International Journal of Learning, Teaching and Educational Research
Vol. 21, No. 5, pp. 428-445, May 2022
https://doi.org/10.26803/ijlter.21.5.21
Received Feb 13, 2022; Revised May 8, 2022; Accepted May 31, 2022

Life Satisfaction among Adolescents: Comparison of Adolescents Attending Music and Sports Programs and Those Who Do Not

Zrinka Šimunović*
Department of Social Sciences and Humanities, University of Slavonski Brod, Croatia

Diana Olčar
University of Zagreb, Faculty of Teacher Education, Croatia

Abstract. Life satisfaction is the self-evaluation of the individual's quality of life and the expectations they have of their life. Adolescence is a sensitive period during which life satisfaction very often declines. Previous research has confirmed the positive relationship between life satisfaction and attendance of extracurricular activities. This paper examines the differences in life satisfaction among adolescents who attend music and sports programs and those who do not. Furthermore, it examines the differences in life satisfaction as related to age and gender. A sample comprising 460 Croatian adolescents (aged 15−19 years) participated in the study. Respondents completed the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS), which assesses life satisfaction in relation to five life domains. The results of a three-way analysis of variance (ANOVA) indicated a significant difference in the life satisfaction between respondents attending music and sports programs and those who do not ($F = 9.11$; $p < .001$). A Scheffe post-hoc test revealed that respondents attending both music and sports programs had higher rates of life satisfaction than those who are not enrolled in such extracurricular activities. Furthermore, younger and older respondents did not show differences in life satisfaction, although there was a difference between boys and girls in overall life satisfaction ($F = 5.035$; $p = .025$), with boys having a higher rate of life satisfaction than girls. This paper suggests the importance of encouraging and promoting music and sports education among children and adolescents.

Keywords: adolescence; BMSLSS; gender; life satisfaction; music; sports

*Corresponding author: *Zrinka Šimunović, zsimunovic@unisb.hr*

1. Introduction

We are living in an age of rapid changes caused by growing technological development and unforeseen challenges, which greatly affect personal and social life. Research has shown that life satisfaction decreases considerably during adolescence (Daly, 2022; Goldbeck et al., 2007; Jebb et al., 2020). Casey et al. (2008) defined adolescence as a "developmental period characterized by suboptimal decisions and actions that are associated with an increased incidence of unintentional injuries, violence, substance abuse, unintended pregnancy, and sexually transmitted diseases" (p. 111). Others have referred to adolescence as being a sensitive period for brain development (Blakemore & Mills, 2014; Fuhrmann et al., 2015). Owing to this, it is important to discover and become aware of what activities and environments are potentially positive reinforcements for the physical and psychological health of adolescents.

1.1 Previous Research

Life satisfaction involves a cognitive assessment of an individual's overall quality of life (Diener & Tov, 2012) and is an indicator of an individual's general happiness and well-being (Chen et al., 2020). Diener and Ryan (2009) claimed that life satisfaction can be viewed from two perspectives: the "bottom-up" or ascending perspective and "top-down" or descending perspective. According to the global or descending theory, individuals experience their own happiness and life satisfaction by evaluating all areas of life that are important to them. However, according to the ascending theory, the degree of happiness can be measured by the sum of momentary joys and sorrows experienced. In the global or downward approach, it has been shown that life satisfaction is not the arithmetic mean of satisfaction with all areas of life, but that there are differences depending on which area individuals attach more importance to. When assessing life satisfaction, happy people will indicate areas with which they are satisfied, whereas unhappy people will emphasize areas with which they are dissatisfied (Diener et al., 2002). Similarly, current ratings of life satisfaction can be influenced by current circumstances, such as the weather (Barrington-Leigh & Behzadnejad, 2017), suggesting that the current timing can influence personal ratings of life satisfaction. Although the timing and methods of assessment can sometimes cause individuals to make errors, they generally use stable and important information from which stable and meaningful assessments emerge (Diener et al., 2003).

Life satisfaction research has largely focused on surveys involving adults and the elderly. Still, adolescence is a sensitive period of life often characterized by increased risk-taking, heightened sensitivity to peer influence (Andrews et al., 2020), and brain development (Blakemore & Mills, 2014; Fuhrmann et al., 2015). Therefore, it is an important period of life filled with many changes and challenges. Through the study of psychological development during adolescence, life satisfaction has been shown to be a relevant factor that follows adolescents' psychological, biological, cognitive, and social changes and can be used as an indicator of success in navigating these changes (Moksnes & Espnes, 2013). Important research on life satisfaction among adolescents has shown that during the period of adolescence there is a decline in life satisfaction (Chang et al., 2003; Daly, 2022; Goldbeck et al., 2007; Jebb et al., 2020; Park, 2005; Soares et al., 2019;

Suldo & Huebner, 2004). Studies carried out on Croatian adolescents have indicated the same pattern, that there is greater satisfaction during childhood life as well as expected satisfaction for future life among younger adolescents (Penezić, 2006).

Certain life domains correlate significantly with adolescents' overall life satisfaction. These include the quality of parental and peer relationships (Gilman & Huebner, 2006; Lewis et al., 2011), the family and school atmosphere (Cavallo et al., 2015), school experience (Danielsen et al., 2009; Gilman & Huebner, 2006), the self (Moksnes & Espnes, 2013; Proctor et al., 2008; Suldo & Huebner, 2006), and the living environment (Homel & Burns, 1989). An active and meaningful life, full of goals that provide a sense of accomplishment and independence, has been closely linked to the life satisfaction of adolescents (Brdar & Anić, 2010; Chinman & Linney, 1998; Csikszentmihalyi & Hunter, 2003). Adolescents are happy when they engage in chosen activities outside regular school that are well timed and carefully scaffolded (McFerran et al., 2018) and give them a sense of self-control (Laiho, 2004). In Gilman's (2001) study, social interest and participation in extracurricular activities were strongly related to life satisfaction among adolescents.

