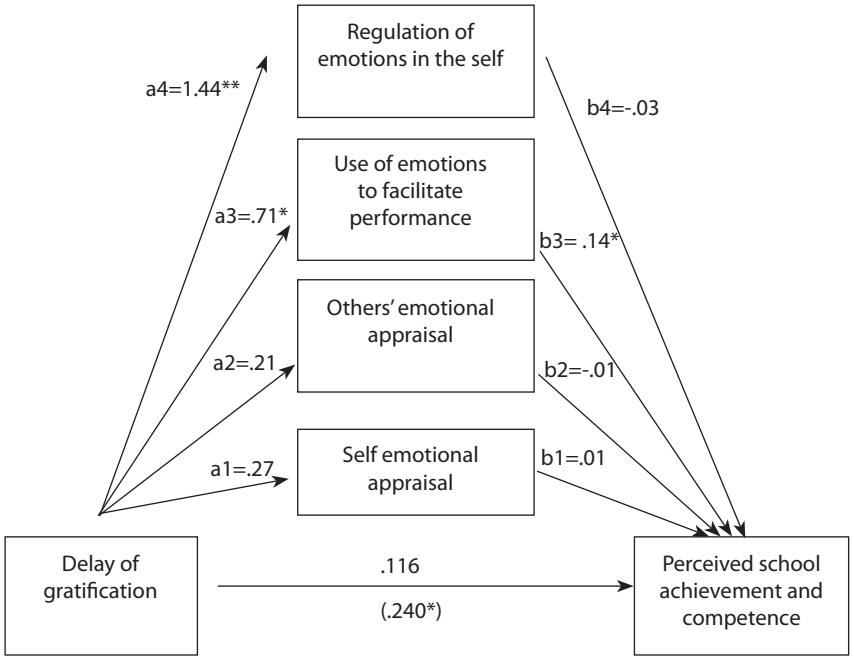
Mediation analyses

Delay of gratification, emotional intelligence and academic achievement (GPA)

Results of mediational analysis with the components of emotional intelligence as four parallel mediators did not confirm the mediating role of emotional intelligence in the relationship between delay of gratification and subsequent academic achievement, defined as GPA (B= -.117, SE = .065, 95 % CI = -.254, .001). Thus, hypothesis 3.1. was not confirmed.

Delay of gratification, emotional intelligence and the quality of school life

In order to test hypothesis 3.2., we perfomed separate mediation analyses for each dimension of the school life's quality. In all analyses, the components of emotional intelligence were used as four parallel mediators. Out of seven mediation analyses, the results showed significant indirect effect of emotional intelligence only for dimension *Achievement,* which refers to a student's perception of school success and competence in school work. Thus, hypothesis 3.1. was only partially confirmed.



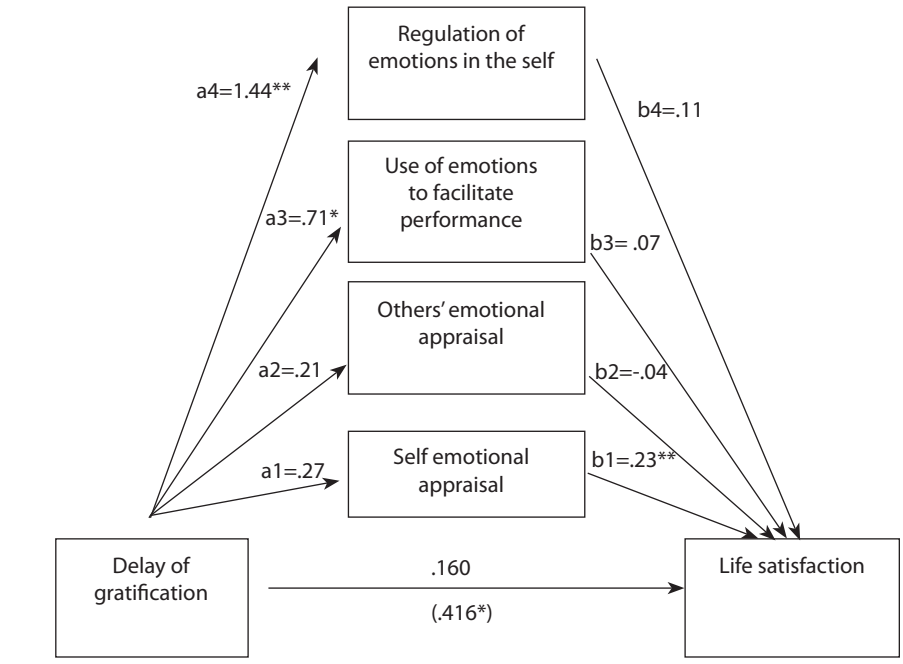
**$p < .01$; *$p < .05$.