Adolescence is a specific life period of intense physical and psychological changes in which the differences between genders become increasingly pronounced. Therefore, differences in the level of satisfaction with certain areas of life are expected, as confirmed by some research (Aymerich et al., 2021; Bisegger et al., 2005; Chen et al., 2020; Daly, 2022; Diener & Diener, 2009; Goldbeck et al., 2007; Moksnes et al., 2012). Still, some studies have shown that there is no difference in life satisfaction regarding gender (Garcia et al., 2017; Suldo et al., 2015).

One of the contributors to life satisfaction is the type of activities that a person chooses to invest their time in. Musical activities are among the most prevalent and important activities in the general population (Lamont et al., 2016). The music we listen to and perform reveals who we are, identifies us, and distinguishes us from others, becoming our identity card, a means of presentation, and ultimate identity (Hargreaves et al., 2002). This connection is especially strong during a psychologically sensitive period such as adolescence, because music can then provide emotional stability and comfort (Miranda & Gaudreau, 2011), and extracurricular musical activities can boost self-confidence and self-esteem (Hallam, 2015).

Sports activity is most often an organized activity that adolescents engage in (Mahoney et al., 2006; Markuš et al., 2008) and is related to adolescents' psychosocial and educational development (Zaff et al., 2003). The results of research by Csikszentmihalyi and Wong (1991) showed that adolescents are happiest when they play sports and sports games. Physical activity leads not only to better health but also to a happier life and fewer depressive symptoms (Gómez-Baya et al., 2020). It has also been associated with socialization and development of communication and collaboration skills that again lead to a more fulfilling life (Huang & Humphreys, 2012). A number of studies have linked the lack of

physical activity to a reduced level of life satisfaction (Gómez-Baya et al., 2020; Piko & Keresztes, 2006; Poulsen et al., 2006), while physical activity is related to high life satisfaction and well-being (Gómez-Baya et al., 2018; Kleszczewska et al., 2018).

1.2 Current Study

Most research on well-being has focused on the adult population, with only a small number of studies covering the population of children and adolescents (Marquez & Long, 2021). At the current time, special attention should be paid to children and young people due to their sensitive life periods. They are even more vulnerable to the negative consequences of changes brought about by technology and the current Covid-19 pandemic. Research carried out by Cohen et al. (2021) identified several factors that may play an important protective role in adolescents' lives during times of crisis, such as the pandemic. One of these factors is involvement in positive activities. Focus should be placed on these activities, becoming aware of their values and strengths to achieve self-satisfaction and life satisfaction.

The aim of this study was to examine differences in life satisfaction between adolescents who attend music and sports programs and those who do not, and whether these differences might be related to age and gender. As such, the following hypotheses were made:

H1: There is a statistically significant difference in life satisfaction between adolescents who attend music and sports programs and those who do not, with the assumption that those who attend music and sports programs have greater life satisfaction than those who do not.

H2: There is a statistically significant difference in life satisfaction between younger and older students, with the assumption that older students have greater life satisfaction than younger students.

H3: There is a statistically significant difference in life satisfaction between genders, with the assumption that male students have greater life satisfaction than female students.

2. Methodology

2.1 Respondents

The respondents for this study were enrolled in secondary schools (Grades 9 to 12) in Croatia and were selected through their schools. The schools that were included were grammar schools with a general program, a sports grammar school which has a general program with emphasis placed on sports, and a music school which students attend besides basic education. The sampling technique was purposive sampling. The criterion for selecting schools was to reach students who attend music and sports programs in addition to their general education, and to obtain a control group comprising students who do not attend such programs. We tried to include about one class (around 30 students) from each generation. However, as secondary music schools (which students attend outside school hours) have fewer students, we had to include three music schools in the sample

to get approximately the same sample as the number of students attending sports programs.

In total, 496 questionnaires were distributed, out of which 460 were returned and included in the study (response rate: 92.74%). The respondents were thus 460 students, comprising 167 boys and 293 girls aged 15 to 19 years. The mean age of the respondents was 17.2 years (SD = 1.07). On the basis of how many hours students spend in a study program, respondents were put in one of a few categories. To be put in a category of music or sports program, respondents had to be involved in that program for at least 10 hours per week. The final sample thus consisted of 102 respondents (23%) enrolled in a music program (hereinafter: musicians) and 178 (38%) enrolled in a sports program (hereinafter: athletes). Of the remaining respondents, 147 (32%) attended neither music nor sports programs (hereinafter: control group) and 33 (7%) attended both music and sports programs (hereinafter: musicians-athletes). The sociodemographic data of the respondents are presented in Table 1.

Table 1: Sociodemographic profile of the respondents

Sociodemographic variables	n	%
Age		
15 years	55	12
16 years	106	23
17 years	175	38
18 years	101	22
19 years	23	5
Gender		
Male	167	36.3
Female	293	63.7
Profile of respondents		
Musicians	102	23
Athletes	178	38
Musicians-athletes	33	7
Control group	147	32

2.2 Research Procedure

This study was approved by the Institutional Ethics Committee of the Faculty of Teacher Education in Zagreb, Croatia. After written permits for the implementation of the research had been obtained from the principals of all participating schools, parental consent was sought and received for students under 16 years of age.

The survey was conducted during regular school classes (45 minutes). Participation in the survey was voluntary and anonymous.

2.3 Research Instruments

In addition to collecting sociodemographic data about the study respondents, the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS) (Seligson et al., 2003) was used (Appendix 1). The BMSLSS is a measure that assesses satisfaction concerning each of the following five life domains: family life, friendships, school

experiences, self, and living environment. The average value is calculated for all items and represents overall life satisfaction. Higher scores indicate greater life satisfaction. This scale includes five items which students rate on a 7-point Likert scale (ranging from *very dissatisfied* to *very satisfied*). The BMSLSS has previously demonstrated strong psychometric properties on international samples (Huebner et al., 2004). Furthermore, it has already been used on Croatian adolescents and has shown adequate psychometric properties (Brdovčak et al., 2018; Merkaš & Brajša-Žganec, 2011). The Cronbach alpha reliability coefficient for this study was 0.8.