Figure 1. Mediating role of the components of emotional intelligence in the relationship between delay of gratification at preschool age and subsequent perception of school achievement

The results of the mediation analysis with perceived school achievement and competence as criteria are presented in Figure 1. Results of parallel mediation analysis showed that delay of gratification was related to perception of school achievement through only one component of emotional intelligence, i.e. the use of emotions to facilitate performance (B =.096, SE =.043, 95 % CI= .024, .195). As shown in Figure 1, children who were successful in delaying gratification at preschool age subsequently (at the end of elementary school) had a more developed component of emotional intelligence referring to the use of emotions in facilitating performance (a3= .71, p = .005), which was in turn associated with a stronger perception of school achievement (b3= .14; p = .004).

Delay of gratification, emotional intelligence and life satisfaction

The results of the mediation analysis with life satisfaction as criteria are presented in Figure 2. The results are in line with hypothesis 3.3., showing that there was a significant total, indirect effect of emotional intelligence components as mediators in the relationship between delay of gratification at preschool age and life satisfaction of the same children at the end of elementary school (B =.245, SE=.115, 95 % CI= .034, .496). Although the total indirect effect was significant, none of the emotional intelligence components were significant mediators, indicating that this indirect effect can not be associated to any specific component of emotional intelligence.



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

Figure 2. Mediating role of the components of emotional intelligence in the relationship between delay of gratification at preschool age and subsequent life satisfaction

Discussion

The aim of this study was to investigate the relationship between the delay of gratification at preschool age and school achievement, quality of school life and life satisfaction at the end of elementary school (in 7th and 8 th grade of elementary school, respectively), as well as the mediating role of emotional intelligence in the relationship between delay of gratification as a predictor and school achievement, quality of school life and life satisfaction as criteria.

In line with our expectations and previous researches (Duckworth & Seligman, 2006), it was found that the delay of gratification assessed at preschool age was positively related to school achievement at the end of elementary school, thus corroborating other research (e.g. Duckworth & Seligman, 2006) associating ability to delay gratification and school achievement as assessed by the GPA. Moreover, our study also presented new information on subjective achievement and psychological well-being of students. As expected, it was found that delay of gratification predicted students' subjective school achievement and life satisfaction at the end of elementary school. This finding is in line with previous studies showing that the ability to delay gratification is associated with increased life satisfaction and self-esteem in adolescents (Rosenbaum & Ben-Ari Smira, 1986), which may be mainly due to decreased aggressive and delinquent behavior (Krueger i sur., 1996).

Also in line with expectations, the study showed that the delay of gratification in preschool age was positively related to components of emotional intelligence measured at the end of primary school, i.e. regulations of emotions in the self and use of emotions to facilitate one's own performance. These results are in line with studies which established a positive association between emotional intelligence and self-regulation (Deursen et al., 2015; Sadri & Janani, 2015). Since the relationship between delay of gratification and emotional intelligence is not researched and explained thoroughly, and the especially pronounced lack of research on the possible causal relationship, the value of this research may be found in explaining this connection. It suggests that the pronounced delay of gratification in preschool age may be an indicator or even a precondition for the use of emotions in facilitating one's own performance and for the development of the self-regulation of negative emotions and impulsive behavior. Recent perspective emphasizes the need for integration of emotion-regulating processes with self-regulatory processes throughout a lifetime (Diamond & Aspinwall, 2003).

The study also researched the mediating role of emotional intelligence. We expected that the ability to delay gratification in preschool age will lead to development of higher emotional intelligence in preadolescent age (at the end of elementary school), which will in turn lead to higher academic achievement as shown in GPA, better quality of school life and higher life satisfaction. In line with our hypothesis, it was found that emotional intelligence was a mediator for subjective school achievement and competence as well as life satisfaction of students. It is possible that preschoolers who are able to delay gratification are also more aware of their emotions with regard to their usage and regulation. They may continue to do that later and thus develop higher emotional intelligence. There is evidence that individuals with higher emotional intelligence possess a better capacity to manage their emotions, which facilitates a greater sense of life satisfaction, which may be the case in our sample as well (Sun et al., 2014; Wang & Kong, 2014). The same may apply for percieved school achievement and competence because they essentially reflect satisfaction with achievement, which is a part of general life satisfaction. Thus, it may be that early capacity of DoG facilitates the development of cognitive capacity to perceive, reflect and manage one's own emotions.

Contrary to expectation, emotional intelligence was not a mediator for the relationship between delay of gratification and academic achievement. This finding may suggest that emotional intelligence is not as important for objective academic achievement (as measured by GPA) as for subjective academic competence, perception of success in school, sense of achievement and progress in school work, and life satisfaction. In other words, emotional intelligence is important for better adaptation to school environment and satisfaction in life, which leads to better psychological functioning and better life success in the long run. This finding also adds to our understanding of the role of emotional intelligence in the educational context. This is in line with previous studies indicating the positive relationship between emotional intelligence and academic adaptation to school (Mestre et al., 2006).

This study also showed an interesting finding of negative association between self-emotional appraisal and academic achievement as measured by GPA. One of the possible interpretations of this finding is that a more accurate perception of one's own emotions may, under certain conditions, such as low self-esteem or low self-acceptance, lead to lower engagement and thus to lower academic achievement. On the other hand, it is also possible that anxious students are more accurate in self-emotional appraisal, and anxious students also have lower academic achievement due to anxiety. Further research is needed to investigate this assumption.