2.4 Statistical Analysis

The research design of the study was cross-sectional correlational research. All statistical analyses were carried out using IBM SPSS Statistics, version 20.0. Descriptive statistics of frequencies, means, and standard deviations were calculated. Subsequently, a three-way analysis of variance (ANOVA) was performed to examine if there are differences in life satisfaction related to age and gender, respectively, and involvement in a music or sports program. This analysis also sought to examine if there is interaction between age and gender, respectively, and involvement in a music or sports program. The differences between the mean values of the groups were compared using the Scheffe post-hoc test.

3. Results

Based on the collected and processed data, Table 2 shows the descriptive values of the life satisfaction variable. Higher scores indicate a higher level of life satisfaction.

Table 2: Descriptive statistics for the variable life satisfaction across different groups

		n	M	SD	Range	Max. range	Skewness	Kurtosis
Group	Musicians	102	5.06	.86	3–7	1–7	-.27	-0.52
	Athletes	178	5.35	.92	2.6–7	1–7	-.31	0.09
	Control group	147	4.74	.84	2.4–7	1–7	-.26	0.08
	Musicians-Athletes	33	5.30	.69	3.6–7	1–7	-.09	1.14
Age	Younger	300	5.04	.89	2.8–7	1–7	-.22	-0.44
	Older	160	5.11	.90	2.4–7	1–7	-.39	0.02
Gender	Boys	167	5.09	.82	2.4–7	1–7	-.49	0.90
	Girls	293	4.81	.83	2.4–6.6	1–7	-.26	-0.37

As can be seen in Table 2, respondents were mildly to moderately satisfied with their lives. Life satisfaction varied slightly between respondents who attended music and sports programs and those who did not (e.g. control group – M = 4.74; SD = .84; athletes – M = 5.35; SD = .92). In terms of age, there were no big differences in life satisfaction (younger respondents – M = 5.04; SD = .89; older respondents – M = 5.11; SD = .90). It can also be seen that the boys had a higher level of life satisfaction than the girls (boys – M = 5.09; SD = .82; girls – M = 4.81; SD = .83).

To examine if there were differences in life satisfaction related to attending a music or sports program and age and gender, a three-way ANOVA was conducted. The results are presented in Table 3.

Table 3: Results of the three-way ANOVA

	Sum of squares	df	Mean square	F	*p*
Corrected model	42.405	15	2.827	3.790	0
Intercept	6156.352	1	6156.352	8253.121	0
Group	20.375	3	6.792	9.105	0
Gender	3.756	1	3.756	5.035	.025
Age	0	1	0	0	.991
Group * Gender	0.791	3	0.264	0.353	.787
Group * Age	0.488	3	0.163	0.218	.884
Gender * Age	0.135	1	0.135	0.181	.671
Group * Gender * Age	2.036	3	0.679	0.910	.436
Error	329.706	442	0.746		
Total	12227.640	458			
Corrected total	372.112	457			

R^2 = .114

Note. Category "group" refers to whether the respondents attended music and sports programs or not

As can be seen in Table 3, there was a significant difference between respondents attending music and sports programs and those who do not (F = 9.11; $p < .001$). Still, for *hypothesis 1* to be supported or rejected, post-hoc tests need to be performed to examine which groups differed significantly in life satisfaction. The difference between the mean values of the groups was examined with the Scheffé post hoc test (Table 4).

Table 4: Results of the Scheffé post-hoc test of multiple comparisons of arithmetic means for the dependent variable life satisfaction

Dependent variable	Group (A)	Group (B)	Mean difference	Std. error	*p*
Life satisfaction	Musicians	Athletes	-.29	.11	.06
		Control group	.31*	.11	.05*
		Musicians-athletes	-.24	.17	.57
	Athletes	Control group	.60*	.1	0
		Musicians-athletes	.05	.16	.99
	Control group	Musicians-athletes	-.56*	.17	.01

Note. *$p < .05$

The post-hoc testing revealed a statistically significant difference between the control group and the three experimental groups (p = .05, .01, and .00, respectively), which indicates a lower level of life satisfaction in the control group (M = 4.74) compared to the athletes (M = 5.35), musicians (M = 5.06), and

musicians-athletes (M = 5.30). There was no statistically significant difference in life satisfaction between the musicians-athletes, athletes, and musicians. It can thus be concluded that students who are not enrolled in music and sports programs have lower life satisfaction than those who are, and that there is no difference in life satisfaction between students who are enrolled in a music or a sports program or both. This means that *hypothesis 1* is supported.

Next, for hypothesis 2, we assumed that the older respondents would have greater life satisfaction than the younger respondents. As can be seen in Table 3, although there were slight differences in life satisfaction related to age, life satisfaction did not differ significantly between groups. In our study, younger respondents (15 and 16 years old) and older respondents (17–19 years old) did not show differences in life satisfaction. From this we can conclude that *hypothesis 2* is rejected.

Finally, for hypothesis 3, it was assumed that male respondents would have greater life satisfaction than female respondents. In Table 3 can be seen that life satisfaction differed significantly in terms of gender ($F = 5.035$; $p = 0.025$), with boys having a higher level of life satisfaction than girls (M = 5.09; SD = .82 and M = 4.81; SD = .83, respectively). This means that *hypothesis 3* is supported.

Furthermore, we examined if age and gender, respectively, significantly correlated with involvement in a music or sports program. We found that interaction between these variables was not statistically significant.

3. Discussion

The need for research in positive psychology on the topic of the promotion of mental health is particularly relevant for the sensitive period of adolescence. As one of the constructs of positive psychology, research has linked life satisfaction with personal, behavioral, psychological, and social outcomes (Proctor et al., 2008). Adolescents who lead meaningful and active lives filled with challenges that require them to use and develop skills experience greater subjective well-being and more positive emotions and are more satisfied with life and generally happier (Brdar & Anić, 2010; Chinman & Linney, 1998; Csikszentmihalyi & Hunter, 2003). This study examined the life satisfaction of adolescents who are enrolled in music and sports programs and those who are not, as well as the possible differences in the level of their life satisfaction in terms of age and gender.

The results of the study confirmed the first hypothesis and the results of previous research (Creech et al., 2014; Hargreaves et al., 2002), which assumed that there are statistically significant differences in life satisfaction between adolescents who attend music and sports programs and those who do not. These obtained results were expected, given that the respondents of the musician and athlete groups attended well-structured and content-rich music and sports programs where they spend most of their free time. By expressing their personal talents and skills, young people develop personal strengths and abilities and foster social relationships. One of the positive consequences of this is the growth of general life

satisfaction (Gilman, 2001; Mahoney & Cairns, 1997; Ryan, 2000; Vecchio et al., 2007). Studies have found a link between a meaningful and active life filled with challenges that require adolescents to use and develop skills and higher levels of subjective well-being, more positive emotions, and greater life satisfaction (Brdar & Anić, 2010; Csikszentmihalyi & Hunter, 2003; Feraco et al., 2022). Athletes and musicians constantly evaluate their skills and talents and check their progress through various competitions (Gómez-Baya et al., 2018; Vidulin, 2020; Yilmaz et al., 2018). Exposure to competitions in which their abilities and performance are assessed, being involved in team sports in which team spirit is best expressed, emotional balance that develops with the support of socially sensitive peers, and achieving previously set goals certainly contribute to raising the level of life satisfaction.

Respondents who participated in structured musical activities showed a higher level of life satisfaction, which is in line with the results of the meta-analysis carried out by Creech et al. (2014). The results were not surprising, considering that music plays a significant role in human life, but especially at this developmental stage. Adolescence is a time of increased physical, emotional, psychosocial, and cognitive changes, and music can serve as a means by which these changes are more easily experienced and carried through life (Blakemore & Mills, 2014; Fuhrmann et al., 2015). The choice of music is related to identity and connection with society and the environment as well as with oneself. Music helps a young person actively engage in building emotional stability and in meeting basic emotional needs (Miranda & Gaudreau, 2011). Structured musical activities also provide a step beyond the emotional support that young people so desperately need in their development. Purposeful activities with a clearly defined schedule, program, and achievable goals of a young person's choice provide meaning, value, and a sense of accomplishment and success in life. Even though these activities are related to music, as referred to in previous research (McFerran et al., 2018), they can be expected to have an impact on psychological well-being and therefore life satisfaction in young people (Hargreaves et al., 2002).

Physical activity influences well-being directly and leads to a healthier lifestyle, but sport is also associated with socialization and the development of communication and collaborative skills that again lead to a more fulfilling life (Huang & Humphreys, 2012). Participation in sports activities is related to higher levels of life satisfaction (Gómez-Baya et al., 2018; Vilhjalmsson & Thorlindsson, 1998), lower levels of depression and suicidal behavior (Barber et al., 2001; Gómez-Baya et al., 2020), and higher self-esteem (Kleszczewska et al., 2018), along with other positive outcomes. Therefore, it is critical to include adolescents in activities which lead to a healthy body and mind, as adolescence is a period characterized by risky behavior (Blakemore & Mills, 2014; Fuhrmann et al., 2015) and "suboptimal decisions and actions" (Casey et al., 2008, p. 111).

The second hypothesis states that older students have greater life satisfaction than younger students. This was, however, not confirmed by our results. Previous studies have shown that adolescence is a period of life in which life satisfaction declines (Hutchinson et al., 2004; Jebb et al., 2020). This decline is greatest in early

adolescence (Orben et al., 2020), which can be related to the specifics of this period of life. This includes social reorientation (Majorano et al., 2015), the transition to a new educational level and a new school, as well as the major psychological and physical changes that adolescence brings about (Fuhrmann et al., 2015). Still, our results are consistent with those of the study Huebner et al. (2004) carried out on adolescents. They conducted a large-scale survey and did not find any differences in life satisfaction among students aged 14 to 18 years either. The study by Willroth et al. (2021), which examined life satisfaction among adolescents aged 14 to 17 years, found that the level of life satisfaction did not change significantly during this period. It is possible that these results are due to a specific sample. In our sample, the ages ranged between 15 and 19 years, which is a smaller range than in studies which prove the difference in the level of life satisfaction between younger and older adolescents (Chang et al., 2003; Goldbeck et al., 2007; Park, 2005; Penezić, 2006; Soares et al., 2019; Suldo & Huebner, 2004). In the period of central adolescence (14–18 years of age), one can notice the stabilization of social relations, the course of education, and developmental changes, which in some way justifies the results obtained in this study.

The results of the present study support the third hypothesis, which states that there are differences in the life satisfaction of adolescents regarding gender, with boys scoring higher than girls. These results are in line with previous studies (Bisegger et al., 2005; Chen et al., 2020; Diener & Diener, 2009; Goldbeck et al., 2007; Moksnes et al., 2012). These differences can be explained by earlier and more pronounced psychological and biological hormonal changes in girls than in adolescent boys, and girls' increased self-criticism of physical appearance and socially imposed notions of feminine beauty. It has been suggested that girls' reduced self-satisfaction results from the high expectations adolescents have of themselves in terms of appearance and social relationships (Chen et al., 2020; Goldbeck et al., 2007). Also, it is important to point out that girls show greater emotional sensitivity than boys, and they express emotional distress more often than boys during adolescence (Aymerich et al., 2021). Some studies have attributed this to the menstrual cycle as a common cause of anxiety and lower levels of life satisfaction (Griffiths et al., 2017).