Practical implications

Results of this study suggest that emphasis should be given to strengthening the regulatory mechanisms of students at preschool age since it may be useful not only for students school achievement as measured by grade point average at the end of school years but also for their perceived school achievement and sense of competence, and also for their life satisfaction. The assessment of delay of gratification as used in this study may be utilized as a screening tool to identify children with underdeveloped delay of gratification ability; and the programmes for improving the self-regulatory ability may be created for these children.

Previous research (Mischel et al., 1988) provided evidence on delay of gratification being a quality that is both personality-related as well as a skill set that can be nurtured over time.

Study limitations

Some limitations of the study are worth noting. The first limitation refers to a small number of participants which are all from the same elementary school. Secondly, the point of measurement was for the 7th grade for 58 participants and the 8th grade for 83 participants. Although both 7th and 8th grades are final grades of elementary school, future studies should have larger number of participants in order to make separate statistical analyses for each group of participants. These separate analyses would give additional insight and facilitate the investigation into the relationship between the study variables in specific time frames. The third limitation concerns the modification of the classical Mischel's paradigm. While classic paradigm leaves the child alone in temptation to give up on waiting and have just one candy, this research asked of children to take one candy immediately or wait for an unspecified amount of time while doing some tasks. In other words, a child cannot give up at any moment and was not alone in this period of time, but has only to decide whether to prefer a smaller award immediately or a larger award in the long run. This deviation from the standard procedure may have an effect on the research results, regarding that delay of gratification, as assessed in this research, had a somewhat lower threshold than in the classic paradigm.

It should also be noted that emotional intelligence in this study was conceptualized as a trait and assessed with a questionnaire. Thus, the results cannot be generalized to the role of emotional intelligence conceptualized as ability.

Finally, it should be mentioned that the data on emotional intelligence and life satisfaction were collected only in the second point of measurement, and the data on the delay of gratification at the first point of measurement. So, this study is not strickly a longitudinal study, but a study about later correlates of DoG at preschool time.

Conclusions

However, according to our knowledge, this is the first study which investigates the role of delay of gratification at preschool age and subsequent quality of school life and emotional intelligence at the end of elementary school. Moreover, this is the first study showing the mediating role of some components of emotional intelligence in the relationship between delay of gratification and subsequent perceived school achievement and life satisfaction.

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Jedan bombon ili dva u dobi od šest godina: ima li važnosti za kasniji školski život i zašto?

Sažetak

U ovom istraživanju ispitivala se ulogu rane odgode zadovoljenja i njezine pozitivne ishode u kasnijem djetetovom životu. Više specifično, nastojalo se utvrditi je li izmjerena odgoda zadovoljstva šestogodišnjaka predviđa njihovu kasniju emocionalnu inteligenciju, kvalitetu školskoga života i zadovoljstva životom u višim razredima osnovne škole. Osim toga, nastojala se istražiti posrednička uloga emocionalne inteligencije u odnosu između odgode zadovoljenja u predškolskoj dobi i kasnije kvalitete školskoga života i životnoga zadovoljstva životom.

Uzorak je uključivao 141 učenika (48,2 % djevojčica). Odgoda zadovoljenja izmjerena je u populaciji šestogodišnjaka; drugo mjerenje za jedan dio uzorka učinjeno je u sedmom, a za drugi dio uzorka u osmom razredu. Odgoda zadovoljenja izmjerena je zadatkom odgode zadovoljenja: djeca su imala priliku pojesti jedan primamljiv slatkiš odmah ili su mogla odabrati više slatkiša ako čekaju određeno vrijeme, dok rade zadatke procjene. Ostali mjerni instrumenti bili su Skala emocionalne inteligencije (Wong i Low, 2002), Upitnik o kvaliteti školskog života (Leonard, 2002; Raboteg Šarić i sur., 2009) i Skala učeničkog zadovoljstva životom (Huebner, 1991).

Rezultati istraživanja pokazuju da su učenici koji su uspjeli odgoditi zadovoljenje u predškolskoj dobi kasnije bili zadovoljniji životom, imali veći osjećaj akademskoga postignuća i višu emocionalnu inteligenciju (upotreba emocija za olakšavanje izvedbe i unutarnje regulacije emocija). Analize medijacije polučile su rezultate koji govore u prilog tome da je cjelokupna emocionalna inteligencija posrednik u odnosu između odgode zadovoljenja i životnoga zadovoljstva. Osim toga, sastavnica emocionalne inteligencije koja olakšava izvedbu smatra se značajnim posrednikom između odgode zadovoljenja i percepcije važnosti školskoga postignuća.

Može se zaključiti da jačanje regulatornih mehanizama u predškolskoj dobi može biti korisno za oboje - zadovoljstvo životom i doživljaj smisla postignuća u višim razredima osnovne škole.

Ključne riječi: *emocionalna inteligencija; kvaliteta školskoga života; odgođeno zadovoljenje; zadovoljstvo životom.*