4. Limitations and Directions for Future Research

A limitation of this study was the representativeness of the sample. A larger number of respondents, which would include both younger and older adolescents, could have implications for statistically significant outcomes in terms of age. This is because previous studies have shown that the difference in life satisfaction among adolescents is visible only in a larger age range of participants. The possibility of comparing the enrolment in music and sports education in primary school, high school, and college would provide new results on the relationship between age, music and sports education, and life satisfaction. A broader longitudinal study could provide a broader picture of the variables involved in measuring life satisfaction among adolescents attending music and sports programs. It is possible to assume that other extracurricular activities that students spend most of their free time on would also be positively associated with

life satisfaction. Therefore, it would be good to include these activities in future research.

Furthermore, some of the groups of respondents in this study were not completely equal in terms of gender and study field. The sample consisted of a larger number of female respondents (64%) compared to male respondents (36%) and a larger number of athletes compared to musicians and the control group. There is a possibility that harmonization of these quotas might affect the findings.

5. Conclusion

Adolescence is a very sensitive period during which young people experience many changes. Not only do their bodies change, but there are also many psychological changes. Previous studies have shown that all these changes and turmoil lead to lower self-esteem (Gardner & Lambert, 2019), which can lead to proneness to depression (Zhou et al., 2020). Therefore, it is important to do research about adolescents' life satisfaction and factors that can contribute to it.

The findings of the study suggest greater life satisfaction among adolescents who are enrolled in sports and music activities. We suppose this is because these activities are not focused solely on traditionally academic activities, but they also develop broader skills and competencies. Through these activities, adolescents can fulfil their talents, make new friendships, and learn new things. These all lead to living a more fulfilling and meaningful life, filled with flow experiences (Csikszentmihalyi & Hunter, 2003).

Furthermore, our results showed no difference in life satisfaction between younger and older respondents. However, there was a difference in life satisfaction between the participating adolescent girls and boys, with the boys exhibiting a higher level of life satisfaction than the girls.

Although this research has its limitations and needs to be confirmed on a larger sample of respondents, it contains some implications for those concerned with young people's health and well-being. Structured and planned activities related to music and sports, which are important for emotional and spiritual development during adolescence, can contribute to life satisfaction, school performance, and the self. This consequently affects both the individual development of the young person and the development of society as a whole. Awareness of and attaching importance to well-spent and organized free time is regulated by the family, school, local community, and the media. These stakeholders are also responsible for the development of interest, motivation, and the creation of favorable conditions for the realization of extracurricular activities. Given the changes in the educational system in terms of relieving students of workload and attaching importance to interesting work programs, we can expect an increase in the amount of free time among the school population. Therefore, as a society, we are responsible for carrying out activities to popularize quality music and sports programs, so that our young people can acquire healthy habits that they can use as lifelong learning.

6. Compliance with Ethical Standards

Funding
The study received financial support for publication from the University of Slavonski Brod and the University of Zagreb.

Conflict of Interest
On behalf of all the authors, the corresponding author states that there is no conflict of interest.

Data Availability
The data that support the findings of this study are available from the corresponding author on request.

Ethical Approval
All procedures performed were in accordance with the ethical standards of the institutional and/or national research committees and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent
Informed consent was obtained from all individual respondents included in the study.

7. References

Andrews, J. L., Foulkes, L., & Blakemore, S. J. (2020). Peer influence in adolescence: Public-health implications for Covid-19. *Trends in Cognitive Sciences*, *24*(8), 585-587. https://doi.org/10.1016/j.tics.2020.05.001

Aymerich, M., Cladellas, R., Castelló, A., Casas, F., & Cunill, M. (2021). The evolution of life satisfaction throughout childhood and adolescence: Differences in young people's evaluations according to age and gender. *Child Indicators Research*, *14*(6), 2347-2369. https://doi.org/10.1007/s12187-021-09846-9

Barber, B. L., Eccles, J. S., & Stone, M. R. (2001). Whatever happened to the jock, the brain, and the princess? Young adult pathways linked to adolescent activity involvement and social identity. *Journal of Adolescent Research*, *16*(5), 429-455. https://doi.org/10.1177/0743558401165002

Barrington-Leigh, C., & Behzadnejad, F. (2017). The impact of daily weather conditions on life satisfaction: Evidence from cross-sectional and panel data. *Journal of Economic Psychology*, *59*, 145-163. https://doi.org/10.1016/j.joep.2017.01.003

Bisegger, C., Cloetta, B., Von Bisegger, U., Abel, T., & Ravens-Sieberer, U. (2005). Health-related quality of life: Gender differences in childhood and adolescence. *Sozial- und Präventivmedizin SPM*, *50*(5), 281-291. https://doi.org/10.1007/s00038-005-4094-2

Blakemore, S. J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology, 65*, 187-207. https://doi.org/10.1146/annurev-psych-010213-115202

Brdar, I., & Anić, P. (2010). Životni ciljevi, orijentacije premasreći i psihološke potrebe adolescenata: Koji je najbolji put do sreće? [Adolescents' life goals, orientations to happiness and psychological needs: Which is the best path to happiness?]. *Psihologijske Teme*, *19*(1), 169-187. https://hrcak.srce.hr/56834

Brdovčak, B., Merkaš, M., & Šakić Velić, M. (2018). Uloga nade i samopoštovanja u odnosu ekonomskoga pritiska i zadovoljstva životom adolescenata [The role of hope and self-esteem in the relation between economic pressure and life satisfaction of

adolescents]. *Društvena Istraživanja: Časopis za Opća Društvena Pitanja*, *27*(1), 87-108. https://doi.org/10.5559/di.27.1.05

Cavallo, F., Dalmasso, P., Ottová-Jordan, V., Brooks, F., Mazur, J., Välimaa, R., Gobina, I., Gaspar de Matos, M., Raven-Sieberer, U., & Positive Health Focus Group. (2015). Trends in life satisfaction in European and North-American adolescents from 2002 to 2010 in over 30 countries. *European Journal of Public Health, 25*(2), 80-82. https://doi.org/10.1093/eurpub/ckv014

Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The adolescent brain. *Annals of the New York Academy of Sciences*, *1124*, 111-126. https://doi.org/10.1196/annals.1440.010

Chang, L., Mcbride-Chang, C., Stewart, S. M., & Au, E. (2003). Life satisfaction, self-concept, and family relations in Chinese adolescents and children. *International Journal of Behavioral Development*, *27*(2), 182-189. https://doi.org/10.1080/01650250244000182

Chen, X., Cai, Z., He, J., & Fan, X. (2020). Gender differences in life satisfaction among children and adolescents: A meta-analysis. *Journal of Happiness Studies*, *21*(6), 2279-2307. https://doi.org/10.1007/s10902-019-00169-9

Chinman, M. J., & Linney, J. A. (1998). Toward a model of adolescent empowerment: Theoretical and empirical evidence. *The Journal of Primary Prevention, 18*, 393-413. https://doi.org/10.1023/A:1022691808354

Cohen, Z. P., Cosgrove, K. T., DeVille, D. C., Akeman, E., Singh, M. K., White, E., Stewart, J. L., Aupperle, R. L., Paulus, M. P., & Kirlic, N. (2021). The impact of Covid-19 on adolescent mental health: Preliminary findings from a longitudinal sample of healthy and at-risk adolescents. *Frontiers in Paediatrics, 9*, 622608. https://doi.org/10.3389/fped.2021.622608

Creech, A., González-Moreno, P., Lorenzino, L., & Waitman, G. (2014, July 14–18). El Sistema and Sistema-inspired programmes: Principles and practices. In O. Odena, & S. Figueiredo (Eds.), *Proceedings of the 25th International Seminar of the ISME Commission on Research* (pp. 77-97). International Society for Music Education, João Pessoa, Paraíba, Brazil. https://www.isme.org/sites/default/files/documents/proceedings/2014-11-10%20ISME-RC-eBook.pdf#page=77

Csikszentmihalyi, M., & Hunter, J. (2003). Happiness in everyday life: The uses of experience sampling. *Journal of Happiness Studies*, *4*(2), 185-199. https://doi.org/10.1023/a:1024409732742

Csikszentmihalyi, M., & Wong, M. (1991). The situational and personal correlates of happiness: A cross-national comparison. In F. Strack, & M. Argyle (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 193-212). Pergamon Press. https://opus.bibliothek.uni-wuerzburg.de/frontdoor/index/index/docId/1849

Daly, M. (2022). Cross-national and longitudinal evidence for a rapid decline in life satisfaction in adolescence. *Journal of Adolescence*, *94*, 422–434. https://doi.org/10.1002/jad.12037

Danielsen, A. G., Samdal, O., Hetland, J., & Wold, B. (2009). School-related social support and students' perceived life satisfaction. *The Journal of Educational Research*, *102*(4), 303-320. https://doi.org/10.3200/joer.102.4.303-320

Diener, E., & Diener, M. (2009). Cross-cultural correlates of life satisfaction and self-esteem. In E. Diener (Ed.), *Culture and well-being* (pp. 71-91). Springer. https://doi.org/10.1007/978-90-481-2352-0_4

Diener, E., Lucas, R. E., Oishi, S., & Suh, E. M. (2002). Looking up and looking down: Weighting good and bad information in life satisfaction judgments. *Personality and Social Psychology Bulletin*, *28*(4), 437-445. https://doi.org/10.1177/0146167202287002

Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African Journal of Psychology*, *39*(4), 391-406. https://doi.org/10.1177/008124630903900402

Diener, E., Scollon, C. N., & Lucas, R. E. (2003). The evolving concept of subjective well-being: The multifaceted nature of happiness. *Advances in Cell Aging and Gerontology, 15,* 187-220. https://doi.org/10.1016/S1566-3124(03)15007-9

Diener, E., & Tov, W. (2012). National accounts of well-being. In K. Land, A. Michalos, & M. Sirgy (Eds), *Handbook of social indicators and quality of life research* (pp. 137-157). Springer. https://doi.org/10.1007/978-94-007-2421-1_7

Feraco, T., Resnati, D., Fregonese, D., Spoto, A., & Meneghetti, C. (2022). An integrated model of school students' academic achievement and life satisfaction: Linking soft skills, extracurricular activities, self-regulated learning, motivation, and emotions. *European Journal of Psychology of Education*, 1-22. https://doi.org/10.1007/s10212-022-00601-4

Fuhrmann, D., Knoll, L. J., & Blakemore, S. J. (2015). Adolescence as a sensitive period of brain development. *Trends in Cognitive Sciences*, *19*(10), 558-566. https://doi.org/10.1016/j.tics.2015.07.008

Garcia, D., Sagone, E., De Caroli, M. E., & Al Nima, A. (2017). Italian and Swedish adolescents: Differences and associations in subjective well-being and psychological well-being. *PeerJ*, *5*, e2868. https://doi.org/10.7717/peerj.2868

Gardner, A. A., & Lambert, C. A. (2019). Examining the interplay of self-esteem, trait-emotional intelligence, and age with depression across adolescence. *Journal of Adolescence*, *71*, 162-166. https://doi.org/10.1016/j.adolescence.2019.01.008

Gilman, R. (2001). The relationship between life satisfaction, social interest, and frequency of extracurricular activities among adolescent students. *Journal of Youth and Adolescence*, *30*(6), 749-767. https://doi.org/10.1023/a:1012285729701

Gilman, R., & Huebner, E. S. (2006). Characteristics of adolescents who report very high life satisfaction. *Journal of Youth and Adolescence*, *35*(3), 293-301. https://doi.org/10.1007/s10964-006-9036-7

Goldbeck, L., Schmitz, T. G., Besier, T., Herschbach, P., & Henrich, G. (2007). Life satisfaction decreases during adolescence. *Quality of Life Research*, *16*(6), 969-979. https://doi.org/10.1007/s11136-007-9205-5

Gómez-Baya, D., Calmeiro, L., Gaspar, T., Marques, A., Loureiro, N., Peralta, M., Mendoza, R., & Gaspar de Matos, M. (2020). Longitudinal association between sport participation and depressive symptoms after a two-year follow-up in mid-adolescence. *International Journal of Environmental Research and Public Health, 17*(20), 7469. https://doi.org/10.3390/ijerph17207469

Gómez-Baya, D., R. Mendoza, R., & Tomico, A. (2018). The prospective relationship of sport and physical activity with life satisfaction after a one-year follow-up: An examination of gender differences during mid-adolescence. *Cuadernos de Psicologíadel Deporte*, *18*(2), 169-186. https://revistas.um.es/cpd/article/view/302711

Griffiths, S., Murray, S. B., Bentley, C., Gratwick-Sarll, K., Harrison, C., & Mond, J. M. (2017). Sex differences in quality of life impairment associated with body dissatisfaction in adolescents. *Journal of Adolescent Health*, *61*(1), 77-82. https://doi.org/10.1016/j.jadohealth.2017.01.016

Hallam, S. (2015). *The power of music: A research synthesis of the impact of actively making music on the intellectual, social and personal development of children and young people*. International Music Education Research Centre (iMerc).

Hargreaves, D. J., Miell, D., & MacDonald, R. A. (2002). What are musical identities, and why are they important. In R. A. MacDonald, D. J. Hargreaves, & D. Miell (Eds.), *Musical identities* (pp. 1-20). Oxford University Press. https://www.researchgate.net/profile/David-

Hargreaves4/publication/252461217_What_are_musical_identities_and_why_are_they_important/links/00b7d52976a1481d5a000000/What-are-musical-identities-and-why-are-they-important.pdf

Homel, R., & Burns, A. (1989). Environmental quality and the well-being of children. *Social Indicators Research, 21*(2), 133-158. https://doi.org/10.1007/bf00300500

Huang, H., & Humphreys, B. R. (2012). Sports participation and happiness: Evidence from US microdata. *Journal of Economic Psychology*, *33*(4), 776-793. https://doi.org/10.1016/j.joep.2012.02.007

Huebner, E. S., Suldo, S., Valois, R. F., Drane, J. W., & Zullig, K. (2004). Brief Multidimensional Students' Life Satisfaction Scale: Sex, race, and grade effects for a high school sample. *Psychological Reports*, *94*(1), 351-356. https://doi.org/10.2466/PR0.94.1.351-356

Hutchinson, G., Simeon, D. T., Bain, B. C., Wyatt, G. E., Tucker, M. B., & LeFranc, E. (2004). Social and health determinants of well-being and life satisfaction in Jamaica. *The International Journal of Social Psychiatry, 50*(1), 43–53. https://doi.org/10.1177/0020764004040952

Jebb, A. T., Morrison, M., Tay, L., & Diener, E. (2020). Subjective well-being around the world: Trends and predictors across the life span. *Psychological Science*, *31*(3), 293-305. https://doi.org/10.1177/0956797619898826

Kleszczewska, D., Dzielska, A., Salonna, F., & Mazur, J. (2018). The association between physical activity and general life satisfaction in lower secondary school students: The role of individual and family factors. *Community Mental Health Journal*, *54*(8), 1245-1252. https://doi.org/10.1007/s10597-018-0309-x

Lamont, A., Greasley, A., & Sloboda, J. (2016). Choosing to hear music: Motivation, process, and effect. In S. Hallam, I. Cross, & M. Thaut (Eds.), *The Oxford handbook of music psychology* (pp. 711-724). Oxford University Press. https://psycnet.apa.org/record/2016-08556-043

Laiho, S. (2004). The psychological functions of music in adolescence. *Nordic Journal of Music Therapy*, *13*(1), 47-63. https://doi.org/10.1080/08098130409478097

Lewis, A. D., Huebner, E. S., Malone, P. S., & Valois, R. F. (2011). Life satisfaction and student engagement in adolescents. *Journal of Youth and Adolescence*, *40*(3), 249-262. https://doi.org/10.1007/s10964-010-9517-6

Markuš, D., Andrijašević, M. N., & Prskalo, I. (2008). Tjelesna aktivnost maturanata [Physical activity of high school seniors]. *Odgojne Znanosti*, *10*(2 (16)), 349-367. https://hrcak.srce.hr/29574

Marquez, J., & Long, E. (2021). A global decline in adolescents' subjective well-being: A comparative study exploring patterns of change in the life satisfaction of 15-year-old students in 46 countries. *Child Indicators Research*, *14*(3), 1251-1292. https://doi.org/10.1007/s12187-020-09788-8

Mahoney, J. L., & Cairns, R. B. (1997). Do extracurricular activities protect against early school dropout? *Developmental Psychology*, *33*(2), 241-253. https://doi.org/10.1037/0012-1649.33.2.241

Mahoney, J. L., Harris, A. L., & Eccles, J. S. (2006). Organized activity participation, positive youth development, and the over-scheduling hypothesis. *Social Policy Report*, *20*(4). https://eric.ed.gov/?id=ed521752

Majorano, M., Musetti, A., Brondino, M., & Corsano, P. (2015). Loneliness, emotional autonomy and motivation for solitary behavior during adolescence. *Journal of Child and Family Studies*, *24*(11), 3436-3447. https://doi.org/10.1007/s10826-015-0145-3

McFerran, K. S., Hense, C., Koike, A., & Rickwood, D. (2018). Intentional music use to reduce psychological distress in adolescents accessing primary mental health care. *Clinical Child Psychology and Psychiatry*, *23*(4), 567-581. https://doi.org/10.1177/1359104518767231

Merkaš, M., & Brajša-Žganec, A. (2011). Children with different levels of hope: Are there differences in their self-esteem, life satisfaction, social support, and family cohesion? *Child Indicators Research, 4*, 499-514. https://doi.org/10.1007/s12187-011-9105-7

Miranda, D., & Gaudreau, P. (2011). Music listening and emotional well-being in adolescence: A person- and variable-oriented study. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, *61*(1), 1-11. https://doi.org/10.1016/j.erap.2010.10.002

Moksnes, U. K., & Espnes, G. A. (2013). Self-esteem and life satisfaction in adolescents: Gender and age as potential moderators. *Quality of Life Research*, *22*(10), 2921-2928. https://doi.org/10.1007/s11136-013-0427-4

Moksnes, U. K., Løhre, A., & Espnes, G. A. (2012). The association between sense of coherence and life satisfaction in adolescents. *Quality of Life Research*, *22*, 1331-1338. https://doi.org/10.1007/s11136-012-0249-9

Orben, A., Lucas, R. E., Fuhrmann, D., & Kievit, R. (2020). Trajectories of adolescent life satisfaction [preprint]. https://doi.org/10.31234/osf.io/y8ruw

Park, N. (2005). Life satisfaction among Korean children and youth: A developmental perspective. *School Psychology International*, *26*(2), 209-223. https://doi.org/10.1177/0143034305052914

Penezić, Z. (2006). Zadovoljstvo životom u adolescentnoj i odrasloj dobi [Life satisfaction at adolescence and adulthood]. *Društvena Istraživanja – Časopis za Opća Društvena Pitanja*, *15*(84 + 85), 643-669. https://hrcak.srce.hr/10864

Piko, B. F., & Keresztes, N. (2006). Physical activity, psychosocial health, and life goals among youth. *Journal of Community Health*, *32*(2), 136-145. https://doi.org/10.1007/s10900-005-9004-2

Poulsen, A. A., Ziviani, J. M., & Cuskelly, M. (2006). General self-concept and life satisfaction for boys with differing levels of physical coordination: The role of goal orientations and leisure participation. *Human Movement Science*, *25*, 839-860. https://doi.org/10.1016/j.humov.2006.05.003

Proctor, C. L., Linley, P. A., & Maltby, J. (2008). Youth life satisfaction: A review of the literature. *Journal of Happiness Studies*, *10*(5), 583-630. https://doi.org/10.1007/s10902-008-9110-9

Ryan, A. M. (2000). Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school. *Educational Psychologist*, *35*(2), 101-111. https://doi.org/10.1207/S15326985EP3502_4

Seligson, J. L., Huebner, E. S., & Valois, R. F. (2003). Preliminary validation of the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS). *Social Indicators Research*, *61*(2), 121-145. https://doi.org/10.1023/a:1021326822957

Soares, A. S., Pais-Ribeiro, J. L., & Silva, I. (2019). Developmental assets predictors of life satisfaction in adolescents. *Frontiers in Psychology*, *10*, 236. https://doi:10.3389/fpsyg.2019.00236

Suldo, S. M., & Huebner, E. S. (2004). The role of life satisfaction in the relationship between authoritative parenting dimensions and adolescent problem behavior. *Social Indicators Research*, *66*(1), 165-195. https://doi.org/10.1023/B:SOCI.0000007498.62080.1e

Suldo, S. M., & Huebner, E. S. (2006). Is extremely high life satisfaction during adolescence advantageous? *Social Indicators Research*, *78*(2), 179-203. https://doi.org/10.1007/s11205-005-8208-2

Suldo, S. M., Minch, D. R., & Hearon, B. V. (2015). Adolescent life satisfaction and personality characteristics: Investigating relationships using a five factor model. *Journal of Happiness Studies*, *16*(4), 965-983. https://doi.org/10.1007/s10902-014-9544-1

Vecchio, G. M., Gerbino, M., Pastorelli, C., Del Bove, G., & Caprara, G. V. (2007). Multi-faceted self-efficacy beliefs as predictors of life satisfaction in late adolescence. *Personality and Individual Differences*, *43*, 1807-1818. https://doi.org/10.1016/j.paid.2007.05.018

Vidulin, S. (2020). Music teaching in regular class and extracurricular music activities in Croatia: State and perspectives. *Hungarian Educational Research Journal, 10*(2), 143-154. https://doi.org/10.1556/063.2020.00015

Vilhjalmsson, R., & Thorlindsson, T. (1998). Factors related to physical activity: A study of adolescents. *Social Science & Medicine*, *47*(5), 665-675. https://doi.org/10.1016/S0277-9536(98)00143-9

Willroth, E. C., Atherton, O. E., & Robins, R. W. (2021). Life satisfaction trajectories during adolescence and the transition to young adulthood: Findings from a longitudinal study of Mexican-origin youth. *Journal of Personality and Social Psychology*, *120*(1), 192-205. https://doi.org/10.1037/pspp0000294

Yilmaz, B., Gulnihal, G. U. L., & Engur, D. (2018). The effect of choral participation on middle school students' life satisfaction. *European Journal of Educational Research, 7*(4), 893-899. https://doi.org/10.12973/eu-jer.7.4.893

Zaff, J. S., Moore, K. A., Papillo, A. R., & Williams, S. (2003). Implications of extracurricular activity participation during adolescence on positive outcomes. *Journal of Adolescent Research*, *18*(6), 599-630. https://doi.org/10.1177/0743558403254779

Zhou, J., Li, X., Tian, L., & Huebner, E. S. (2020). Longitudinal association between low self-esteem and depression in early adolescents: The role of rejection sensitivity and loneliness. *Psychology and Psychotherapy: Theory, Research and Practice*, *93*(1), 54-71. https://doi.org/10.1111/papt.12207

Appendix 1

Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS) (Seligson et al., 2003)

1. I would describe my satisfaction with my family life as:
2. I would describe my satisfaction with my friendships as:
3. I would describe my satisfaction with my school experience as:
4. I would describe my satisfaction with myself as:
5. I would describe my satisfaction with where I live as:

Note: Response options are a 7-point scale: Terrible, Unhappy, Mostly Dissatisfied, Mixed (more or less equally satisfied and dissatisfied), Mostly Satisfied, Pleased, Delighted